

ORIGINAL RESEARCH

Patient and provider perspectives of male uptake of HIV testing at selected public health facilities in Orange Farm, South Africa

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Abstract

Background: Men in South Africa, particularly in peri-urban areas, remain underrepresented in Human Immunodeficiency Virus (HIV) testing services (HTS), contributing to delayed diagnoses and ongoing transmission. Despite national efforts, gender-specific barriers to HTS persist. This study explored the perspectives of men and healthcare providers on barriers to and facilitators of male uptake of HTS at primary health care (PHC) facilities. **Methods:** A qualitative research design was used. The study was conducted in Orange Farm, one of the largest peri-urban township areas in South Africa. Semi-structured interviews were conducted with 12 male patients, six lay counsellors, and five professional nurses between July and August 2022. Data were analysed thematically using the socio-ecological model as a guiding framework. **Results:** Barriers to HTS uptake manifested across five distinct levels. At the individual level, limited awareness of HIV and available testing options hindered engagement. Interpersonally, silence within families and a lack of emotional support discouraged testing. Organisationally, discomfort with cross-gender interactions and negative attitudes among healthcare staff created further obstacles. At the community level, the absence of male-targeted educational initiatives contributed to low participation. Finally, at the policy level, inconsistent implementation of HTS guidelines undermined service delivery and accessibility. Key facilitators aligned with each level included enhanced awareness at the individual level; open, supportive family dialogue at the interpersonal level; male-friendly service environments at the organisational level; community-driven education initiatives at the community level; and improved adherence to HTS guidelines at the policy level. **Conclusions:** These findings underscore the necessity of a multi-level, gender-sensitive approach to bolster male engagement in HTS at PHC facilities. Strengthening HIV service delivery for men requires the cultivation of supportive environments across all of the individual, interpersonal, organisational, community, and policy levels.

Keywords

HIV Testing Services; Primary health care facilities; Male uptake of HIV testing; Socio-ecological model; Barriers and facilitators

1. Introduction

The global Human immunodeficiency virus (HIV) response has made significant strides towards ending Acquired immunodeficiency syndrome (AIDS) as a public health threat by 2030. However, the current global rate of new HIV infections is still three times higher than the target of fewer than 370,000 new infections by 2025, and despite ongoing efforts, this target seems unattainable in sub-Saharan Africa [1]. In 2023, South Africa accounted for 19% of all people living with HIV (PLHIV) worldwide, with an estimated 17.1% of adults aged 15–49 years living with HIV [2]. While more women aged 15 and older acquire HIV, men bear a greater burden of AIDS-

related deaths [1, 3, 4]. This gender disparity is underpinned by men's lower likelihood of testing for HIV, initiating antiretroviral therapy (ART), and remaining in care [4]. Increasing HIV testing among men remains crucial to improving health outcomes and preventing onward transmission.

South Africa provides free HIV Testing Services (HTS) in public facilities. The HTS cascade was adopted in 2016, aligning with the Joint United Nations Programme on HIV/AIDS (UNAIDS) 95-95-95 Strategy [3] aiming for 95% of PLHIV to know their status, 95% of those diagnosed to receive ART, and 95% of those on ART to achieve viral suppression by 2025 [3, 5]. South Africa has made notable progress toward these goals, yet men and young people remain underrepresented in

testing [4, 6, 7].

According to the South African National Department of Health (NDoH) (2023), HTS are expected to be accessible in all public health facilities, community settings, private health-care facilities, and approved non-governmental organisations (NGOs) [3, 8]. Yet, this is not always the reality for men. South Africa has been implementing Universal Test-and-Treat (UTT) in all public healthcare facilities since 2016, a strategy that aims to initiate all individuals diagnosed with HIV on ART as soon as possible.

While a 2016 survey in South Africa found that 18% of public health users had never tested for HIV, gender-specific barriers were underexplored [6]. Broader evidence from sub-Saharan Africa points to harmful gender norms, low risk perception, fear of diagnosis, stigma, and facility-level challenges, such as long queues, lack of privacy, negative provider attitudes, and inconvenient clinic hours, as key deterrents for men [9–13]. Although HIV self-testing has shown promise, concerns around affordability, usability, and weak linkage to care persist in South Africa [9], Southern and Eastern Africa [14], and low- and middle-income countries generally [9, 15, 16]. These gaps underscore the need for a deeper understanding of men's perspectives and the specific contextual factors affecting their HTS uptake in public health facilities.

This study aims to explore the barriers and facilitators influencing men's uptake of HTS at public primary health care (PHC) facilities in Orange Farm, South Africa. Guided by the socio-ecological model, it examines perspectives from both male service users and healthcare providers to better understand the multi-level factors shaping men's engagement with HTS. A context-specific qualitative study is essential to gain deeper insights into the multi-level, localised barriers and facilitators influencing men's uptake of HIV testing, particularly in under-researched peri-urban settings. By capturing unique perspectives from both service users and providers, this study reveals the social, cultural, and systemic factors often overlooked by broader research, thereby informing the design of more targeted, gender-sensitive, and locally-relevant interventions.

2. Materials and methods

2.1 Theoretical framework

This study is underpinned by the socio-ecological model (SEM) [14, 17] (see Fig. 1, Ref. [17]), which offers a multidimensional framework for understanding how individual, interpersonal, organisational, community, and policy-level factors interact to influence health behaviours. The individual level considers personal characteristics such as knowledge, attitudes, and beliefs. The interpersonal level includes social relationships that influence decision-making. The organisational level addresses institutional contexts, including health facility structures and practices. The community level reflects broader societal influences such as social norms and community mobilisation. The policy level relates to national guidelines and health system frameworks that shape access to and quality of HTS. The SEM provides a comprehensive lens to explore the structural and

psychosocial, and local contextual [17, 18], dynamics shaping men's engagement with HIV testing.

