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Sexually Transmitted Infections among Adolescents in Greater Letaba, South Africa: Prevalence and Gender-Specific Risk Factors

Infeksi Menular Seksual Pada Remaja di Greater Letaba, Afrika Selatan: Prevalensi dan Faktor Risiko Berbasis Gender

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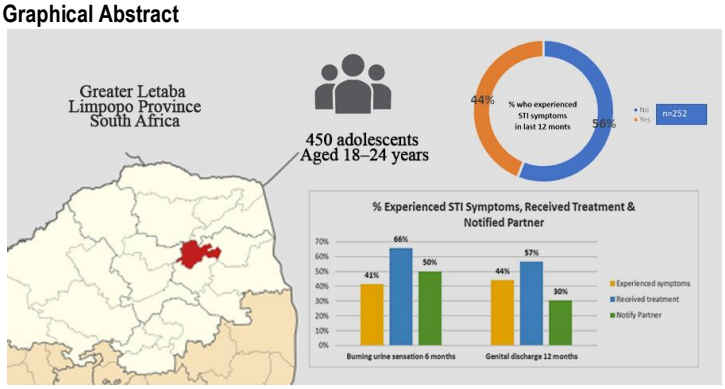
Abstract
Adolescents remain highly vulnerable to sexually transmitted infections (STIs) due to behavioral, biological, and socio-cultural determinants, yet there is limited evidence from rural sub-Saharan Africa addressing the prevalence and gender-specific patterns of risk. This study aimed to determine the prevalence of STIs and associated risk factors among adolescents in the Greater Letaba sub-district of Limpopo Province, South Africa. A quantitative, descriptive, cross-sectional survey was conducted among 450 participants aged 18–24 years. Data on socio-demographics, sexual practices, STI-related symptoms, and health-seeking behaviors were collected and analyzed. The results showed that 44% of respondents reported STI-related symptoms within the past year, with genital discharge (44%) and dysuria (41%) being the most common. Male participants exhibited significantly higher engagement in risky sexual behaviors, including transactional sex, multiple or non-regular partners, and alcohol use during last intercourse ($p<0.001$). Males also demonstrated higher rates of condom use, negotiation confidence, and HIV testing uptake compared to females, who expressed greater willingness to test with a partner. The findings underscore the dual challenge of high-risk sexual practices and gendered disparities in STI prevention, suggesting the importance of targeted, gender-sensitive interventions. Integrating Islamic values of modesty, mutual responsibility, and protection of health can strengthen preventive strategies, aligning with the Sustainable Development Goals to improve adolescent and family health outcomes.

Abstrak
Remaja merupakan kelompok yang sangat rentan terhadap infeksi menular seksual (IMS) karena faktor perilaku, biologis, dan sosial budaya, namun bukti ilmiah dari wilayah pedesaan sub-Sahara Afrika masih terbatas terkait prevalensi dan pola risiko berbasis gender. Penelitian ini bertujuan untuk menentukan prevalensi IMS serta faktor-faktor risiko yang berhubungan pada remaja di sub-distrik Greater Letaba, Provinsi Limpopo, Afrika Selatan. Penelitian dilakukan dengan desain kuantitatif, deskriptif, dan potong lintang pada 450 responden berusia 18–24 tahun. Data mengenai karakteristik sosiodemografi, perilaku seksual, gejala terkait IMS, serta perilaku pencarian layanan kesehatan dikumpulkan dan dianalisis. Hasil penelitian menunjukkan bahwa 44% responden melaporkan gejala IMS dalam satu tahun terakhir, dengan keluarnya cairan genital (44%) dan disuria (41%) sebagai keluhan terbanyak. Partisipan laki-laki melaporkan keterlibatan yang lebih tinggi dalam perilaku seksual berisiko, termasuk seks transaksional, pasangan seksual ganda atau tidak tetap, serta penggunaan alkohol saat hubungan seksual terakhir ($p<0.001$). Laki-laki juga menunjukkan tingkat penggunaan kondom, kepercayaan diri dalam negosiasi, dan tes HIV yang lebih tinggi dibanding perempuan, sementara perempuan lebih banyak mengekspresikan kesediaan untuk melakukan tes bersama pasangan. Temuan ini menekankan tantangan ganda berupa tingginya perilaku seksual berisiko dan disparitas gender dalam pencegahan IMS, sehingga diperlukan intervensi sensitif gender. Integrasi nilai-nilai Islam tentang kesucian, tanggung jawab bersama, dan perlindungan kesehatan dapat memperkuat strategi pencegahan, sejalan dengan Tujuan Pembangunan Berkelanjutan untuk meningkatkan kesehatan remaja dan keluarga.

