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Perspectives on HIV Pre- and Post- Exposure Prophylaxes (PrEP and PEP) among Female and Male Sex Workers in Mombasa, Kenya: Implications for Integrating Biomedical Prevention into Sexual Health Services

Arjee J. Restar, MPH,

Department of Behavioral and Social Health Sciences, Brown School of Public Health, Brown University

Jack Ume Tocco, MPH, PhD,

HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University

Joanne E. Mantell, MS, MSPH, PhD,

HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University

Yves Lafor, MD, MPH,

International Center for Reproductive Health, Ghent University, Gent, Belgium

Peter Gichangi, MBCHB, MMED(O/G), Ph.D.,

International Centre for Reproductive Health, Kenya, Department of Human Anatomy, University of Nairobi, Department of Urogynecology, Ghent University, Belgium

Tsitsi B Masvawure, MS, PhD,

HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, Department of Sociology and Anthropology, College of the Holy Cross

Sophie Vusha Chabeda, MS, and

International Centre for Reproductive Health, Kenya

Theo G. M. Sandfort, PhD

HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University

Abstract

Pre- and post-exposure prophylaxis (PrEP and PEP) can reduce the risk of HIV acquisition, yet often are inaccessible to and underutilized by most-vulnerable populations, including sex workers in sub-Saharan Africa. Based on in-depth interviews with 21 female and 23 male HIV-negative sex

CORRESPONDING AUTHOR: Joanne E. Mantell, 1051 Riverside Drive, Unit 15, New York, NY 10032, Tel: +1 646-774-6951, jem57@cumc.columbia.edu.

PRESENTATIONS

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workers in Mombasa, Kenya, we found that awareness and knowledge of PrEP and PEP were low, although willingness to use both was high. Participants felt PrEP would be empowering and give added protection against infection, although some expressed concerns about side effects. Despite its availability, few knew about PEP and even fewer had used it, but most who had would use it again. Sex workers valued confidentiality, privacy, trustworthiness, and convenient location in health services and wanted thorough HIV/STI assessments. These findings suggest the importance of situating PrEP and PEP within sex worker-friendly health services and conducting outreach to promote these biomedical prevention methods for Kenyan sex workers.

Keywords

Pre-exposure prophylaxis (PrEP); post-exposure prophylaxis (PEP); HIV; sex work; Kenya; Africa

INTRODUCTION

Evidence-based HIV prevention strategies that address the epidemic among populations most vulnerable to infection are critical to epidemic control. Since the late 1990s, a 28-day course of oral post-exposure prophylaxis (PEP) has been prescribed in many countries in cases of occupational exposure to HIV and sexual assaults (World Health Organization and International Labour Organization, 2007). More recently, pre-exposure prophylaxis (PrEP) prescribed as a once-daily antiretroviral (ARV) formulation of emtricitabine and tenofovir disoproxil fumarate, has demonstrated efficacy in reducing incidence among adults at high risk of HIV infection through sex, including men who have sex with men (MSM) (Grant et al., 2010), women (Van Damme et al., 2012; Marrazzo et al., 2013), and serodiscordant couples (Baeten et al., 2012), when taken as prescribed. To date, oral PrEP has only been approved in 34 countries globally. Kenya and South Africa are the two countries in sub-Saharan Africa with demonstration projects serving at-risk adults (PrEP Watch, 2016; Gilead, 2016; European Medicines Agency, 2016).

Sex workers have become a focal population for the implementation of PrEP and PEP as a component of comprehensive sexual health care worldwide due to the multiple risk factors, such as multiple sexual partners and inconsistent condom use that increase their vulnerability to HIV infection (Shannon et al., 2015; USAID, 2013). Yet, many sex workers report experiencing stigma and discrimination in healthcare settings (Scorgie et al., 2013), which may erect barriers to their accessing sexual health services like PrEP and PEP. As such, targeted combination HIV prevention programs that incorporate the tailored use of ARVs for prevention in healthcare facilities with non-judgmental and anti-discriminatory practices are essential to achieving significant reductions in HIV incidence among most-at-risk populations such as sex workers (Beyrer et al. 2015, Scorgie et al., 2013). Eliminating HIV transmission from sex work would lower incidence globally by up to 66% in 20 years (UNAIDS, 2014).

In Kenya, adult HIV prevalence is estimated to be 5.6%, and there are concentrated epidemics among sex workers (29.3%) and MSM (18.2%) (Kenya AIDS Response Progress Report 2014; IBBS 2010). Although both sex work and homosexuality remain illegal, the

Kenyan government and civil and international partners support initiatives to provide these populations with sexual health services, including HIV prevention. PrEP guidelines in Kenya recognize engaging in transactional sex as an indication for PrEP (Ministry of Health [MOH], 2014a). Kenya has been the site of clinical trials and demonstration projects of daily oral PrEP in HIV-serodiscordant couples, adolescent and young women, MSM, and sex workers (Baeten et al., 2012; Van Damme et al., 2012; Van der Elst et al., 2013; Corneli et al., 2014; PEPFAR, 2014). A qualitative study with MSM and female sex workers who participated in a 4-month PrEP trial in 2011 found high acceptability but that alcohol use, mobility, and HIV stigma posed adherence challenges both in intermittent and daily PrEP doses (Van der Elst et al., 2013).