2.2 Study design

The study followed a qualitative approach to gain an in-depth understanding of participants' views on male uptake of HTS [16]. To adequately address the research problem, this study adopted an exploratory case study design [19, 20], with semi-structured interviews (SSIs) among male patients and health-care providers.

2.3 Setting

The study was conducted at three PHC facilities in Orange Farm, a peri-urban township located in the southern periphery of the City of Johannesburg Metropolitan Municipality [21]. Based on their work on voluntary medical male circumcision, Govender *et al.* [22], established that there was high HIV prevalence in Orange Farm. The high HIV prevalence informed the purposive selection of this study area.

2.4 Study population and sampling strategy

The population included adult male patients attending PHC services, Nurse-Initiated Management of Antiretroviral Therapy (NIMART)-trained nurses, and lay counsellors trained in Rapid Test Counselling and Quality Improvement (RTCQI) recruited from three PHC facilities in Orange Farm. Professional nurses play a vital role in enrolling patients who test positive for HIV on ART as part of a concerted nationwide initiative to increase the uptake of HIV treatment at healthcare facilities towards attaining the second UNAIDS 95-95-95 target [23]. Additionally, the National Department of Health (NDoH) supports lay counsellors in providing HIV counselling at medical and non-medical sites [24]. Overall, a total of 12 patients (four [4] patients per PHC facility), five (5) NIMART nurses (two [2] each from Clinic A and B), and one (1) from Clinic C (one [1] declined to participate), and six (6) lay counsellors (two [2] per PHC facility) were purposively selected to participate in the study. The purpose of this sample size was to reach saturation as opposed to the generalisability of findings [25]. Data saturation was reached when no new themes or insights emerged across the different participant groups, demonstrating adequate depth and diversity of responses. Despite the small sample size, the use of structured interviews and triangulation of perspectives among patients, healthcare providers, and lay counsellors enhanced the richness and credibility of the data, thereby supporting the attainment of thematic saturation.

Patients were recruited into the study with the assistance of healthcare providers at the PHC facilities. The inclusion criteria encompassed adult men aged 18 years and older, selected due to their sexual reproductive age and higher risk of HIV contraction. Participants needed to be able to communicate effectively in English, isiZulu, or Sesotho. Efforts were made to include perspectives from young, middle-aged, and older men, as well as those who had or had not undergone PHC facility-based HTS. Patients deemed too physically ill to participate and individuals aged 17 years and younger were excluded. The inclusion criteria for healthcare providers in the

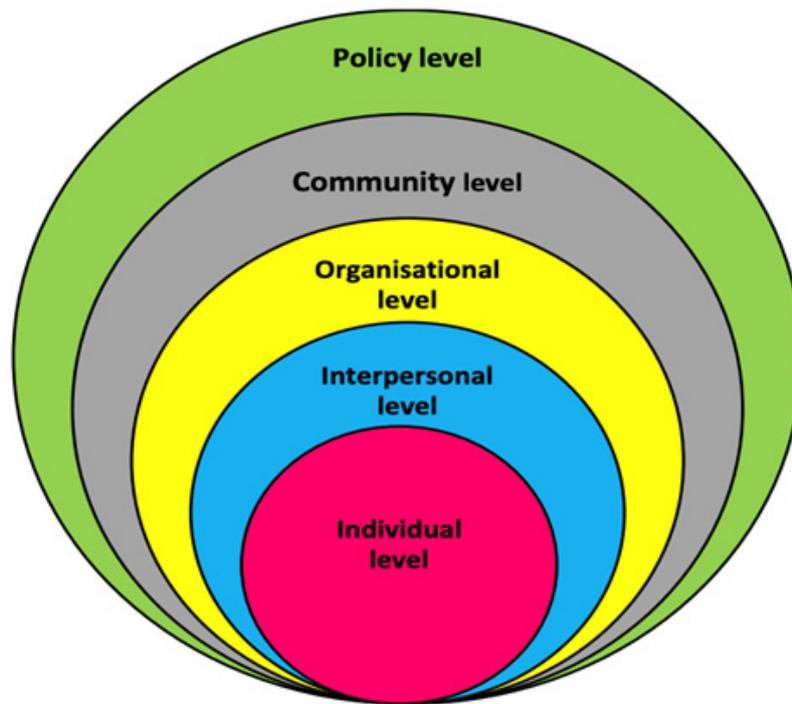


FIGURE 1. The socio-ecological model (SEM). Source: McLeroy *et al.* [17].

study required their involvement in offering HTS. Specifically, they needed to be professional nurses with NIMART training, or lay counsellors trained in RTCQI.

2.5 Data collection

Data collection among patients and healthcare providers was undertaken from July to August 2022. The first author enlisted and trained a male assistant to interview male patients, while she interviewed the lay counsellors and nurses. Both researchers, proficient in English, Sesotho, and isiZulu, administered the informed consent procedure before commencing with the semi-structured interviews (Refer to Table 1) in the patients' preferred language. The semi-structured interviews took 45 minutes to an hour to complete, were conducted in a private room within the PHC facilities and were audio-recorded with patients' permission. The interviews with healthcare providers were conducted by the first author at the convenience of the healthcare providers, in a private room to maintain privacy, and lasted between 45 minutes and an hour. As with the patients', informed consent was obtained prior to the interviews, which were audio-recorded with the healthcare providers' permission.

