AIDS and Behavior (2025) 29:1984–1994
https://doi.org/10.1007/s10461-025-04664-4

ORIGINAL PAPER

HIV Care for Men on the Move: A Qualitative Study to Inform Status-Neutral HIV Service Delivery for Mobile Men in Johannesburg, South Africa

Maria Francesca Nardell[1,2] · Caroline Govathson[3] · Amanda Fata[5] · Sophia Fend[6] · Sithabile Mngadi[3] · Eliana DaCunha[5] · Salomé Garnier[7] · Lawrence Long[3,8] · Mark Lurie[9] · Lisa Butler[10] · Sophie Pascoe[3,4] · Ingrid Theresa Katz[2,5]

Accepted: 14 February 2025 / Published online: 3 March 2025

Abstract

Johannesburg, South Africa is a major destination for men moving from within and outside the country. Mobile men face challenges across the HIV care continuum. From March to May 2023, we conducted in-depth interviews with 29 mobile men and focus groups with 12 healthcare providers to explore factors influencing HIV prevention and care for mobile men. We used semi-structured guides, recorded and transcribed interviews, and analyzed data using inductive and deductive thematic analysis. Participants had a median age of 34. They described how relocating to Johannesburg created stress that deprioritized healthcare. They reported barriers at five key stages of status-neutral HIV care: awareness, decision to access care, experience of care, uptake of PrEP/ART, and adherence. Socio-economic needs, mobility, and masculine norms influenced men's engagement, and providers highlighted language barriers. Interventions to improve service uptake should address poverty, offer peer support, facilitate clinic transferability, and accommodate multiple languages to strengthen HIV services.

Resumen

Johannesburgo (Sudáfrica) es un destino importante para hombres que se desplazan tanto desde el interior como desde fuera del país. Los hombres itinerantes se enfrentan a desafíos a lo largo del continuo de atención del VIH. Entre marzo y mayo de 2023, se realizaron entrevistas en profundidad con 29 hombres itinerantes y grupos focales con 12 profesionales de la salud para explorar los factores que influyen en la prevención y atención del VIH en esta población. Las entrevistas semiestructuradas fueron grabadas y transcritas, y analizadas mediante análisis temático inductivo y deductivo. Los participantes, con una edad mediana de 34 años, describieron cómo la reubicación en Johannesburgo les generó un nivel de estrés que relegó atención médica un segundo plano. Asimismo reportaron barreras en cinco etapas clave de la atención del VIH con neutralidad de estado: concienciación, decisión de acceder a servicios, experiencia de atención, inicio de PrEP/ART y adherencia. Las necesidades socioeconómicas, la movilidad y las normas de masculinidad influyeron en la vinculación de los hombres con los servicios, y los profesionales de la salud señalaron obstáculos relacionados con el idioma. Resulta pertinente que las intervenciones para mejorar la utilización de los servicios aborden la pobreza, ofrezcan apoyo de pares, faciliten la transferibilidad entre clínicas y contemplen múltiples idiomas para fortalecer los servicios de VIH.

Keywords Men · HIV Prevention · HIV Treatment · Mobility · Status-neutral HIV Care · South Africa

Sophie Pascoe and Ingrid Theresa Katz contributed equally to this work.

Extended author information available on the last page of the article

Introduction

Global migration is growing faster than the world's population, driven by factors including economic hardship, adverse effects from climate change, and political discord [1]. Human movement within and into South Africa is the highest in Southern Africa [2–4], largely comprised of low-income men seeking labor in urban centers [5–8]. South Africa's most populous city and economic hub, Johannesburg, located in Gauteng Province, is a major migration destination. In 2022, there were four million South Africans living in Gauteng who were born in a different part of the country, making up approximately one quarter of the province's population [9]. Gauteng also attracts half of the country's 2.4 million cross-border migrants, many of whom come from Zimbabwe, Mozambique, and Lesotho [10].

In South Africa, approximately 2.6 million men are living with HIV (9.3% of the total male population) [11], yet nationwide men are underrepresented throughout the HIV care continuum [12, 13]. Migration across borders and other forms of mobility increase men's risk for HIV acquisition [14–16] and can heighten challenges for men seeking HIV services [17, 18], particularly in the period following resettlement [17, 19, 20]. Some challenges are common for many low-income men generally (e.g., masculine norms, unemployment), while others may be unique to men who are mobile and/or move to Johannesburg (e.g., unfamiliarity with a new setting) [21]. At the same time, some men who move to Johannesburg may be better able to use HIV services in their new city (e.g., higher likelihood of anonymity, better access to healthcare), as compared to in their homes of origin [21]. A range of strategies have been proposed to engage more men in HIV services in South Africa, including community-based outreach programs, gender norms-transformative interventions, and male-friendly health services, though cost and sustainability of those programs remain challenges [22–24]. In addition, only a few strategies, such as in workplaces [25] and peer navigation programs [26–29], have explicitly addressed the impact of mobility on men's healthcare engagement [30].

Status-neutral HIV care, which involves providing prevention and care services without regard to an individual's HIV status, can be particularly useful in drawing more people into regular HIV testing by creating a holistic, "one-stop shop" healthcare environment [31]. Such interventions include community-based and integrated health services that offer HIV testing with linkage to prevention and treatment, alongside routine health checks. These interventions focus on reaching those who may be more vulnerable to HIV acquisition or face challenges using facility-based health services [31]. However, it is not well-studied how to develop status-neutral interventions for specific populations who may most benefit, including low-income men who have recently moved to a new city.

We aim to address this gap using results from a qualitative study to explore the attitudes and behaviors of "mobile men" (defined as men who have recently moved to Johannesburg in the past five years) towards status-neutral HIV services. In this manuscript, we present these qualitative findings. In addition, these qualitative data have informed the design of a Discrete Choice Experiment (DCE) to guide the development of status-neutral strategies for men who are mobile in South Africa.

Methods

We conducted in-depth interviews with mobile men currently living in Johannesburg as well as focus group discussions with health care workers with experience providing care for mobile men. To explore factors which influence mobile men's engagement in HIV services in Johannesburg, we used open-ended questions about participants' mobility history, as well as their attitudes and behaviors toward HIV testing, prevention and care.