As one of only 34 countries worldwide to date that has approved PrEP, Kenya has moved more quickly than most other countries in its approval of PrEP. The Kenyan *National HIV Prevention Revolution Roadmap* to guide HIV programming through 2030 includes PrEP, and in December 2015, Kenya's Pharmacy and Poisons Board and its MOH approved PrEP for adults at high risk of HIV infection (MOH, 2014b; PrEPWatch, 2016). However, PrEP delivery and its integration with other HIV services have not yet been implemented, and sustained funding for PrEP scale-up remains uncertain (Kiragu, 2016; OPTIONS Consortium 2016; MOH 2016). PEP was approved in Kenya in 2001 to individuals who have been sexually assaulted, experienced condom breaks, and those occupationally exposed to blood, but it has not been sanctioned outside of these contexts (Siika et al., 2009). The few studies on PEP among sex workers in Kenya have shown continued low use and knowledge (Izulla et al., 2016; Olsthoorn et al., 2016).

Although PrEP and PEP hold promise as part of comprehensive HIV prevention for sex workers, and despite the limited studies on this topic in Kenya, important questions remain about what women and men who sell sex know about PrEP and PEP, the extent to which biomedical prevention options are desired and utilized, and why. Previous research has also insufficiently addressed how to expand access and maximize public health impact in the context of the challenges that sex workers face when accessing sexual health services. In this article, we present findings on female and male sex workers' (FSWs and MSWs, respectively) perspectives on PrEP and PEP and their experiences with HIV/STI healthcare services in Mombasa, Kenya. The data are part of the formative research for Boresha ('Improve', in Swahili), a venue-based structural intervention study, to guide development of a bar and nightclub-based HIV prevention intervention.

METHODS

Participants and procedures

Semi-structured qualitative interviews were conducted with FSWs and MSWs who solicited clients at 18 bars and nightclubs in Mombasa, Kenya, via convenience sampling. In this study, we collaborated with sex worker peer educators who helped identify and recruit participants. The purpose of the interviews was to inform the development of a multi-level risk-reduction intervention that includes peer-delivered education, distribution of condoms and lubricant, and an on-site sexual health service offering HIV/STI testing, counseling and care.

Participants were eligible for this study if they were: (1) 18 years old; (2) a regular patron of the venue, defined as attending 4 times per month; (3) had vaginal or anal intercourse at least once in the last three months with a paying client that they had met at the venue; (4) willing to be audio-recorded; and (5) visibly sober at the time of the interview. We interviewed 50 sex workers (25 FSWs and 25 MSWs), but analysis is limited to the 44 sex workers who reported being HIV-negative (21 FSWs and 23 MSWs) since the paper focuses on prevention strategies for HIV-negative people. Table 1 includes the participants' demographic data. The interview guide explored the context of HIV risk; barriers to and facilitators of risk-reduction; history and perspectives on PrEP and PEP; and experiences in healthcare settings when going for sexual health services such as HIV/STI testing and care. Trained qualitative interviewers conducted face-to-face, audio-recorded interviews between December 2014 and May 2015. Interviews were conducted in English or Swahili, based on participants' language preference.

Written informed consent was obtained from interested eligible sex workers. The Institutional Review Boards of the New York State Psychiatric Institute/Columbia University Department of Psychiatry, Kenyatta National Hospital/the University of Nairobi, and University Hospital Ghent approved the study protocols and interview guides.

Analysis Strategy

Interviews were transcribed verbatim and when necessary, translated from Kiswahili into English. To check for accuracy, an independent team member reviewed the transcription and translation of all transcripts. Following transcription and quality assurance checks, the research team, comprised of Kenyan and US-based researchers, met to identify emerging themes and develop a codebook. Using the principles of thematic analysis (Boyatzis, 1998), excerpts were read and reviewed for themes on sex workers' perspectives on PrEP and PEP, and their sexual healthcare experiences. Each research team member was trained to apply codes to the transcripts. Coding was conducted using Dedoose, Version 6.1.18 (Dedoose, 2015). Two research team members coded and reviewed each transcript. Any differences in coding application were discussed by the team until consensus was reached. We also examined thematic differences between FSWs and MSWs and found only one theme unique to MSWs (i.e., dual-stigma of homosexuality and sex work; described below); thus, analysis between groups was combined.