2.6 Data analysis

Data were thematically analysed using the framework established by Braun and Clark [26] and expanded by Braun *et al.* [27], with the SEM constructs serving as a priori or pre-determined themes. The research employed data triangulation [28] to examine perspectives on barriers to and facilitators of male uptake of HTS within the three distinct participant groups: male patients, NIMART-trained professional nurses, and RTCQI-trained lay counsellors. The first author tran-

scribed the interviews, translating vernacular responses into English. She also generated the initial codes for the sub-themes, which were subsequently reviewed by the second and third authors. All three authors collaboratively discussed and refined the sub-themes, using data triangulation to enhance credibility by comparing perspectives across different participant groups. This method contributed to a comprehensive and nuanced understanding of male uptake of HTS at PHC facilities.

3. Findings

3.1 Participants' socio-demographic characteristics

The socio-demographic profile (Table 2) of the twelve male participants in this study reveals a group marked by shared ethnicity and gender, yet diverse in age, education, and employment status. All participants were African males aged 18 years and older, with ages ranging from early adulthood to over sixty years. This age range encompasses a diverse spectrum of experiences, from young men at the threshold of adulthood to older individuals who may have faced long-term social and economic challenges.

Most of the participants were unmarried, with only one reporting being married. This predominance of single status may reflect broader social patterns or personal circumstances that influence HTS access among men in these communities.

Educational backgrounds varied significantly. While some participants had only completed primary or early secondary schooling, others had reached Grade 12, and a few had pursued tertiary education or were currently enrolled in college. This variation suggests differing levels of access to educational opportunities.

TABLE 1. Interview key questions per participant group.

SEM Level	Male Patients	Lay Counsellors	Professional Nurses
Individual	Barriers: What are the main personal challenges, if any, you face when obtaining HTS? Facilitators: What can male patients do differently to enable access to HTS?	Barriers: What challenges, if any, do you face when offering HTS to male patients? Facilitators: What can be done by male patients to improve access to HTS?	Barriers: What, if anything, hinders male patients from accessing HTS? Facilitators: What can male patients do to improve their HTS access?
Interpersonal	Barriers: How, if at all, does your family affect your decision to test for HIV? Facilitators: What should families do to support men accessing HTS?	Barriers: Do families offer enough support to male patients to access HTS? Facilitators: How can families help improve male patients' HTS access?	Barriers: What, if any, are the interpersonal challenges faced by male patients? Facilitators: How can families support men to access HTS?
Organisational	Barriers: In what way does the clinic layout affect access to HTS? Facilitators: How can HTS providers improve access for male patients?	Barriers: What SOPs or HTS guidelines do you follow, and what challenges arise? Facilitators: What should PHC facilities do to improve HTS access by men?	Barriers: What challenges, if any, do you face in initiating male patients on ART? Facilitators: What should PHC facilities do to improve HTS access by males?
Community	Barriers: How does the community discourage or fail to support men in HTS uptake? Facilitators: What should community groups do to support male HTS uptake?	Barriers: Does the community support men in HTS uptake? Facilitators: What can school or faith-based groups do to improve HTS access for men?	Barriers: What community-related challenges, if any, hinder male HTS uptake? Facilitators: What should community organisations do to support HTS uptake?
Policy	Barriers: What challenges, if any, would you like the DoH to address regarding HTS? Facilitators: What adjustments, if any, should DoH make to HTS policy?	Barriers: What barriers, if any, hinder implementation of the HTS policy? Facilitators: What adjustments, if any, should DoH make to HTS policy?	Barriers: What challenges, if any, do PHC facilities face in receiving HTS support from the DoH? Facilitators: What, if any, HTS policy adjustments do you recommend to improve access?

SEM: socio-ecological model; HTS: HIV Testing Services; HIV: human immunodeficiency virus; PHC: primary health care; ART: antiretroviral therapy; DoH: Department of Health; SOP: standard operating procedure.

TABLE 2. Socio-demographic characteristics of male patients.

Identifier	Age	Education Level	Marital Status	Employment Status
Clinic A P1	23	Grade 11	Single	Unemployed
Clinic A P2	39	Grade 10	Single	Unemployed
Clinic A P3	20	College – 1st year	Single	Unemployed
Clinic A P4	24	Grade 12	Single	Employed
Clinic B P1	34	Grade 11	Single	Employed
Clinic B P2	47	Tertiary	Married	Employed
Clinic B P3	62	Grade 5	Single	Employed
Clinic B P4	20	Grade 12	Single	Unemployed
Clinic C P1	31	Grade 12	Single	Employed
Clinic C P2	35	Grade 10	Single	Unemployed
Clinic C P3	43	Tertiary	Single	Unemployed
Clinic C P4	43	Grade 12	Single	Unemployed

More than half of the patients were unemployed. The participants were drawn equally from three clinics, Clinic A, Clinic B, and Clinic C, ensuring a balanced representation across different healthcare settings. This distribution may offer insights into how local contexts shape the experiences and needs of male patients, particularly in relation to health-seeking behaviour and access to services.

The socio-demographic profile (Table 3) of the eleven healthcare providers in this study reflects a team that is diverse in gender, age, and years of professional experience. While the group consisted predominantly of males, females were also represented across both lay counsellor and professional nurse roles, highlighting some gender balance within the cadre of HTS providers.

Participants ranged in age from their late 20s to late 50s, indicating a blend of early-career and more experienced professionals. This variation is important, as it brings together a range of perspectives—from those newer to HIV service delivery to those with extensive exposure to the evolving landscape of HIV testing and treatment practices.