Recruitment

Recruitment of mobile men occurred from March to April 2023 in Johannesburg. We selected community-based recruitment sites frequented by low-income men who are new to the city and/or frequently travel, such as taxi ranks, hostels, informal settlements, businesses, sports grounds, homeless centers, and construction sites. These sites were in Soweto, Randburg, Midrand, Orange Farm, and the East Rand neighborhoods surrounding Johannesburg. We used a convenience sampling strategy, approaching groups of men to ascertain their interest in the study. Two team members contacted interested men to explain the consent process and invite them to the interview.

For the focus groups with health care providers, a list of potential eligible participants was obtained by consulting Indlela's Behavioural Hub (B-Hub) database. Indlela is a collaboration between HE^{2}RO, the University of Pennsylvania, the University of Cape Town, and Boston University. The B-Hub database at the time of selection included a cohort of 50 public sector health care providers and 500 healthcare clients and community members, who previously agreed to participate in Indlela's research, which focuses on developing low-cost, scalable interventions to overcome behavioral barriers to essential HIV services [32]. We contacted B-Hub health providers telephonically (as agreed in their B-Hub enrollment consent) to establish their interest in taking part in this study and to confirm their eligibility.

The data collector shared the study objective, verified identity and checked eligibility, and kept a record of all interested participants to contact to participate in a focus group discussion.

Eligibility and Sampling

For individual interviews, we enrolled individuals who self-identified as men, were ≥18 years old, had moved to Johannesburg within the past five years from another part of South Africa or from another country ("mobile men"), were willing to participate in a 45- to 60-minute interview, and were able to provide informed consent. We purposively sampled participants to ensure our sample included representation of men who had spent differing amounts of time in Johannesburg, cross-border and domestic migrants, and men who reported living with HIV and not living with HIV.

For the focus group discussions, we enrolled health care providers from HE^{2}RO's B-Hub database who regularly provide HIV services at primary health clinics within South Africa's public health sector, were willing to provide informed consent to participate and to have the focus group recorded, and were comfortable consenting and talking in English.

Study Design Conceptual Framework

We modeled our conceptual framework on the cyclical figure of HIV testing and linkage to care from Grimsrud et al., 2023, which maps out potential pathways following an HIV test using a status-neutral approach [31]. This status-neutral framework transforms the traditional HIV care cascade, in which individuals are assumed to follow a linear path from HIV testing, and if positive, to treatment and then viral suppression [33]. Instead, the status-neutral framework acknowledges the reality of the often cyclical nature of care engagement, whereby individuals' needs may change depending on HIV status, risk assessment, and other factors.

Data Collection and Preparation

Individual interviews were completed in person in the field between April and May 2023 by two research assistants. The interviews were conducted in a private community space in a location that was convenient for the participant in their locale (e.g., an unoccupied room in the participants' workplace or in a private room in a co-working facility). In-depth interview guides began with questions about the participant's experience adjusting to life in Johannesburg and about their healthcare decision-making. After this section, guides were divided into two sets of questions, one for participants living with HIV (focusing on their experience of living with HIV and beliefs and practices regarding treatment) and one for participants not living with HIV (focusing on their beliefs and practices regarding HIV prevention.) (See guide in Appendix A.) Interviews were conducted in the participant's preferred language (isiZulu, isiXhosa, English, or seSotho) and lasted up to 60 min. Participants were reimbursed for their time with a ZAR150 (~10 USD) voucher that could be used in a range of supermarkets that were convenient for those recruited. Audio recordings of the interviews were simultaneously transcribed and translated to English as needed by a different member of the study team. Each transcript was assigned a unique identifier, and no personal identifiers were included on any transcript to ensure participant confidentiality.

Focus group discussions were conducted in person in May 2023 by a research assistant in a private room in a location that was convenient for the providers who were participating in the focus group. Discussion guides sought to elicit providers' perceived barriers to HIV treatment and prevention for men who move to Johannesburg, and to gauge their knowledge and attitudes toward these mobile populations (See guide in Appendix B.) Focus groups were conducted in English, lasted 60–90 min, and were audio recorded. Participants were reimbursed for their time in the amount of ZAR150 (~10 USD) with a shopping voucher. Recordings were transcribed by a different member of the study team and transcripts were assigned unique identifiers with no personal identifiers of any of the participants included in the transcript.

Data Analysis

We used a hybrid inductive and deductive content analytic approach, informed by grounded theory [34]. Three team members (MFN, AMF, SF) developed an initial codebook based on key concepts from the interview guide and study protocol. A subset of transcripts were then open coded by the coding team (MFN, AMF, SF, ED). As themes emerged, the team discussed and modified the codebook. Inter-coder reliability was measured using Cohen's kappa [35]. Once the pooled Cohen's kappa reached 0.80, the coding team applied the final codebook to the full set of transcripts using Dedoose [36]. Each interview and focus group discussion was independently reviewed by two coders. Coded excerpts were exported to Microsoft Excel and reviewed to identify the major themes from the data.

Ethical Approval

The ethics committees at the University of the Witwatersrand (M220958) Mass General Brigham (Harvard University) (2022P001835), and Boston University (H-43522)

approved the study and the protocol for the Indlela B-Hub was approved through the University of Witwatersrand (M211122). All participants provided written informed consent.

Results

We recruited 29 men for individual interviews and 10 providers for two focus groups. The socio-demographic data for the men are shown in Table 1 below. Most participants were not living with HIV ($n=20$, 69.0%), domestic migrants ($n=23$, 82.1%), and reported living in Johannesburg for three years or less ($n=18$, 62.1%). A breakdown of location of origin by province for domestic migrants is not provided

Table 1 Socio-demographic characteristics, PrEP awareness and use, condom use, and HIV treatment use for mobile men participants. Data shown in each column are "number" unless otherwise given as a median and range, specified by (mdn, IQR)