RESULTS

Table 2 shows the number of sex workers who were aware of PrEP and PEP, had utilized these methods, and would be willing to use them in the future. When asked if they had heard of PrEP or PEP for HIV prevention (i.e., awareness), only five and 16 out of 44 sex workers were aware of PrEP and PEP (respectively). More MSWs were aware of PrEP and PEP than FSWs (5/23 versus 0/21, and 9/23 versus 7/21, respectively). Reported use of PEP was also low for both MSWs and FSWs (3/23 and 4/21, respectively). None of the participants had ever used PrEP. Overall, willingness to use PrEP and PEP was high (35/44 and 36/44, respectively).

Perspectives on PrEP

Perceiving themselves to be at risk of HIV infection due to their exposure from having many sexual partners, most participants believed that PrEP would afford them added protection and be useful in situations in which they used condoms inconsistently or were unable to use them. This was particularly true for all FSWs, none of whom had heard of PrEP prior to the interview. As a 25-year-old FSW explained, “I would like to use it [PrEP] because now I don’t use condoms [consistently]...I can use today and fail to use tomorrow, but I still want to protect myself.” Reflecting on the uncertainty entailed by having a variable number of clients, a 32-year-old FSW explained, “The number of clients may increase and you don’t know what may happen. The daily one [PrEP] can be appropriate.” MSWs also desired PrEP due to their occupational risk. A 23-year-old MSW expressed: “Yes, I would like to use it because sex is my work.” After hearing about PrEP, most MSWs (16/23) and FSWs (19/21) were interested in taking it.

Some sex workers also thought of PrEP as an expression of self-love and self-care. A 33-year-old FSW explained, “Yes, I must take it because that is like standing up for yourself and loving yourself. If you love and care for yourself, why not take it?” A 36-year-old FSW expressed more strongly, “If you do not accept the drugs, then you don’t want to live.” These participants conveyed the idea that choosing to take PrEP was tantamount to making a choice to live, and that PrEP would constitute a form of active engagement in their HIV prevention efforts.

A minority of participants voiced concerns about potential negative side effects of PrEP, and some of these participants said that these side effects would deter them from using PrEP. A 23-year-old MSW explained that he would only be interested in taking PrEP if its side effects could be avoided: “If I am guaranteed that it will have no side effects and I will remain as normal as I am... it should be easy [to take it].” While none of the participants mentioned a particular side effect and how exactly they had come to know about possible side effects, others stated that they would consider using PrEP intermittently but not daily, on the assumption that daily use was certain to cause side effects. A FSW (age not reported) stated, “If you use it daily, then it must have side effects. You cannot be taking it daily.” However, others expressed their willingness to use PrEP despite any negative side effects. A 24-year-old MSW mentioned that even if there were negative side effects, he would be willing to use it nonetheless. “Using PrEP will be difficult [due to side effects]. But if I get it, I would not mind using it.”

Perspectives on PEP

While most sex workers were interested in PrEP, a few mentioned that they would prefer using PEP to PrEP. Voicing similar concern as participants who preferred intermittent rather than daily PrEP use, a 31-year-old FSW expressed her preference for PEP in terms of the undesirability of taking PrEP long-term. “[Take PrEP] everyday? For how long? Forever? No, I better take PEP.” For few participants, the relatively limited 28-day day prescription of PEP after a possible HIV exposure was preferred over a long-term, open-ended regimen of PrEP.

As shown in Table 2, few participants were aware of PEP: only 16 of 44 (36%) had ever heard of PEP, despite its availability in Kenya, with FSWs slightly less aware than MSWs. Among sex workers who had previously heard of PEP, their level of knowledge about it varied. Some sex workers had merely heard of PEP, like a 24-year-old MSW who said, “I have heard about PEP, but I have never known its meaning at all.” Others were aware of PEP but were not fully informed or had some misconceptions, like a 21-year-old MSW who asked, “Is PEP the drug that when people have sex and they are not sure they can take before two minutes?” Others demonstrated greater knowledge of PEP. For instance, some sex workers correctly identified when PEP would be appropriate to use, like one FSW (age not reported) who said, “If I messed up and for sure I know that what I engaged in has put me at risk, then I will ask for PEP as soon as possible.” A few recounted having used PEP after condomless sex with clients. However, most participants in this sample were not aware of PEP, including where and how to get it.

Irrespective of their current knowledge of PEP, participants expressed the willingness to become more knowledgeable about it. A 26-year-old MSW expressed his desire to be fully informed about PEP before using it: “I will be sensitized first to understand before I am given and I will be told how to use them and the effect... I would like to get the information first.” A 25-year-old FSW who was learning about PEP for the first time expressed her desire to use PEP if she felt the situation warranted it: “If [it] were available and I am in that kind of a situation [risky situations like condom bursts], then I would very much like to use it.” The few sex workers who had taken PEP before and experienced negative side effects reported that they would be willing to take PEP again because averting HIV infection was an overriding concern. A 27-year-old MSW recalled that taking PEP “[...] was horrible...it was nauseating; it was so disgusting, so I promised myself that I would not try to risk myself again.” However, asked by the interviewer, “But if it happens, will you be willing to take the pills again?” he replied, “Definitely, of course.”