The lay counsellors had, on average, spent 6.5 years in their current roles, compared to the professional nurses' average of 3.8 years. This suggests that lay counsellors may offer more cumulative, community-facing experience in delivering HTS, which can be invaluable in understanding patient engagement, especially among hard-to-reach groups like men. Conversely, the shorter tenure among professional nurses may reflect either recent training (such as NIMART) or staff turnover in clinical roles.

Providers were distributed across all three clinics, Clinic A, Clinic B, and Clinic C, with a near-equal spread of professional nurses and lay counsellors in each facility. This balanced representation supports a comprehensive view of facility-based dynamics affecting male HTS uptake, enabling comparisons across different facility environments and team compositions.

3.2 Barriers to male uptake of HTS at PHC facilities

Table 4 provides an overview of the emerging sub-themes based on the SEM levels.

3.3 Barriers to male uptake of HTS at PHC facilities

3.3.1 Individual level

At the individual level, both the patients and healthcare providers perceived a lack of comprehensive HIV knowledge and fear as significant barriers to male uptake of HTS in PHC facilities.

3.3.1.1 Lack of comprehensive HIV testing knowledge

Participants perceived that men's reluctance to undergo HTS is driven by a lack of accurate or comprehensive information and misconceptions about HIV, its severity, transmission, and symptoms, as well as mistrust of partner testing and HIV self-testing kits.

3.3.1.2 Fear and emotional distress associated with HIV testing

Participants further perceived that men's non-uptake of HIV testing stems from fear and emotional distress, including fear of needles, anxiety about positive results, fear of death, and discomfort discussing or seeking HIV testing at clinics.

3.3.1.3 Self-stigmatisation

Some professional nurses believed that men often self-stigmatise, which hinders their HTS access at PHC facilities.

3.3.2 Interpersonal level

At the interpersonal level, barriers to male uptake of HTS included family silence and lack of support for men, men's fear of stigmatisation and discrimination, peer pressure and influence, and men's conforming to traditional gender norms and emotional suppression.

TABLE 3. Socio-demographic characteristics of the healthcare providers.

Identifier	Gender	Age	Designation	Years in Current Designation
Clinic A LC1	Male	41	Lay counsellor	8
Clinic A LC2	Female	27	Lay counsellor	4
Clinic A PN1	Female	31	Professional nurse	3
Clinic A PN2	Male	51	Professional nurse	6
Clinic B LC1	Female	59	Lay counsellor	10
Clinic B LC2	Male	27	Lay counsellor	3
Clinic B PN1	Male	27	Professional nurse	3
Clinic B PN2	Female	32	Professional nurse	5
Clinic C LC1	Male	32	Lay counsellor	7
Clinic C LC2	Male	33	Lay counsellor	7
Clinic C PN2	Male	46	Professional nurse	2

LC: Lay counsellor; PN: Professional nurse.

TABLE 4. Summary of barriers to male uptake of HTS at PHC facilities by SEM level.

SEM level	Subthemes	Illustrative Quotes
Individual	<ul style="list-style-type: none"> • Lack of comprehensive knowledge about HIV and HIV testing modalities • Fear associated with HIV testing and emotional consequences <ul style="list-style-type: none"> • Self-stigmatisation 	<ul style="list-style-type: none"> • “Males have a perception that when their partner tests negative, it means they are negative too” (Clinic C LC1). • “I have a fear that if I am to test HIV-positive, I will be very stressed, and then end up getting depressed” (Clinic C P1). <ul style="list-style-type: none"> • “...males do not want to be seen in testing rooms...” (Clinic B PN2).
Interpersonal	<ul style="list-style-type: none"> • Lack of family support • Fear of stigmatisation and discrimination • Peer pressure and influence • Conforming to traditional gender norms 	<ul style="list-style-type: none"> • “They [the family] do not talk about HIV. It’s like a taboo to mention anything HIV or sex-related” (Clinic C P1). <ul style="list-style-type: none"> • “Males are afraid of discrimination and stigmatisation by their peers” (Clinic A LC1). • “For younger males, the challenge could be peer pressure from the peers’ experience more especially those that had a bad experience” (Clinic C PN1). • “No, men are known to be strong ... Sometimes when we as women try to support men [to undertake HTS], they push us away” (Clinic A LC2).
Organisational	<ul style="list-style-type: none"> • Negative staff attitudes and their impact on patient care and experience • Concerns about privacy and confidentiality in health facilities • Health system inefficiencies • Discomfort with cross-gender interactions • Language and communication barriers 	<ul style="list-style-type: none"> • “I really do not appreciate how we are mistreated at the clinic... they are always rude” (Clinic A P4). • “It is difficult to maintain confidentiality because of space, the rooms are too small and even though gazebos are available, they are not ideal because people know what takes place in a gazebo, i.e., HIV testing” (Clinic C LC2). • “...the session was rushed, and I was not given much information on the processes... I had many questions, but I could not ask because of time” (Clinic B P2). • “Some men do not want to be initiated [on HIV treatment] nor [HIV] tested by a female healthcare provider...” (Clinic A PN1). • “The main challenge with serving a diverse group of patients is that some do not speak or understand any local language... they do not understand English or any of the local languages” (Clinic C LC2).
Community	<ul style="list-style-type: none"> • Lack of community-driven education and support for men <ul style="list-style-type: none"> • Stigma 	<ul style="list-style-type: none"> • “The community never talks about things like HIV... People still fear to bring HIV into the topic. Most people are still confused between what we call ‘drop’ [STI] and HIV” (Clinic B P3). • “[The community] fails men because they do not educate them about health issues men face such as HIV, STIs, and prostate cancer. They do not educate men that unsafe sexual ways can lead to HIV infection...” (Clinic B LC2). <p>The professional nurses did not identify any barrier at the community level.</p>
Policy	<ul style="list-style-type: none"> • Inconsistent HTS policy implementation • Lack of adequate support from the DoH 	<ul style="list-style-type: none"> • “To be honest with you, we sometimes do not follow it [SOP]” (Clinic B LC2). • “...if a male patient has not tested in the past six weeks or does not know his status, then I refer for testing” (Clinic C N1). • “...when they come to the clinic with the same problem time and again, and when they are sexually active” (Clinic B N2). <p>The male patients did not perceive any barrier at the policy level.</p>