Characteristic		Living with HIV ($N=9$)	Not living with HIV or unknown status ($N=20$)	All Participants ($N=29$)	Missing (N(%))
Age (mdn, IQR)		32 (24–32)	33 (22–56)	34 (22–56)	15(51.7%)
Location of origin					1(3.4%)
South Africa		7(77.8%)	16(80.0%)	23(79.3%)	
Outside South Africa		1(11.1%)	4(20.0%)	5(17.2%)	
	Zimbabwe	0(0%)	4(20.0%)	4(13.8%)	
	Botswana	1(11.1%)	0(0%)	1(3.4%)	
Time in Johannesburg					0(0%)
	< 1 year in Johannesburg	0(0%)	4(20.0%)	4(13.8%)	
	1–3 years in Johannesburg	2(22.2%)	12(60.0%)	14(48.3%)	
	4–10 years in Johannesburg	7(77.8%)	4(20.0%)	11(37.9%)	
Reason for moving					0(0%)
	Employment	6(66.7%)	17(85.0%)	23(79.3%)	
	Family or education	1(11.1%)	1(5.0%)	2(6.9%)	
	> 1 reason	2(22.2%)	1(5.0%)	3(10.3%)	
Employment status					1(3.4%)
	Employed	7(77.8%)	16(80.0%)	23(79.3%)	
	Unemployed or student	1(11.1%)	5(25.0%)	6(20.7%)	
Current intimate relationship		7(77.8%)	10(50.0%)	17(58.6%)	12(41.4%)
Currently cohabitating		5(55.6%)	9(45.0%)	14(48.3%)	15(51.7%)
Sexual orientation					2(6.9%)
	Heterosexual	8(88.9%)	18(90.0%)	26(89.7%)	
	Homosexual	0(0%)	1(5.0%)	1(3.4%)	
Residence type					1(3.4%)
	House	3(33.3%)	6(30.0%)	9(31.0%)	
	Apartment	0(0%)	9(45.0%)	9(31.0%)	
	Backroom or shack	5(55.6%)	3(15.0%)	8(27.6%)	
PrEP awareness and use					9(31.0%)
	Aware	N/A	20(100%)	N/A	
	Ever used PrEP	N/A	1(5.0%)	N/A	
	Know other men who have used PrEP	N/A	9(45.0%)	N/A	
Condom use		3(33.3%)	14(70.0%)	N/A	12(41.4%)
Treatment use					20(69.0%)
	Current use of ART	6(66.7%)	N/A	N/A	
	Ever used ART	8(88.9%)	N/A	N/A	

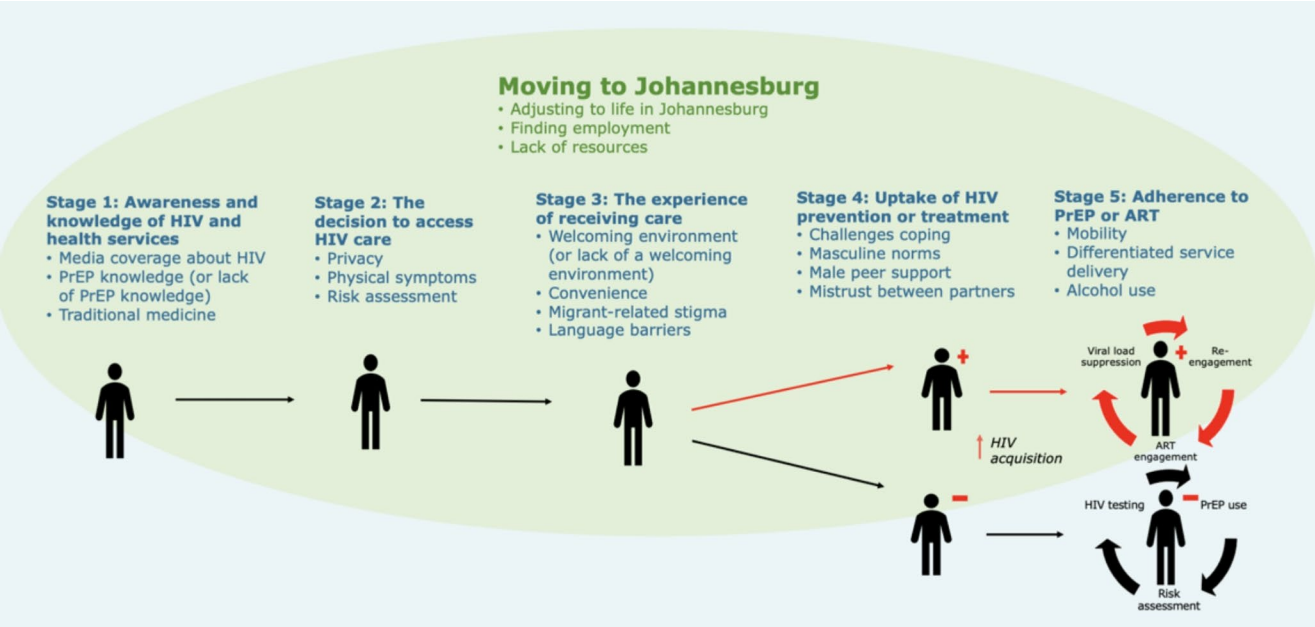

Fig. 1 HIV status-neutral care cascade, modified from Grimsrud et al

in Table 1 to avoid presenting possibly identifying information. Focus group participants included health care providers working in HIV testing services and treatment who had experience working with mobile men as patients. The first focus group included five clinic nurses. The second focus group included three administrative clerks, one cleaner, one pharmacy assistant, one HIV testing services worker, and one clinic nurse.

Our data showed that moving to Johannesburg played a significant role in shaping men's lives and informing their healthcare decisions. In addition, our data highlighted five key stages of engagement in care, building upon the previously mentioned Grimsrud framework by adding two stages prior to the experience of receiving care, as shown in Fig. 1. These five stages are: (1) awareness and knowledge of HIV and health services; (2) the decision to access HIV care; (3) the experience of receiving care; (4) uptake of HIV prevention or treatment; and (5) adherence to PrEP or ART.

Moving to Johannesburg

Our data revealed how the experience of moving to Johannesburg informs men's priorities and daily experiences. Men described the excitement and anxiety they felt when they first moved to Johannesburg, where "life is fast" and different from the more rural locations from which some had come ("I'm alone and it was nerve-racking but also exciting at the same time because it's a new place, it's a new environment"). Language barriers, lack of social support, and stigma toward some cross-border migrants made it challenging for some men to adjust to life in Johannesburg.