Perspectives on Sexual Health Services

As some participants considered PrEP and PEP as part of their sexual health, they discussed their perspectives on and experiences with providers and facilities that offer HIV/STI sexual health services. Participants considered trustworthiness, privacy, and confidentiality from providers as reasons for seeking HIV/STI care at specific facilities over others. A 37-year-old FSW believed that a crowded facility is not ideal for HIV testing since it lacks privacy, stating, “What I don’t like about [that hospital] is ... People who have TB, people who have malaria, people who have come for child care, are all put together. You see each other... there is no privacy.” Additionally, a 27-year-old MSW explained the reasons he preferred a specific clinic over others, by saying that, “Some of them [the doctors] trust me; they are so nice, so discrete, [I] am telling you...we have like a code or something that whenever we go, they understand what you need, so they help us.” Interpersonal relationships with providers that respected sex workers’ privacy and confidentiality were described as critical to sex workers feeling comfortable accessing services. Participants expressed the importance of providers understanding them and their needs and remaining non-judgmental about their sexual practices.

Sex workers also described the need to provide more than HIV testing and include HIV education and prevention outreach specifically for them. For instance, a 17-year-old FSW noted, "First of all I'm thankful to [this facility] because... they teach us...now I cannot say I don't know anything about AIDS." She continued to describe other positive facility characteristics, including outreach: "Usually nurses come to the streets, we gather the workmates, they assemble and we come with the doctors. They check us so sometimes it's not compulsory to wait for that next visit after three months, three months to go to hospital. Sometimes they come to check if we have any problems or illnesses." This illustrated a facility that offers services specifically catered to and appreciated by sex workers. Additionally, discretion was an important consideration among sex workers when deciding which healthcare facility to go. Sex workers preferred providers who were less interrogative and did not appear to judge them for their sexual practices. For instance, a 24-year-old MSW explained that he did not go to a particular clinic, "Because even there when you go and explain to the doctor that you feel this way in your anus, he will ask why... even the doctor will wonder how you got that disease."

In addition to their desire for trusting and feeling understood by healthcare providers, sex workers sought providers who were non-judgmental and provided high quality care, including thorough HIV/STI assessments. A 27-year-old MSW explained the reasons of his preference:

As I said, they are discrete...if I go, there is this lady we go to ... she will know what I have come there to do, so not only will she test me for HIV, she will counsel me and, she will ask me if I have an STI, she will check. Yes, and there are some centers...that would do an anal test to see if you have anal warts and see if you are...to know if you have any other STD.

Several participants expressed discomfort at disclosing their sexual orientation and/or status as sex worker to providers for fear of being stigmatized. This left them with the sense of having few options for healthcare services. Describing the clinic where he sought care, a 27-year-old MSW explained, "There is no other place. You can't go to like a government hospital for such things because of stigma and discrimination, and we don't want such things." A 25-year-old MSW expressed his desire for healthcare workers to be better trained to provide non-judgmental care: "These healthcare workers, they need to be taught how to deal with us. They shouldn't raise eyebrows...They should be able to have the heart to deal with the STIs and the kinds of problems that some of us face...They need to be sensitized, in other words."

Other sex workers mentioned specifically travelling to drop-in healthcare centers that have a positive reputation for providing services for sex workers and/or gay people. A 26-year-old MSW explained, "[I went] because they [hospital staff] usually deal with sex workers...I mean, they are sex worker-friendly." Another MSW, also 26, explained that he went particularly "because that [hospital] is the one that understands us. It is a hospital for gays." Thus, sex workers go to facilities, particularly drop-in healthcare centers, that have friendly providers and a reputation for serving them, and avoid the ones perceived as unwelcoming to them. This was particularly true of MSWs, who experienced the dual stigmas of both being sex workers and gay.

Some participants reported travelling far to access health services as they were uncomfortable with local facilities due to lack of privacy. A 23-year-old MSW responded that he preferred the clinic he attended because, “it is far. Because you do not want maybe to go to the clinic that is surrounding [you]... to get tested; maybe you are not comfortable so maybe you need to go to a place not around where you live.” This willingness to travel far from home if it meant being able to access healthcare services with greater privacy highlighted the importance of privacy for some sex workers. In particular, MSW cited concerns about privacy and facing anti-gay attitudes at local facilities as reasons to travel to facilities farther afield.