DoH: Department of Health; SEM: socio-ecological model; SOP: standard operating procedure; STI: Sexually Transmitted Infection; HIV: Human immunodeficiency virus; PN: Professional nurse; LC: Lay counsellor.

3.3.2.1 Family silence and lack of support

Some male patients perceived a significant lack of open communication about HIV within families. Discussions about HIV are often avoided, with the topic treated as a taboo. Additionally, men frequently reported being unsupported when it comes to HIV testing and are instead blamed for transmitting the virus.

3.3.2.2 Fear of stigmatisation and discrimination

Some lay counsellors perceived that men fear the potential for familial repercussions following HIV diagnosis. The fear of stigma and discrimination, whether from peers or family members, deters men from disclosing their status or seeking support.

3.3.2.3 Peer pressure and influence

A professional nurse from Clinic C highlighted the potentially negative impact of peer influence on younger men's attitudes toward HIV testing.

3.3.2.4 Conforming to traditional gender norms

Some healthcare providers perceived that societal expectations that men should embody strength and stoicism, often at the expense of their emotional well-being, could discourage men from expressing vulnerability, including seeking support to undertake HTS.

3.3.3 Organisational level

At the organisational level, five barriers to male HTS uptake emerged including discomfort with cross-gender interactions, negative staff attitudes and their impact on patient care and experience, concerns about privacy and confidentiality in health services, language and communication barriers, and cultural beliefs and treatment preferences.

3.3.3.1 Discomfort with cross-gender interactions

Some patients expressed discomfort with discussing their health issues with female healthcare providers. Equally, healthcare providers also perceived that female health workers may feel uncomfortable dealing with especially older males, which may impact the quality of HTS provided to this patient group.

3.3.3.2 Negative staff attitudes and their impact on patient care and experience

Both the patients and healthcare providers raised concerns about negative staff attitudes affecting patients' care experiences. Participants urged nurses to show kindness toward male and Sexually Transmitted Infections (STIs) patients, noting that poor attitudes breach confidentiality and erode trust in HIV services.

3.3.3.3 Concerns about privacy and confidentiality in health services

Some patients expressed concern about the lack of private and secure testing areas within healthcare facilities, while others were worried about their private health information being disclosed to non-healthcare professionals.

3.3.3.4 Health system inefficiencies

Patients expressed concerns about the poor state of healthcare services, which influenced men's uptake of HTS. They reported rushed consultations, long waiting times worsened by staff shortages, and extended breaks for providers. Additionally, poorly organised clinic layouts and fragmented service points further complicated their healthcare experience.

3.3.3.5 Language and communication barriers

A lay counsellor at Clinic C voiced the issue of language and communication barriers posing difficulties with diverse patient populations and hindering some males from undergoing HTS.

3.3.3.6 Cultural beliefs and treatment preferences

Lay counsellors further highlighted that patients' cultural beliefs and treatment preferences influence their acceptance of conventional medical treatments.

3.3.4 Community level

At the community level, patients and lay counsellors perceived a lack of health education for men on HIV, STIs, and prostate cancer. Limited discussion of HIV and unsafe sexual practices perpetuate misinformation and confusion.

3.3.5 Policy level

At the policy level, healthcare providers perceived that inconsistent HTS policy implementation and unclear patient referral criteria were barriers to male uptake of HTS.

3.3.5.1 Inconsistent HTS policy implementation

A lay counsellor highlighted that some healthcare providers do not consistently follow the standard operating procedures (SOPs).

3.3.5.2 Non-standardised referral criteria and risk assessment gaps

The professional nurses highlighted varied referral criteria when patients present with diverse problems, including skin problems, recurrent sexual health issues, TB symptoms, and cases when the patient has not undergone an HIV test in the past six weeks.

3.4 Facilitators of male uptake of HTS at PHC facilities

Table 5 provides an overview of the emerging sub-themes based on the SEM levels.

3.5 Facilitators of male uptake of HTS at PHC facilities

3.5.1 Individual level

Two themes emerged at the individual level, including, overcome negative attitudes towards HTS and addressing men's lack of awareness.

3.5.1.1 Overcome negative attitudes towards HTS

At the individual level, participants noted that addressing negative attitudes could improve men's HTS uptake. Men should overcome denial and pride, take proactive steps toward testing,

TABLE 5. Summary of facilitators of male uptake of HTS at PHC facilities by SEM level.