Table 2 Representative quotations about how the experience of moving to Johannesburg informs Men's daily lives

Factor	Examples
Adjusting to Johannesburg	"…when you get here you speak Pedi. Most of the people they speak Zulu especially at the taxis when you want to go somewhere it is difficult…. It was difficult and with making friends it is not something that is easy." (Man from Limpopo)
Finding employment	"Most of the time I spend my time looking for a job again. So, I will go to the internet café sometimes or come to the mall." (Man from Free State)
Lack of resources	"If I had money, I wouldn't have to go queue from 5 o'clock in the morning until 10 or 11 o'clock in the afternoon to get medical attention or to get some help. If I had money I'd simply just go to my doctor, wait maybe 2 or 5 minutes, get a consultation, get my prescription." (Man from Limpopo)

Additionally, difficulties finding employment and the high cost of living, including for food and medical care, were major stressors shaping participants' daily lives, priorities, and healthcare decisions. Healthcare providers also cited mobility-related factors as major deterrents to sustained engagement in care for men. For example, short-term work contracts and rental housing meant that men might need to travel frequently and thus not be able to consistently got to the same health facility. Representative quotes are presented in Table 2.

Stage 1: Awareness and Knowledge of HIV and Health Services

Nearly all men agreed that media coverage about HIV has decreased since the height of the epidemic. As one participant put it, "AIDS is slowly fading away but unfortunately the disease itself is still here…it's rare to see those kind of TV shows now [about HIV]." They described a need for more public HIV educational campaigns, including information targeted to men specifically. Social media platforms (e.g., TikTok, YouTube and Facebook) were highlighted as especially "powerful tools" for HIV awareness and education. Casual conversations in which men in Johannesburg talk about HIV also emerged as an important source of information, including about PrEP. Nonetheless, doubts about PrEP among men were common, including a belief that nothing "can prevent HIV [other] than a condom." Providers expressed concern that misinformation spread through TV and social media has contributed to the general public becoming "ignorant" about HIV. Providers also perceived that cross-border migrants did not have the same level of HIV knowledge as South Africans. Many men preferred HIV education "from doctors who have studied HIV," while a few men and providers described men's preference for traditional doctors. Representative quotes from men are presented in Table 3.

Stage 2: The Decision to Access HIV Care

Men emphasized that privacy is a top priority when considering whether and where to access care. Some voiced fears that "the nurse talks about you in front of people" and about ongoing HIV stigma within the community. On the other hand, some men who were originally from rural areas felt more comfortable utilizing HIV services in Johannesburg than in their rural home of origin, where social inter-connectedness made privacy more difficult and HIV stigma was felt to be greater. Worsening physical symptoms prompted most participants to seek health care and obtain HIV testing, even if they were "forced to test" by a doctor who needed to know their HIV status to prescribe another medication. Providers explained that very few men come to the clinic to check on their health; rather "they come when they are sick." However, self-assessment of HIV risk also motivated testing for some men. For example, men described heightened HIV risk when traveling and engaging with new sexual partners. Table 4 presents representative quotations from men about their decisions to access HIV care.

Table 3 Representative quotations about the need for increased awareness and knowledge of HIV and services in their communities

Factor	Examples
Media coverage about HIV, targeted toward men	"They must make an awareness campaign.… Make males to be aware that there are types of disease like this and that, that you can catch up with and we can help you in this way." (Man from Limpopo)
PrEP knowledge, or lack of	"You can ask around and you will find that people are still shocked.…I didn't know [about PrEP] until I was where it was [in Johannesburg] and then I became exposed to it." (Man from Mpumalanga)
Traditional medicine	"Most of them, especially the men, they believe in African medicines and they believe that they are strong so they won't get sick easily, so consult traditional doctors and drink traditional medicine, then everything will be fine." (Nurse)

Table 4 Representative quotations about factors influencing Men's decisions to access HIV care

Factor	Examples
Privacy	"With some clinics…there is a room where you state your problem. It's where people pass. It's not easy for a male to talk about his problem when somebody is passing. If the room was secure a bit more, it would be easier for me to voice out their problems." (Man from Limpopo)
Physical symptoms	"For me to go and test, I would like to see my symptoms first." (Man from Bulawayo, Zimbabwe)
Risk self-assessment	"You cheat with somebody….You get scared a little and go get tested so that you don't infect another person." (Man from Limpopo)

Stage 3: The Experience of Receiving Care

Men consistently cited staff friendliness and concerns about stigma toward men as major factors in evaluating the quality of their healthcare experience and the likelihood of returning. Moreover, both men and providers described how men do not want to spend time queueing at health facilities due to the need to work ("at work it is no work, no pay"). For these reasons, most participants preferred private facilities (e.g., pharmacies or private doctors), despite their higher costs. In contrast, public clinics were often characterized as having rude staff and long wait times. Language was also an important factor for men's healthcare experience. Providers described how "we cannot get to a serious conversation because of the language," and they worried that using an interpreter could compromise migrants' confidentiality. Men's use of their own language could also confer risks of stigma. One provider described how nurses will hear people from another province in South Africa and say to them, "Why are you speaking Zulu here? This is not your home, go back home to get help back home." Additional quotations are presented in Table 5.

Table 5 Representative quotations about the experience of receiving HIV care and its impact on their decision to do so

Factor	Examples
Preference for private facilities	
Friendly environment, or lack of	"Government facilities are not the greatest facilities…nurses can be a bit rude towards patients…. I prefer to go to private coz I don't really wanna get ill-treated by other people." (Man from Western Cape)
Convenience	"The reason why I prefer pharmacies most of the times is because…they help you in time, you see…. At clinics, at hospitals, you always find queues." (Man from Bulawayo, Zimbabwe)
Migrant-related stigma	"There is a stigma of foreigners who are crowding the system at the public health. So now you need to compete for scarce medical resources with the locals…if you are a foreigner the reception is a little bit unfriendly. That is why you find most foreign people if they can afford it they avoid the public healthcare." (Man from Bulawayo, Zimbabwe)
Language barriers	"It is a challenge…They don't understand." (Nurse)

Stage 4: Uptake of HIV Treatment or Prevention

For men living with HIV, difficulty coping with a new HIV positive status was common and hindered ART initiation. Providers felt that men need time to process the diagnosis and are often not prepared to start treatment immediately. They noted that some of these men would repeatedly test despite having received a positive result previously, which could delay their ART uptake. However, providers noted that repeat positive testing also offers more opportunities for men to connect with care and join a support group. In addition, masculine norms informed ART uptake. Many participants described not wanting to take a daily pill because pills are for women. However, some felt that traditionally masculine responsibilities, such as providing for their families and children, motivated treatment uptake.