DISCUSSION

The findings of this study provide early insights into female and male sex workers’ knowledge, attitudes, and use of ARV-based HIV primary prevention prior to the roll-out of widespread PrEP programming in Kenya and underscore the importance of provider-patient interpersonal relations and healthcare preferences in Mombasa, Kenya. Furthermore, these findings help outline a blueprint for PrEP and PEP implementation in healthcare settings for Kenyan sex workers.

We found that few sex workers had previous knowledge of PrEP. However, once informed, most participants indicated that they were interested in using PrEP if circumstances warranted. This suggests that there may already be considerable ‘buy-in’ for PrEP among sex workers in Mombasa, if and when it becomes available to them. This willingness is vital to PrEP initiation and is one of the first steps in engaging sex workers in PrEP along the PrEP care continuum (Kelly et al., 2015). However, it could also be the case that such high willingness is due to partial misunderstanding of PrEP, as participants only received brief details about PrEP from the interviewer. Therefore, promoting PrEP must entail increasing knowledge, particularly among FSWs, as none of them had heard of PrEP before. Furthermore, some sex workers were willing to use PrEP if it had limited side effects and could be used intermittently, suggesting the need to include PrEP education regarding known and unknown side effects, careful messaging about side effects, guidance on intermittent use, as well as proper medication adherence counseling and management for those initiating PrEP (Eakle et al., 2014). Sex workers felt PrEP would provide protection and improve their capacity to take an active personal role in protecting themselves against their high occupational risks of HIV. These findings corroborate an earlier PrEP study in Mombasa, which found sex workers’ association of PrEP with positive personal and social values contributed to their willingness to use it (Van der Elst et al., 2013).

Whereas sex workers are recognized as a group that would most benefit from PEP in Kenya (National AIDS Control Council, 2014), we found that only a minority of participants in our study knew about PEP and were aware of its availability. Furthermore, among sex workers who had ever heard of PEP, there were considerable differences in their level of knowledge. This suggests that previous PEP promotion efforts may have insufficiently targeted or reached sex workers, and therefore contribute to low uptake. Currently, PEP programs have little to no content in their messaging and promotion materials about how PEP is relevant to sex workers. Additionally, PEP services should identify ways to address knowledge of its

use, as our data suggest that few sex workers knew when to use and where to get PEP, or even knew what PEP is. Further research on barriers to utilizing PEP that considers but also moves beyond level of awareness among sex workers is needed. PEP guidelines in Kenya limit eligibility to instances of criminal sexual assault, occupational exposure, or condom malfunction (UN Cares, 2009), which may erect barriers to access and use since sex work is not recognized as a legal occupation. For many sex workers, being stigmatized, criminalized, and fearing the disclosure of their identities creates barriers to seeking health services (Scrambler & Paoli, 2008). Furthermore, sexual assaults and coercion are underreported among sex workers, who may face consequences for admitting to participation in a criminalized activity (Okal et al., 2011).

Despite high willingness to use PrEP and PEP among sex workers, our findings indicate that some prefer a 28-day PEP regimen to a long-term daily PrEP regimen. This preference reflected concerns about potential negative side effects of PrEP, which also explain why intermittent use of PrEP was desired (Galindo et al., 2012; Van der Elst et al., 2013). Yet, other studies have also shown that PrEP users continue to be willing to take PrEP despite negative side effects and other user-related factors such as cost and condom use (Eisingerich et al., 2012). Further research should consider sex workers' decision-making processes when choosing PrEP and PEP and explore whether intermittent or periodic use of PrEP might increase uptake.

Scaling up PrEP and PEP into Service Delivery Points

Expanding access to PrEP and PEP among sex workers will depend not only on fostering awareness but also on sex workers' ability to access appropriate sexual health services in the face of multiple barriers (Eakle, Jarrett, Bourne, Stadler, & Larson, 2015). In this study, participants recounted actively seeking out healthcare facilities and providers with reputations for providing non-judgmental and good quality care to sex workers and/or men who have sex with men, which were characterized by trustworthiness, privacy, and confidentiality. Sex workers avoided facilities and providers that lacked or had limited understanding of their experiences and health needs. These factors could likely to influence sex workers' decisions to initiate and adhere to PrEP and PEP (UN Cares 2009; Mutua et al., 2012). Facility- and provider-level characteristics should be considered, and efforts to increase provider's familiarity with sex workers' health and address negative attitudes toward sex workers and sexual minorities should be integral in PrEP and PEP programs for sex workers. Given healthcare providers' important role in assessing their patients' disease risks and educating them about preventative health, encouraging providers to take a thorough sexual history, screen for HIV, discuss PrEP and PEP, and provide non-judgmental care will be vital to the success of PrEP and PEP programs for this group.