SEM level	Subthemes	Illustrating quotes
Individual	<ul style="list-style-type: none"> • Overcome negative attitudes towards HTS • Address men's lack of awareness 	<ul style="list-style-type: none"> • “[Men] need to stop being ignorant and come to the clinic to test” (Clinic C P2). • “Men need to stand up for themselves. They need to stop having pride or any fear, and then come to the facilities or go to the community tents to get tested” (Clinic A LC1). • “[Men] need to stop thinking HIV is like flu. They need to start taking it seriously like the old ‘AIDS’ that used to take lives. They must go get tested and be informed about HIV, TB, STIs and treatment” (Clinic A PN1).
Interpersonal	<ul style="list-style-type: none"> • Foster supportive family and networks for men • Family-based education and communication about HTS 	<ul style="list-style-type: none"> • “Families need to support males and create an environment where men can open up. Also, families must be open instead of being judgemental” (Clinic A P1). • “Families need to talk more to these men about HIV and the importance of testing and being on treatment. They also need to accompany each other as brothers to come to the clinic whether it is to test or to collect treatment” (Clinic A LC 1). • “Parents need to educate their children about HIV...” (Clinic C PN1).
Organisational	<ul style="list-style-type: none"> • Reduce the negative impact of perceived stigma • Dedicate spaces and support groups for men within healthcare settings • Prioritise health outreach and education • Promote health education tailored towards men 	<ul style="list-style-type: none"> • “They need to stop having bad attitudes and treat people with respect” (Clinic B P3). • “There needs to be a men's corner at every public healthcare facility, where there are different slots for meetings for men to attend wherein they will be educated about most men's health issues and HIV” (Clinic C PN1). • “[Healthcare providers] need to target places where there are many people at once, such as at malls or taxi ranks, where we can give health education to men. In such campaigns, healthcare providers need to make health education the only priority without convincing them to test or even testing on the spot.” (Clinic B LC 2).
Community	<ul style="list-style-type: none"> • Further community-based health education and dialogue • Incorporating health dialogues into community meetings 	<ul style="list-style-type: none"> • “[The community needs to] gather all men to teach them about HIV testing and create men dialogues” (Clinic B P3). • “[The community should] invite the healthcare providers at those meetings, so they give health talks about different diseases like prostate cancer, diabetes, and HIV. Not only talk about HIV because it creates stigma when they educate only about HIV” (Clinic B LC2). <p>Professional nurses did not identify any facilitators.</p>
Policy	<ul style="list-style-type: none"> • Increase the number of male healthcare providers • Reinforce HTS policy adherence • Extend clinic hours 	<ul style="list-style-type: none"> • “They need to hire more male professional nurses because some men do not want to be initiated or tested by a female healthcare provider” (Clinic A PN1). • “DoH needs to reinforce their policy that everyone who enters the public healthcare facility needs to test for HIV” (Clinic B LC2). • “More emphasis on operating on weekends because some, if not most, men do want to come to the clinic to test but are afraid of waiting longer and cannot skip going to work” (Clinic C P3).

SEM: Socio-ecological model; AIDS: Acquired immunodeficiency syndrome; HIV: Human immunodeficiency virus; PN: Professional nurse; LC: Lay counsellor; HTS: HIV Testing Services; STI: Sexually Transmitted Infection.

and recognise the importance of being well-informed about HIV.

3.5.1.2 Address men's lack of awareness

Patients and healthcare providers emphasised the importance of men taking the initiative to self-educate about STIs in order to enhance their awareness and change their perception of HIV, encouraging them to take the condition more seriously. Additionally, they highlighted the need for men to prioritise

their health.

3.5.2 Interpersonal level

Both the patients and healthcare providers perceived that encouraging health education within families, along with fostering supportive family and friend networks, would facilitate male uptake of HTS.

3.5.2.1 Family-based education and communication about HTS

Participants voiced the need for families to foster health discussions and educate one another about HIV and the significance of knowing one's status, complemented by seeking knowledge from healthcare providers to inform and support family members.

3.5.2.2 Foster family support for men

Participants highlighted that family support and open communication are crucial in encouraging men's engagement with HTS. Creating non-judgemental spaces, discussing HIV openly, and offering accompaniment were seen to motivate men to test and adhere to treatment.

3.5.3 Organisational level

At the organisational level, participants perceived that reducing the negative impact of stigma within healthcare facilities, improving privacy, and prioritising health outreach and education would facilitate male HTS uptake.

3.5.3.1 Addressing perceived stigmatisation

Patients at Clinic B emphasised the need for healthcare providers to adopt respectful and non-judgemental attitudes towards patients.

3.5.3.2 Dedicate spaces and facilitate support groups for men within healthcare settings

Both the patients and healthcare providers proposed the establishment of dedicated spaces within healthcare facilities to cater to men's needs. This includes creating men's support groups and men's corners, and designating sections to provide health education, address male health issues, and create platforms for men to ask questions and seek support regarding HIV and overall health.

3.5.3.3 Prioritise health outreach and education

Some healthcare providers suggested prioritising health education, targeting high-traffic areas to educate men about health issues. The idea is to use the provision of information as a tool to encourage men to seek HIV testing on their own.

3.5.4 Community level

At the community level, two sub-themes emerged on improving male uptake of HTS at PHC facilities, which are community-based education and community dialogues.

3.5.4.1 Community-based education

All male patients pointed out that community health education and awareness are important in increasing men's access to HTS. The patients stated that increasing awareness and knowledge would improve men's engagement with and access to HTS, subsequently contributing to a healthier and more informed society.

3.5.4.2 Incorporating health dialogues into community meetings

Integrating health talks in community meetings to improve the uptake of HTS at PHC facilities was proposed by lay counsellors. This involves organising dialogues where men

can meet and discuss various topics relating to men's health.

3.5.5 Policy level

Three sub-themes emerged at the policy level regarding enhancing male uptake of HTS at PHC facilities, namely increasing the number of male healthcare professionals, reinforcing HST policy adherence, and extending clinic hours.