For men testing negative, the decision to start PrEP was influenced in part by concerns around it causing mistrust in intimate relationships. There were additional concerns about the need for a daily pill, possible side effects, and access due to cost, stockouts, or long queues. Limited knowledge about PrEP also deterred uptake, including doubt about its efficacy, mistrust of the medical system, and perceived stigma toward its users. Health care providers described that some male patients "believe that PrEP is just an experiment done on them." PrEP was sometimes conflated with PEP ("you drink it before you sleep with that person or after") or perceived as something only for sexual assault survivors to use ("that's what's going around in the township…this one is on PrEP because they were raped…so there is judgment against PrEP"). Providers felt that younger people are more likely than older individuals to take PrEP, which they credit to school campaigns about HIV prevention methods. For both ART and PrEP, conversations with male friends helped some men to start the pill. Representative quotations regarding uptake of HIV treatment and prevention methods are presented in Table 6.

Table 6 Representative quotations from men about factors influencing the use of HIV treatment and prevention methods

Factor	Examples
Participants living with HIV	
Challenges coping	"They asked me: do you know your status or don't you know it? I lied and I said I don't know it. They offered me this group that they offer people who are HIV+….I'm a guy, I'm still young, everything is still in denial. They offered me ARVs, I went to that group once…. I didn't talk 'cause I was still ashamed about what was happening with me, I was confused. It's not easy to speak to someone." (Man from Free State)
Masculine norms	"For me to take the treatment is for the child that I have. If I don't take the treatment, who is she going to remain with?" (Man from North West Province)
Participants not living with HIV	
Mistrust between partners	"[PrEP] would not make [your partner] happy. First thing, they will think you are cheating or you are positive." (Man from Free State)
PrEP concerns	"Sometimes a pill doesn't go well in your body. After taking it sometimes you vomit – you find that it's not ok…. but I don't know about this PrEP that if you take it, how your body will handle it." (Man from Free State)
Male peer support	"My friends, they are not judgmental… we always advise each other… at the end of the day, all of us want to be protected. We all want to be healthy." (Man from Bulawayo, Zimbabwe)

Stage 5: Adherence To PrEP or ART

Mobility was felt to be a barrier to sustained engagement in care, as re-engagement could be difficult for men who find it hard to transfer to a new clinic or get a refill on PrEP or ART. As one participant noted, "moving around, it's a big issue because […] when you go to another province you have to go to a local clinic and start all over again because they won't have any record of your medication and stuff so it's gonna [make] matters worse when you are a foreigner, you're gonna need papers and all that stuff." Services outside of traditional clinic settings could improve convenience, reduce stigma, and facilitate adherence, such as with pop-up clinics outside of soccer stadiums ("men are much more in a relaxed environment"), taxi ranks, pubs, or even public restrooms. Remembering to take a daily pill was a challenge for PrEP and ART adherence, especially with social alcohol use. Yet alcohol was also described as a facilitator to having open conversations with friends about HIV ("normally [they talk about PrEP] when they're drunk…when they're sober…they wouldn't even talk about such things"), which

could encourage uptake and adherence. Quotations regarding adherence to PrEP or ART are included in Table 7.

Discussion

This study has several important findings which add to the existing body of literature on men's engagement in HIV care in South Africa. First, our results emphasize that interventions that seek to facilitate men's engagement and re-engagement in HIV prevention and treatment must address not only individual-level health behaviors but must also consider the impact of mobility for many low-income men who migrate. For these men, socio-economic stressors, such as finding housing, food insecurity, legal needs, lack of local language skills, and the need for jobs, rise to the top of their concerns [37–39]. Prioritizing healthcare, especially for prevention, is a luxury many cannot afford [21, 40–42]. Interventions which have addressed such concerns (e.g., poverty alleviation, workplace programs) have found success in reaching populations historically missed by health services [43–46]. To our knowledge, such interventions are still limited for mobile populations in sub-Saharan Africa, let alone in South Africa. Moreover, lack of political support and ongoing stigma toward cross-border migrants pose challenges to implementation [46, 47]. Nonethess, as South Africa continues to work toward eliminating HIV, our data highlight that addressing men's socio-economic needs is not only a moral but also a practical imperative for reaching those who are still missing from HIV services.

Second, our data illuminate how the intersecting forces of moving to Johannesburg, masculinity, and ongoing mobility affect men throughout different stages of HIV prevention and care. Factors related to adjusting to a new life in Johannesburg, such as prioritizing employment, seem to have a greater impact in our model's first two stages of care in which men must find the time to learn about existing services in a new city (Stage 1) and make the decision to access care admist competing demands (Stage 2). At the same time, research has also shown that the experience of moving to a new city may lessen the effect of social norms that might be experienced in more rural communities, where there may be greater HIV stigma [48], thus helping some men to feel freer to choose to access HIV services in Johannesburg. Masculinity emerged as a more prominent factor in men's experience of receiving services (Stage 3) (for example, in regard to concerns around stigma toward men in clinics) and their decision to start treatment or PrEP (Stage 4) (such as the perception that pills are for women). Mobility for work opportunities or other reasons may be especially important as a barrier to initiation of (Stage 4) and adherence to treatment or PrEP (Stage 5). Teasing apart how these forces affect different stages of HIV care engagement helps ensure that interventions are effectively delivered when and where they will be most useful. For example, for men who are lost to care due to frequent travel or relocation, interventions to re-engage these men may benefit not only from masculine-aware strategies within the clinical setting, such as male peer support [49], but also mobility-aware strategies to facilitate easier medication uptake and adherence, such as easier transfer of medical records between clinical sites or providing medication at convenient pick-up points throughout the city. Our data also show that men coming from rural areas may have particularly low awareness about PrEP and lack information about where to seek services. An example of a mobility-aware strategy may be to consider positioning HIV awareness campaigns, such as a Gates Foundation and Ogilvy South Africa project focused on new PrEP products [50], in public areas with high traffic of mobile populations (e.g., worksites, taxi ranks, and informal settlements) and in multiple languages. In addition, social media has been used as an effective health promotion tool in South Africa [51] and in other contexts [52] and has the benefit of removing geographical barriers for mobile populations. However, its use must also be sensitive to issues such as digital access, data costs, language, varying levels of health literacy, and the potential spread of misinformation [51].