Ensuring that facilities have the capacity to serve sex workers as patients would require increased hiring and training of healthcare workers, and funding to improve work-related procedures and management (Gerein, Green, & Pearsons, 2006). Integrating PrEP and PEP in sexual health services for sex workers would require greater institutional support. Moreover, as participants mentioned that they access sexual health services at facilities near their homes due to convenience, while others traveled farther afield to protect their privacy,

there could be geographical disparities of facilities that are geared toward serving these populations, requiring some to seek out needed sexual health services that are far away and increasing the potential for added personal expenses like travel cost (Lafort et al., 2016). As PEP initiation is within 72 hours after exposure, and regular health visits are vital to monitoring both PrEP and PEP (Underhill, Operario, Skeer, Mimiaga & Mayer, 2010), reducing geographical disparities are vital to ensure adequate facilities are available on a regular and emergency basis.

Ethical and practical considerations of PrEP implementation for sex workers in Kenya

The expansion of PrEP and PEP raises ethical questions about healthcare access and equity, personal responsibility, and economic feasibility. Allocation of HIV funds should consider not only where new cases are occurring, but also the unit costs of reaching groups. The annual cost for providing PrEP to one sex worker in Kenya is estimated to be US \$602, and providing PrEP to all eligible sex workers would cost an estimated US \$48 million annually (Chen, Kosimbei, Mwai & Dutta, 2014). Insofar as 45% of eligible HIV-positive Kenyans still did not have access to ARV therapy as of 2015 (World Bank, 2016), it is uncertain that diverting resources to PrEP and PEP is optimal when successful treatment would both benefit HIV-positive individuals and render them noninfectious to others (i.e., ‘treatment as prevention’).

Kenya has relatively strong sex worker and gay activist networks—a strength for sexual health promotion. PrEP and PEP implementation programs should consider these networks as a resource and include them in programming decisions and peer education initiatives. At the same time, issues like coercion need to be addressed: if, and when PrEP becomes more widely available, some sex workers might feel pressured to use it and forgo using condoms for fear that clients might go elsewhere (e.g., to a sex worker who is using PrEP and willing to forgo condoms). The potential for negative impact of PrEP on sex workers’ decision-making about use of other efficacious HIV prevention methods like condoms could arise if sex workers erroneously believe that taking PrEP only is sufficient for full protection against other STIs. Although complex and beyond the scope of this paper, these user-related issues are pertinent to PrEP expansion and program policies.

LIMITATIONS

Since participants were recruited from bars and nightclubs, the results may not be indicative of those who do not solicit clients at these venues, thus are not generalizable to all sex workers in Mombasa. With the small sample size, our quantitative assessment is limited to numerical counts and is not representative of sex workers’ diverse perspectives. The findings provide insight during a specific time when PEP was available and PrEP was recently approved in Kenya, and does not reflect changes over time. Lastly, dynamics between the interviewer and interviewee may arise and lead to socially desirable responses, particularly when the behaviors in questions are stigmatized and illegal (Richman, Kiesler, Weisband & Drasgow, 1999).

CONCLUSION

To our knowledge, this is the first qualitative study that explores the perspectives of sex workers in Mombasa, Kenya, regarding access to and use of PrEP and PEP and their healthcare challenges. Overall, sex workers expressed a general lack of awareness but a marked willingness to use PEP and PrEP. PEP underutilization, despite its availability, was due to lack of awareness and limited, inaccurate knowledge, rather than lack of interest. Our data also show that intermittent or short-term dosages are preferred and that perceived negative side effects of taking these medications daily reduced sex workers' willingness to use. Promotion of these products will need careful messaging and vigilant monitoring of negative side effects and adherence to treatment from providers. Working to encourage facilities to be sex worker- and gay-friendly by adopting anti-discriminatory policies, and by training providers to be more familiar with sex workers' experiences, are likely to increase sex workers' engagement in and access to HIV/STI prevention efforts and services. These findings point to the considerable public health impact of targeted PrEP and PEP outreach and promotion, in tandem with improving healthcare facilities' and providers' capacity to provide sexual health services to sex workers in Mombasa.

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References

- Baeten JM, Donnell D, Ndase P, et al. Antiretroviral Prophylaxis for HIV Prevention in Heterosexual Men and Women. *New England Journal of Medicine*. 2012; 367:399–410. [PubMed: 22784037]
- Beyrer C, Crago AL, Bekker LG, et al. An Action Agenda For HIV And Sex Work. *Lancet*. 2015; 385(9964):287–301. [PubMed: 25059950]
- Boyatzis, RE. Sage. London and New Delhi: Sage Publications; 1998. Thematic Analysis and Code Development: Transforming Qualitative Information.
- Chen, A., Kosimbei, G., Mwai, D., Dutta, A. Cost of Providing Oral Pre- Exposure Prophylaxis to Prevent HIV Infection Among Sex Workers in Kenya. Washington, DC: Futures Group, Health Policy Project; 2014.
- Corneli AL, Deese J, Wang M, et al. FEM-PrEP: adherence patterns and factors associated with adherence to a daily oral study product for pre-exposure prophylaxis. *Journal of Acquired Immune Deficiency Syndromes*. 2014; 66(3):324–331. [PubMed: 25157647]
- Dedoose Version 6.1.18, web application for managing, analyzing, and presenting qualitative and mixed method research data. Los Angeles: SocioCultural Research Consultants, LLC; 2015. Available at: www.dedoose.com