3.5.5.1 Increase the number of male healthcare providers

Some participants felt that increasing the number of male healthcare providers would better address men's health concerns.

3.5.5.2 Reinforcement of HTS policy adherence

Some healthcare providers recommended that strengthening HTS policy implementation can empower men to access HTS at PHC facilities.

3.5.5.3 Extended clinic hours

There was a recognition that operating clinics on weekends could help accommodate men who might otherwise struggle to find time during regular hours, including those who must work and cannot wait for long.

4. Discussion

This study explores male patients, lay counsellors and professional nurses' views of barriers to and facilitators of male HTS uptake at PHC facilities in Orange Farm. It is evident from the findings that male patients, lay counsellors, and professional nurses shared common perceptions regarding the barriers and facilitators influencing male uptake of HIV Testing Services at PHC facilities. While the barriers and facilitators affecting male uptake of HTS are well-recognised, findings from this qualitative exploratory case study offer further insights into the multifaceted influences of individual, social and health system factors on male HTS uptake based on the SEM framework.

4.1 Barriers to male uptake of HTS

At the individual level, participants in the current study perceived that men's lack of comprehensive knowledge about HIV and available HIV testing methods hinders their HTS uptake at PHC facilities, which echoes findings from research among young men in the rural areas of Ladysmith, KwaZulu-Natal [29]. Other factors perceived to drive men's reluctance to engage with HTS at PHC facilities were fear of both the testing process and potential emotional consequences, and men's self-stigmatisation. This is consistent with a qualitative study in KwaZulu-Natal, which reported that fear related to men's perceptions of their own HIV risk, along with stigma and discrimination, contributed to their unwillingness to access HTS [29, 30].

At the interpersonal level, the study identified several perceived barriers that hinder men's uptake of HTS. These include a lack of family support for men, stigmatisation and discrimination, peer pressure and adherence to traditional gender norms that discourage emotional expression. These findings align with other research conducted in sub-Saharan Africa. For

instance, in Uganda, Camlin *et al.* [10] revealed that while men were inclined to discuss HIV-related issues with close family members, such as their wives, they often found it difficult to do so. Similarly, research in Zambia found that young men's motivation to undergo HIV testing diminished due to negative peer influence, intoxication, and the fear of reprimand from healthcare providers [31]. Furthermore, Stephenson *et al.* [32] reported that in communities with high tolerance for violence against women and conservative gender roles, there was greater reluctance among men to engage in HTS.

At the organisational level, the perceived barriers to male uptake of HTS included discomfort with cross-gender interactions, the negative impact of staff attitudes on patient care and experience, concerns about privacy and confidentiality, inefficiencies within the health system, and language and communication barriers. These issues are consistent with findings from other studies across sub-Saharan Africa [31, 33].

At the community level, perceived barriers to male uptake of HTS in the selected Orange Farm clinics included a lack of education and awareness about HIV. Available research on community-level barriers to male uptake of HTS generally does not emphasise lack of education and awareness as key barriers [6, 12, 34]. However, a study from Eastern Africa by Adugna and Worku [9] highlights high community illiteracy rates as a significant barrier to men's engagement with HTS. This shows the divergence in perspectives regarding the role of community education in influencing male uptake of HTS.

At the policy level, healthcare providers identified non-adherence to health policy as a significant barrier, underscoring the importance of stricter compliance with established health policies at PHC facilities. Inconsistencies were noted in the application of the NDoH's HTS Policy and the Standard Operating Procedures for HIV Index Testing Services [24, 35]. Evidence from Cartagena, Colombia, similarly shows that the implementation of the HIV and AIDS-health-related policies often fails at the local level due to poor contextual alignment and barriers such as limited collaboration, stigma, resource shortages, and unstable leadership [36]. Across sub-Saharan Africa, health policies have for many years predominantly focused on women, often overlooking the engagement of men in HTS [37]. Although non-adherence to health policies is not widely identified in the literature as a barrier to men's use of HTS in PHC facilities, strengthening policy implementation within healthcare settings may help address this challenge and improve men's access to HTS.

4.2 Facilitators of male uptake of HTS

At the interpersonal level, both the patients and healthcare providers in this study identified that supportive family and friend networks, along with promoting health education within families, could significantly facilitate male uptake of HTS. Various stakeholders have underscored the crucial role of family dynamics and peer support in influencing men's decisions to access HTS, highlighting the importance of targeted interventions [3, 6, 38]. However, existing literature lacks robust evidence on the promotion of HIV health education within families as a facilitator of male uptake of HTS, suggesting a need for further exploration.

The suggested facilitators at the organisational level included reducing the negative impact of stigma within healthcare facilities, improving privacy, and prioritising health outreach and education. In previous research, similar interventions were suggested, such as implementing measures to improve gender-sensitive healthcare provision, training to foster positive staff attitudes, and the creation of male-friendly environments within healthcare facilities [6, 30, 38]. Additionally, Mabuto *et al.* [39] recommended interventions to improve HTS delivery efficiently within the limitations of existing human resources, such as abbreviated pre- and post-test counselling, the integration of HIV self-testing options into facility-based HTS, and triaging methods to exclude HIV-negative patients.

At the community level, participants proposed leveraging community gatherings as platforms to educate men on health issues. Improving community education and awareness, specifically initiatives tailored to address men's unique challenges, has been emphasised as crucial for promoting HTS uptake among men in Eastern Africa [9]. A study conducted by DiCarlo *et al.* [40] in Lesotho found that educational initiatives led by men themselves can be especially effective. Similarly, the South African DoH underscores the importance of community-driven approaches in engaging men in HTS [3]. Community-based education can help to dispel myths, challenge negative perceptions, and reduce stigma, thereby empowering men to take control of their own health. Collaborative efforts with local leaders and community organisations are essential in developing effective strategies to enhance HTS uptake.