Third, our data found a strong preference for private over public healthcare among men. A study among migrants' health utilization patterns in South Africa also found a preference for private services among domestic migrants [53]. Our study adds to this literature by offering possible explanations for this preference, despite the higher costs associated with private healthcare. Our findings suggest that men may be willing to trade financial resources to access the perceived benefits of private services (e.g., confidentiality, convenience, friendliness) and/or avoid the perceived pitfalls at public clinics (e.g., stigma, long wait times, stock

Table 7 Representative quotations from men outlining factors affecting adherence to PrEP or ART

Factor	Examples
Mobility	"They came because of work. They came here renting, then in few a months' time they get another contract somewhere and they are gone." (HIV testing services provider)
Community HIV services	"… make it easy to get. You see just like these condoms that we find in public toilets. Then I don't have to make an appointment…if I have to go now and queue for it then it's something else because now everyone must know. So I would rather if it's available in public places." (Man from Bulawayo, Zimbabwe)
Alcohol use	"Men forget [to take their pills] when they are drinking and naturally men are careless and they forget, they don't have follow-up." (Man from Western Cape)

outs.) For cross-border migrants without legal status, the need to show documentation may be an additional barrier at public facilities and favour the use of private services. Our data also indicated a preference for community retail pharmacies, which seem to be attractive to men, perhaps even more so than traditional clinical settings [54]. However, to our knowledge, no pharmacy-based HIV services programs have been specifically designed for mobile populations. The feasibility and cost effectiveness of scaling up HIV prevention and treatment at private facilities for mobile populations should be further explored, as out-of-pocket costs associated with these private healthcare may be a deterrent to access despite this preference.

Lastly, our study also has implications for the future of longer dispensing intervals and long-acting HIV treatment and prevention options [55, 56]. Long-acting formulations have been found to be favored among men [57], and they are promising for those who are more mobile, potentially reducing the need for more regular medication refills. Nonetheless, our data highlight the potential for implementation challenges for mobile men who may still need to access refills at different locations, albeit less frequently, or for men newly arrived in Johannesburg for whom long-acting options may be unfamiliar.

Our study has some limitations. First, only about a third of participants were men living with HIV or men who were cross-border migrants, which may have limited our analyses of these populations, although we did reach thematic saturation within each of these groups. Further, we determined HIV status through self-report, so it is possible that a participant's status could have been misrepresented if men living with HIV reported that they were negative or if they were unaware of their positive status. Lastly, our target population is heterogenous. We recruited from community sites across Johannesburg, and our findings may not apply to all mobile men in South Africa. While a greater proportion of men reported being HIV negative, very few had actual experience using PrEP, so their feedback was hypothetical and we were unable to draw conclusions about practical facilitators of PrEP uptake.

Conclusions

For mobile men, being new to Johannesburg and ongoing mobility shape their everyday lives, thus impacting their healthcare priorities, decisions, and experiences. Incorporating mobility-aware strategies, alongside masculine-aware strategies, is essential for creating more inclusive and effective HIV programs for men. These strategies may include addressing socio-economic stressors such as food, housing and work needs, facilitating transferability among health services sites, increasing the number of convenient medication pick-up points, making HIV awareness campaigns accessible to these populations, and scaling up affordable private services. In parallel with these efforts, we must continue to generate the political and social will to include the needs of low-income, mobile populations in health services, thus strengthening health systems and improving health outcomes for all [3].

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s10461-025-04664-4.

Acknowledgements We gratefully acknowledge the participants who shared their experiences and expertise with our team.

Funding This work was funded by NIH grant R21 MH126804, PI: ITK, Site-PI: SP. LL was supported by the National Institute of Mental Health (NIMH) of the National Institutes of Health under grant number K01MH119923. MFN was supported by NIMH under grant number K23MH134771, the Burke Global Health Fellowship (Harvard Global Health Institute), the Shore Fellowship (Brigham and Women's Hospital Department of Medicine), and the William F. Milton Fund (Harvard University Office of the Vice Provost for Research). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. The contents of this study are solely the responsibility of the authors and do not necessarily represent the official views of either institution. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Declarations

Ethical Approval Ethical approval for this study was provided by the Human Subjects Ethics Committees of the University of Witwatersrand (M220958), Boston University (H-43522), and Mass General Brigham (2022P001835). Informed consent was obtained from all individual participants included in the study.

Competing Interests The authors declare that they have no competing interests.

References

1. Migration. [Internet]. United Nations. [cited 2023 Apr 21]. Available from: https://www.un.org/en/global-issues/migration
2. Bell M, Charles-Edwards E, Ueffing P, Stillwell J, Kupiszewski M, Kupiszewska D. Internal migration and development: comparing migration intensities around the world. Popul Dev Rev. 2015;41(1):33–58.
3. Vearey J. Moving forward: why responding to migration, mobility and HIV in South(ern) Africa is a public health priority. J Intern AIDS Soc. 2018;21:e25137.
4. Stats SA. Mid-year population estimates 2022 [Internet]. South Africa: Statistics South Africa; 2022 Jul [cited 2022 Sep 8]. Available from: https://www.statssa.gov.za/publications/P0302/P03022022.pdf
5. Collinson M, Wolff B, Tollman S, Kahn K. Trends in internal labour migration from the rural Limpopo Province, male risk