- Eakle R, Jarrett C, Bourne A, Stadler J, Larson H. Protocol for a systematic review: understanding the motivations and barriers to uptake and use of female-initiated, primary biomedical HIV prevention technologies in sub-Saharan Africa. *Systematic Reviews*. 2015; 4(1):1. [PubMed: 25554246]
- Eakle R, Manthata G, Stadler J, et al. Preparing for PrEP & Immediate Treatment: Focus Group Discussions in Advance of a Demonstration Project in South Africa. *AIDS Research and Human Retroviruses*. 2014; 30(S1):A269–A270.
- Eisingerich AB, Wheelock A, Gomez GB, et al. Attitudes and acceptance of oral and parenteral HIV preexposure prophylaxis among potential user groups: a multinational study. *PLoS One*. 2012; 7(1):e28238. [PubMed: 22247757]
- European Medicines Agency. First medicine for HIV pre-exposure prophylaxis recommended for approval in the EU. 2016 Jul 22. Available at: http://www.ema.europa.eu/ema/index.jsp?curl=pages/news_and_events/news/2016/07/news_detail_002578.jsp&mid=WC0b01ac058004d5c1
- Galindo GR, Walker JJ, Hazelton P, et al. Community member perspectives from transgender women and MSM on pre-exposure prophylaxis as an HIV prevention strategy: implications for implementation. *Implementation Science*. 2012; 7(1):116. [PubMed: 23181780]
- Gerein N, Green A, Pearson S. The implications of shortages of health professionals for maternal health in sub-Saharan Africa. *Reproductive Health Matters*. 2006; 14(27):40–50. [PubMed: 16713878]
- Gilead. European Commission Grants Marketing Authorization for Gilead's Once-Daily Truvada® For Reducing the Risk of Sexually Acquired HIV-1. Gilead Sciences, Inc; 2016.
- Grant RM, Lama JR, Anderson PL, et al. Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men. *New England Journal of Medicine*. 2010; 363:2587–2599. [PubMed: 21091279]
- Izulla P, McKinnon LR, Munyao J, et al. Repeat Use of Post-exposure Prophylaxis for HIV Among Nairobi-Based Female Sex Workers Following Sexual Exposure. *AIDS and Behavior*. 2015:1–7. [PubMed: 24668254]
- Kelley CF, Kahle E, Siegler A, Sanchez T, del Rio C, Sullivan PS, Rosenberg ES. Applying a PrEP continuum of care for men who have sex with men in Atlanta, GA. *Clinical Infectious Diseases*. 2015:civ664.
- Kiragu, M. PrEP Roll-out in Kenya. Oral presentation at the International AIDS Conference; 20 July; Durban South Africa. 2016.
- Joint United Nations Programme on HIV/AIDS (UNAIDS). The gap report. Geneva: UNAIDS; 2014.
- Lafort Y, Greener R, Roy A, et al. Where Do Female Sex Workers Seek HIV and Reproductive Health Care and What Motivates These Choices? A Survey in 4 Cities in India, Kenya, Mozambique and South Africa. *PloS one*. 2016; 11(8):e0160730. [PubMed: 27494412]
- Marazzo, JM., Ramjee, G., Nair, G., Palanee, T., Mkhize, B., Nakabiito, C. Pre-exposure prophylaxis for HIV in women: daily oral tenofovir, oral tenofovir/emtricitabine or vaginal tenofovir gel in the VOICE study. 20th Conference on Retroviruses and Opportunistic Infections; March 3–6; Atlanta, GA. 2013.
- Ministry of Health (MOH), National AIDS & STI Control Programme. Guidelines on use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya 2016. Nairobi, Kenya: NASCOP; Jul. 2016 Print
- Ministry of Health (MOH). Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya. 2014a. Available at: https://aidsfree.usaid.gov/sites/default/files/tx_kenya_2014.pdf
- Ministry of Health (MOH). Kenya HIV Prevention Revolution Road Map. 2014b. Available at: www.lvcthealth.org/onlinelibrary?format=raw&task=download&fid=17
- Mutua G, Sanders E, Mugo P, et al. Safety and adherence to intermittent pre-exposure prophylaxis (PrEP) for HIV-1 in African men who have sex with men and female sex workers. *PLoS One*. 2012; 7(4):e33103. [PubMed: 22511916]
- National AIDS Control Council. Kenya AIDS Response Progress Report. 2014. Available at: www.unaids.org/sites/default/files/country/documents/KEN_narrative_report_2014.pdf