At the policy level, participants identified increasing the number of male healthcare providers, reinforcement of HTS policy adherence and extended clinic hours as key facilitators to improving men's uptake of HTS. These findings align with Shand *et al.* [37], who emphasise the need for a unified policy agenda that engages men and boys, while also noting the lack of prioritisation of men's participation in HTS within existing African HIV policies. In 2022, the UNAIDS endorsed a policy framework aimed at actively involving men in HTS, particularly in Eastern and Southern Africa—regions disproportionately affected by the HIV epidemic [41]. This was followed by the identification of men as a priority population for HTS intervention in South Africa's National Strategic Plan for HIV, TB and STIs 2023–2028 [3]. Nevertheless, current literature seldom recognises policy adherence and the presence of male providers as enablers of HTS, indicating a gap that warrants further research and policy attention.

The findings highlight interactions across the SEM levels that shape men's HIV testing behaviours. At the community-level, stigma and misconceptions about HIV reinforce individual self-stigmatisation, discouraging men from seeking testing or disclosing their status. Interpersonal level factors, such as a fear of judgment from family members or peers, can further exacerbate these barriers. Conversely, supportive family and peer networks can buffer the negative effects of stigma, highlighting the critical role of interpersonal relationships in shaping health behaviours. At the organisational level, male-friendly health spaces, improved privacy, and positive staff attitudes can mitigate both individual self-

stigmatisation and community-level stigma by creating supportive environments. Policy-level interventions such as consistent implementation of HTS policies, targeted recruitment of male healthcare providers, and extended clinic hours can reinforce these efforts and promote positive behavioural change across all levels.

4.3 Limitations of the study

The limitations of this qualitative case study should be acknowledged. Non-probability sampling and a small sample size may restrict the application of the results to other clinics or broader male populations. Social desirability bias may have influenced the responses from both healthcare providers and male participants. Not quantifying the actual prevalence of barriers and facilitators may weaken the study's conclusions. Therefore, future research incorporating objective measures to validate these perceptions is recommended. Another limitation of the study concerns the multi-level approach used, which, although it provides a thorough look at the factors influencing male uptake of HTS, inevitably also introduces complexity, making it difficult to determine which interventions should be prioritised first. Additionally, the sample comprised participants with varied educational backgrounds and high levels of unemployment, which may have influenced their perspectives and experiences related to healthcare access and HIV testing. Despite these challenges, the study contributes insights into the specific factors that either deter or encourage men to take up HTS, as seen from both the users' and healthcare providers' perspectives.

5. Conclusions

The study findings revealed that men's uptake of HTS at PHC facilities in Orange Farm is shaped by multi-level barriers and facilitators. At the individual level, limited HIV knowledge and fear of testing hinder uptake, while improving awareness and attitudes were seen as enablers. At the interpersonal level, family silence discouraged testing, whereas family support and open communication were viewed as important facilitators. At the organisational level, discomfort with cross-gender interactions, poor staff attitudes, and inefficiencies reduced access to HTS, but male-friendly clinic hours, spaces and supportive service environments were identified as positive drivers. At the community level, the lack of male-focused education limited engagement, while community-led education and dialogue were seen as vital. At the policy level, inconsistent HTS policy implementation was a barrier; however, stronger adherence to policy and increasing the number of male healthcare providers were suggested to improve uptake. To address these challenges, policymakers should ensure consistent implementation of the National HTS Policy to promote standardised service delivery and accountability. Facility managers should enhance provider training and create male-friendly, stigma-free spaces to improve men's engagement in testing. Community stakeholders should lead awareness initiatives to reduce stigma and normalise HIV testing. These coordinated actions could improve male participation in HTS, strengthen service delivery, and contribute to achieving national HIV prevention and

treatment targets.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of this study can be obtained from the NPC upon reasonable request.

AUTHOR CONTRIBUTIONS

NPC, NGK-M and JCH—conceptualised the study and designed the methodology. NPC—collected the data and performed data analysis; was the project administrator; wrote the original draft. NGK-M and JCH—were responsible for the supervision of this study. All authors reviewed and edited the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The study received ethical clearance from the University of the Free State's Health Sciences Research Ethics Committee (UFS-HSD2022/0294/2908). Authorisation to interview the participants was granted by the Research Committee of Johannesburg Health District (GP202205005). Prior to the interviews, participants were provided with detailed information about the purpose of the study, their right to voluntary participation, potential risks and associated remedial strategies, and the data handling and processing methods. Participants were then asked to sign (with illiterate patients marking an "X") to confirm their understanding and willingness to participate in the study. Participants were assured that their interview information would remain confidential. To ensure confidentiality, raw data were stored on a password-protected computer, and hard copies were kept in a locked cabinet, to be destroyed after five years. Privacy was maintained by conducting interviews in a private room. Participants' anonymity was preserved by assigning pseudonyms to the participants and clinics, for example, "Clinic A P1", "Clinic B PN1", and "Clinic C LC". While no harm to the participants was anticipated, the study adhered to beneficence by having a social worker available for referrals in case of psychological distress.

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CONFLICT OF INTEREST

The authors declare no conflict of interest. NPC was an HTS coordinator in the City of Johannesburg, Region G from 2019–2024. NGK-M and JCH declare no conflict of interest.

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