behaviour, and implications for spread of HIV/AIDS in rural South Africa. 2010;20.
6. Coffee MP, Garnett GP, Mlilo M, Voeten HACM, Chandiwana S, Gregson S. Patterns of movement and risk of HIV infection in rural Zimbabwe. J INFECT DIS. 2005;191(s1):S159–67.
7. Glynn JR, Pönnighaus J, Crampin AC, Sibande F, Sichali L, Nkhosa P, et al. The development of the HIV epidemic in Karonga district. Malawi: AIDS. 2001;15(15):2025–9.
8. Jochelson K, Mothibeli M, Leger JP. Human immunodeficiency virus and migrant labor in South Africa. Int J Health Serv. 1991;21(1):157–73.
9. Grant. What Census 2022 tells us about migration in SA [Internet]. The Outlier. 2023 [cited 2024 Apr 18]. Available from: https://www.theoutlier.co.za/governance/2023-10-24/86303/census2022-migration-trends
10. Migration Profile Report for South Africa: A Country Profile [Internet], Stats SA. 2023. Available from: https://www.statssa.gov.za/publications/03-09-17/03-09-172023.pdf
11. South. Africa [Internet]. [cited 2024 Oct 24]. Available from: https://www.unaids.org/en/regionscountries/countries/southafrica
12. Joint United Nations Programme on HIV/AIDS (UNAIDS). Blind spot: reaching out Ot men and boys. Switzerland: Geneva; 2017.
13. Barr D, Garnett P, Mayer G, Morrison KH. M. Key populations are the future of the African HIV/AIDS pandemic. J Int AIDS Soc [Internet]. 2021 Jul [cited 2022 Oct 13];24(S3). Available from: https://onlinelibrary.wiley.com/doi/https://doi.org/10.1002/jia2.25750
14. Dobra A, Bärnighausen T, Vandormael A, Tanser F. Space-time migration patterns and risk of HIV acquisition in rural South Africa. AIDS. 2017;31(1):137–45.
15. Olawore O, Tobian AAR, Kagaayi J, Bazaale JM, Nantume B, Kigozi G, et al. Migration and risk of HIV acquisition in Rakai, Uganda: a population-based cohort study. Lancet HIV. 2018;5(4):e181–9.
16. McGrath N, Eaton JW, Newell ML, Hosegood V. Migration, sexual behaviour, and HIV risk: a general population cohort in rural South Africa. Lancet HIV. 2015;2(6):e252–9.
17. Camlin CS, Cassels S, Seeley J. Bringing population mobility into focus to achieve HIV prevention goals. J Intern AIDS Soc. 2018;21:e25136.
18. Larmarange J, Diallo MH, McGrath N, Iwuji C, Plazy M, Thiébaut R, et al. The impact of population dynamics on the population HIV care cascade: results from the ANRS 12249 treatment as prevention trial in rural KwaZulu-Natal (South Africa). J Int AIDS Soc. 2018;21(Suppl 4):e25128.
19. Camlin CS, Charlebois ED. Mobility and its effects on HIV acquisition and treatment engagement: recent theoretical and empirical advances. Curr HIV/AIDS Rep. 2019;16(4):314–23.
20. Koss CA. Uptake, engagement, and adherence to pre-exposure prophylaxis offered after population HIV testing in rural Kenya and Uganda: 72-week interim analysis of observational data from the SEARCH study. Lancet HIV. 2020;7:e249–61.
21. Nardell MF, Govathson-Mandimika C, Garnier S, Watts A, Babalola D, Ngcobo N, et al. Emotional stress is more detrimental than the virus itself: A qualitative study to understand HIV testing and pre-exposure prophylaxis (PrEP) use among internal migrant men in South Africa. J Int AIDS Soc. 2024;27(3):e26225.
22. Sharma M, Barnabas RV, Celum C. Community-based strategies to strengthen Men's engagement in the HIV care cascade in sub-Saharan Africa. PLoS Med. 2017;14(4):e1002262.
23. Mbokazi N, Madzima R, Leon N, Lurie MN, Cornell M, Schmidt BM, et al. Health worker experiences of and perspectives on engaging men in HIV care: A qualitative study in cape town, South Africa. J Int Assoc Provid AIDS Care. 2020;19:232595822093569.
24. Mashora MC. Engaging men in HIV services in sub Saharan Africa: an authors' viewpoint on what has been done and what still needs to be done? Pan Afr Med J [Internet]. 2020 [cited 2024 Apr 1];37. Available from: https://www.panafrican-med-journal.com/content/article/37/58/full
25. Vearey J, Richter M, Núñez L, Moyo K. South African HIV/AIDS programming overlooks migration, urban livelihoods, and informal workplaces. Afr J AIDS Res. 2011;10(sup1):381–91.
26. Steward WT, Sumitani J, Moran ME, Ratlhagana MJ, Morris JL, Isidoro L, et al. Engaging HIV-positive clients in care: acceptability and mechanisms of action of a peer navigation program in South Africa. AIDS Care. 2018;30(3):330–7.
27. Krulic T, Brown G, Bourne A. A scoping review of peer navigation programs for people living with HIV: form, function and effects. AIDS Behav. 2022;26(12):4034–54.
28. Ghasemi E, Bahrami T, Majdzadeh R, Negarandeh R, Rajabi F. Peer interventions to improve HIV testing uptake among immigrants: A realist review. Health Promot Perspect. 2024;14(1):19–31.
29. Febres-Cordero B, Brouwer KC, Rocha-Jimenez T, Fernandez-Casanueva C, Morales-Miranda S, Goldenberg SM. Influence of peer support on HIV/STI prevention and safety amongst international migrant sex workers: A qualitative study at the Mexico-Guatemala border. Clark JL, editor. PLoS ONE. 2018;13(1):e0190787.
30. Thorp M, Ayieko J, Hoffman RM, Balakasi K, Camlin CS, Dovel K. Mobility and HIV care engagement: a research agenda. J Int AIDS Soc. 2023;26(3):e26058.
31. Grimsrud A, Wilkinson L, Ehrenkranz P, Behel S, Chidarikire T, Chisenga T et al. J Thorley editor 2023 The future of HIV testing in Eastern and Southern Africa: broader scope, targeted services. PLoS Med 20 3 e1004182.
32. Indlela B. Hub (B-Hub) [Internet]. HE2RO. [cited 2024 Sep 6]. Available from: https://indlela.org/indlela-behavioural-insights-test-bit-consumer-panel/
33. Gueler A, Vanobberghen F, Rice B, Egger M, Mugglin C. The HIV care cascade from HIV diagnosis to viral suppression in sub-Saharan Africa: a systematic review and meta-regression analysis protocol. Syst Rev. 2017;6(1):172.
34. Glaser BG, Strauss AL. The Discovery of Grounded Theory: Strategies for Qualitative Research [Internet]. 1st ed. Routledge; 2017 [cited 2024 Apr 18]. Available from: https://www.taylorfrancis.com/books/9781351522168
35. McHugh ML. Interrater reliability: the kappa statistic. Biochem Med (Zagreb). 2012;22(3):276–82.
36. Dedoose LLC. 2021 [cited 2022 Dec 9]. Available from: www.dedoose.com.
37. Hartonen VR, Väisänen P, Karlsson L, Pöllänen S. A stage of limbo: A meta-synthesis of refugees' liminality. Appl Psychol. 2022;71(3):1132–67.
38. Ochieng B. Migrant communities: Language barriers and experiences of accessing health and social welfare services in the North of England. Int J Interdisciplinary Social Community Stud. 2013;7(2):143–51.
39. Greenburg J, Polzer T. Migrant Access to Housing in South African Cities. Wits, Johannesburg: Migrants Rights Monitoring Project Special Report No. 2; 2008.
40. Taber JM, Leyva B, Persoskie A. Why do people avoid medical care?? A qualitative study using National data. J GEN INTERN MED. 2015;30(3):290–7.
41. Billions left behind on the path to universal health coverage [Internet]. World Health Organization News. 2023 [cited 2024 Jun 6]. Available from: https://www.who.int/news/item/18-09-2023-billions-left-behind-on-the-path-to-universal-health-coverage
42. Murray S. Poverty and health. Can Med Assoc J. 2006;174(7):923–923.