- Okal J, Chersich MF, Tsui S, et al. Sexual and physical violence against female sex workers in Kenya: a qualitative enquiry. *AIDS care*. 2011; 23(5):612–618. [PubMed: 21390890]
- Olsthoorn AV, Sivachandran N, Bogoch I, et al. Barriers to the uptake of postexposure prophylaxis among Nairobi-based female sex workers. *AIDS*. 2016; 30(1):99–103. [PubMed: 26372489]
- OPTIONS Consortium. Country Situation Analysis Interim Findings. Kenya: Apr. 2016
- PEPFAR. Press Release: Initiative to Reduce New HIV Infections in Adolescent Girls and Young Women. 2014. Available at: <http://www.pepfar.gov/press/releases/2014/234531.htm>
- PrEP Watch. Kenya: 2016. Available at: <http://www.prepwatch.org/kenya/>
- Richman WL, Kiesler S, Weisband S, Drasgow F. A meta-analytic study of social desirability distortion in computer-administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology*. 1999; 84(5):754.
- Scambler G, Paoli F. Health work, female sex workers and HIV/AIDS: Global and local dimensions of stigma and deviance as barriers to effective interventions. *Social Science & Medicine*. 2008; 66(8): 1848–1862. [PubMed: 18295948]
- Scorgie F, Nakato D, Harper E, Richter M, Maseko S, Nare P, ... Chersich M. 'We are despised in the hospitals': sex workers' experiences of accessing health care in four African countries. *Culture, Health & Sexuality*. 2013; 15(4):450–465.
- Shannon K, Strathdee SA, Goldenberg SM, et al. Global epidemiology of HIV among female sex workers: influence of structural determinants. *The Lancet*. 2015; 385(9962):55–71.
- Siika AM, Nyandiko WM, Mwangi A, et al. The structure and outcomes of a HIV postexposure prophylaxis program in a high HIV prevalence setup in western Kenya. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2009; 51(1):47–53. [PubMed: 19339898]
- Underhill K, Operario D, Skeer M, Mimiaga M, Mayer K. Packaging PrEP to prevent HIV: an integrated framework to plan for PrEP implementation in clinical practice. *JAIDS Journal of Acquired Immune Deficiency Syndromes* (1999). 2010; 55(1):8. [PubMed: 21423876]
- United Nations (UN) Cares - Kenya. HIV Post-exposure Prophylaxis (PEP) in the United Nations: Guidance for Use of PEP Starter Kits. United Nations: 2009. Available at: http://www.uncares.unon.org/learning.php?content_id=pep_protocol
- USAID. HIV Education and health services for sex workers. 2013. Available at: http://www.fhi360.org/sites/default/files/media/documents/APHIAplus_Technicalbrief_SexWorkers_0.pdf
- Van Damme, L., Corneli, A., Ahmed, K., et al. The FEM-PrEP trial of emtricitabine/tenofovir disoproxil fumarate (Truvada) among African women. 19th Conference on Retroviruses and Opportunistic Infections; 2012. p. 5-8.
- Van der Elst EM, Mbogua J, Operario D, et al. High acceptability of HIV pre-exposure prophylaxis but challenges in adherence and use: qualitative insights from a phase I trial of intermittent and daily PrEP in at-risk populations in Kenya. *AIDS and Behavior*. 2013; 17(6):2162–2172. [PubMed: 23080358]
- World Bank. Kenya: Antiretroviral therapy coverage—UNAIDS estimates. 2016. Available at: <http://data.worldbank.org/indicator/SH.HIV.ARTC.ZS?locations=KE>
- World Health Organization. Joint WHO/ILO guidelines on post-exposure prophylaxis (PEP) to prevent HIV infection. Geneva, Switzerland: WHO; 2007. Post-exposure prophylaxis to prevent HIV infection.

Table 1

Participants' demographics, Mombasa, Kenya, 2015.

	Female Sex Workers	Male Sex Workers	All
Total (N)	21	23	44
Mean Age, years	29	25	27
Gender of Clients			
Men only	21	16	37
Women only	0	0	0
Both	0	7	7

Table 2

HIV-negative female and male sex workers' PrEP and PEP awareness, willingness to use, and utilization, Mombasa, Kenya, 2015.

	Female Sex workers	Male Sex Workers	All
Total (N)	21	23	44
Awareness			
PrEP	0	5	5
PEP	7	9	16
Utilization			
PrEP	0	0	0
PEP	4	3	7
Willingness			
PrEP	19	16	35
PEP	20	16	36