43. Guillot-Wright S, Farr NM, Cherryhomes E. A community-led mobile health clinic to improve structural and social determinants of health among (im)migrant workers. Int J Equity Health. 2022;21(1):58.
44. Rouhani SA, O'Laughlin KN, Faustin ZM, Tsai AC, Kasozi J, Ware NC. The role of social support on HIV testing and treatment adherence: A qualitative study of HIV-infected refugees in Southwestern Uganda. Glob Public Health. 2017;12(8):1051–64.
45. Tsai AC, Hatcher AM, Bukusi EA, Weke E, Lemus Hufstedler L, Dworkin SL, et al. A livelihood intervention to reduce the stigma of HIV in rural Kenya: longitudinal qualitative study. AIDS Behav. 2017;21(1):248–60.
46. Tsai AC, Bangsberg DR, Weiser SD. Harnessing poverty alleviation to reduce the stigma of HIV in Sub-Saharan Africa. PLoS Med. 2013;10(11):e1001557.
47. White JA, Rispel LC. Policy exclusion or confusion? Perspectives on universal health coverage for migrants and refugees in South Africa. Health Policy Plann. 2021;36(8):1292–306.
48. Treves-Kagan S, El Ayadi AM, Pettifor A, MacPhail C, Twine R, Maman S, et al. Gender, HIV testing and stigma: the association of HIV testing behaviors and Community-Level and Individual-Level stigma in rural South Africa differ for men and women. AIDS Behav. 2017;21(9):2579–88.
49. Colvin CJ. Strategies for engaging men in HIV services. Lancet HIV. 2019;6(3):e191–200.
50. Ogilvy South Africa (Pty) Ltd [Internet]. Bill & Melinda Gates Foundation. 2023. Available from: https://www.gatesfoundation.org/about/committed-grants/2023/07/inv-059319
51. Kubheka BZ, Carter V, Mwaura J. Social media health promotion in South Africa: Opportunities and challenges. African Journal of Primary Health Care & Family Medicine [Internet]. 2020 Jul 9 [cited 2024 Jun 3];12(1). Available from: http://www.phcfm.org/index.php/PHCFM/article/view/2389
52. Kudrati SZ, Hayashi K, Taggart T, Social. Media & PrEP: A systematic review of social media campaigns to increase PrEP awareness & uptake among young black and Latinx MSM and women. AIDS Behav. 2021;25(12):4225–34.
53. Ginsburg C, Collinson MA, Gómez-Olivé FX, Gross M, Harawa S, Lurie MN, et al. Internal migration and health in South Africa: determinants of healthcare utilisation in a young adult cohort. BMC Public Health. 2021;21(1):554.
54. Kuo AP, Roche SD, Mugambi ML, Pintye J, Baeten JM, Bukusi E, et al. The effectiveness, feasibility and acceptability of HIV service delivery at private pharmacies in sub-Saharan Africa: a scoping review. J Int AIDS Soc. 2022;25(10):e26027.
55. Landovitz RJ, Donnell D, Clement ME, Hanscom B, Cottle L, Coelho L, et al. Cabotegravir for HIV prevention in cisgender men and transgender women. N Engl J Med. 2021;385(7):595–608.
56. Long-acting HIV treatment demonstrates efficacy in people with challenges taking daily medicine as prescribed [Internet]. National Institute of Health. 2024 [cited 2024 Sep 6]. Available from: https://www.nih.gov/news-events/news-releases/long-acting-hiv-treatment-demonstrates-efficacy-people-challenges-taking-daily-medicine-prescribed
57. Cheng CY, Quaife M, Eakle R, Cabrera Escobar MA, Vickerman P, Terris-Prestholt F. Determinants of heterosexual Men's demand for long-acting injectable pre-exposure prophylaxis (PrEP) for HIV in urban South Africa. BMC Public Health. 2019;19(1):996.

Authors and Affiliations

Maria Francesca Nardell[1,2] · Caroline Govathson[3] · Amanda Fata[5] · Sophia Fend[6] · Sithabile Mngadi[3] · Eliana DaCunha[5] · Salomé Garnier[7] · Lawrence Long[3,8] · Mark Lurie[9] · Lisa Butler[10] · Sophie Pascoe[3,4] · Ingrid Theresa Katz[2,5]

✉ Maria Francesca Nardell
mnardell@bwh.harvard.edu

1 Division of Global Health Equity, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115, USA

2 Harvard Medical School, Boston, MA, USA

3 Health Economics and Epidemiology Research Office (HE^{2}RO), Johannesburg, South Africa

4 Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, South Africa

5 Division of Women's Health, Brigham and Women's Hospital, Boston, MA, USA

6 Harvard College, Boston, MA, USA

7 EHESP French School of Public Health, Paris, France

8 Department of Global Health, Boston University School of Public Health, Boston, MA, USA

9 Brown University School of Public Health, Brown University, Providence, RI, USA

10 Department of Public Health Sciences, Queen's University, Kingston, Canada