Graphical Abstract



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INTRODUCTION

Sexually transmitted infections (STIs) remain a major global public health concern, disproportionately affecting adolescents aged 15–24. The World Health Organization (World Health Organization [WHO], 2023) estimates that more than one million new cases of STIs occur daily worldwide, with nearly half of the 374 million annual cases occurring among this vulnerable cohort (Centers for Disease Control and Prevention [CDC], 2023). Biological, psychological, and social factors converge to elevate risks, including early sexual debut, inconsistent condom use, multiple sexual partners, and limited access to youth-friendly health services (Ayerdi et al., 2020; Espada et al., 2021). The Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being), highlight the importance of ensuring universal access to sexual and reproductive health services and reducing the burden of communicable diseases. Adolescents represent a critical demographic for targeted intervention because unsafe sexual practices during this life stage carry long-term health and socio-economic consequences.

In South Africa, adolescent sexual health challenges are compounded by structural inequalities, sociocultural stigma, and healthcare barriers. Nationally, around 20% of teenage girls have been diagnosed with STIs (Francis et al., 2023), while rates of chlamydia, gonorrhoea, HPV, and HSV continue to rise among young women aged 19–24 (CDC, 2023). The consequences of untreated infections—including infertility, pelvic inflammatory disease, heightened risk of HIV, and neonatal morbidity—underscore the urgency of tailored interventions (WHO, 2023). In rural areas such as the Greater Letaba sub-district, accessibility issues, entrenched stigma, and lack of adequate sexual education exacerbate these risks, calling for locally relevant studies that inform prevention and treatment strategies.

Despite the high prevalence of STIs among South African adolescents, research focusing on rural areas such as the Greater Letaba sub-district remains scarce. Limited local epidemiological data on prevalence, determinants, and health-seeking behavior constrain the development of effective, context-specific interventions. National programs have emphasized prevention, testing, and condom distribution, yet adolescents in rural regions continue to face barriers such as poor access to healthcare, cultural stigma, and lack of comprehensive sexual health education (Mbizvo et al., 2023; Damian et al., 2024). Addressing this gap requires gender-sensitive and community-tailored interventions that simultaneously enhance knowledge, modify risky behaviors, and improve healthcare accessibility.

Several interventions have demonstrated effectiveness in mitigating STI risks among adolescents. Comprehensive sexual education programs that emphasize contraception, consent, and STI prevention are strongly associated with reductions in risky sexual behavior (Shangase et al., 2021). School- and community-based condom distribution initiatives have also shown significant increases in condom use among adolescents (Francis et al., 2023). Moreover, expanding adolescent-friendly sexual health services—ensuring confidentiality, accessibility, and integration with HIV testing—has been recommended by the WHO (2023) as a crucial step to improve early diagnosis and treatment. Community and parental support also play a protective role in shaping health-promoting behaviors, reducing stigma, and fostering responsible decision-making (Michaelson et al., 2021).

Theoretical frameworks such as the Theory of Planned Behaviour (TPB) and the Social Ecological Model (SEM) further elucidate adolescent sexual behavior dynamics. TPB explains that attitudes toward sexual safety, perceived social norms, and perceived behavioral control strongly influence intention and behavior (Lin et al., 2021; Wang et al., 2022). Meanwhile, SEM provides a broader understanding by situating individual choices within interpersonal, community, and societal contexts (Kahn et al., 2022; Stavitz, 2024). At the interpersonal level, family communication and peer influences affect STI prevention, at the community level, availability of sexual health services and cultural norms play key roles, and at the societal level, structural factors such as poverty, stigma, and restrictive policies remain major barriers (Achen et al., 2021; Scheinfeld, 2023; McBride et al., 2021). Combining TPB and SEM offers a more comprehensive perspective, integrating individual decision-making with structural and cultural determinants.

Although existing research highlights the multifaceted determinants of adolescent STIs globally and nationally, there remains a significant lack of localized evidence in rural South African settings such as Greater Letaba. Most studies have focused on urban populations, often neglecting the unique sociocultural, infrastructural, and healthcare-related challenges in rural communities. Additionally, while several studies have investigated behavioral risk factors, fewer have applied integrative theoretical frameworks such as TPB and SEM to understand adolescent sexual health in these contexts (Alekhya et al., 2023; Appiah et al., 2023; Dadzie et al., 2022; Wiafe et al., 2021). This limits the capacity to design interventions that address both individual behaviors and broader systemic influences.

The novelty of this study lies in its application of TPB and SEM to assess prevalence, risk determinants, and health-seeking behaviors related to STIs among adolescents in Greater Letaba. By focusing specifically on this under-researched rural sub-district, the study provides critical insights into gender-specific behaviors, access disparities, and the interplay between personal intentions and structural barriers. The study aims to assess STI prevalence and determinants among adolescents (18–24) in Greater Letaba, generating evidence to guide culturally sensitive, gender-responsive, and context-appropriate interventions aligned with national priorities and global SDGs.

Table 1
Characteristics of The Participants

Variable	Frequency (Percent)
Sex	
Female	253 (56.2)
Male	197 (43.8)
Age in years	
18-19	174 (38.7)
20-24	276 (61.3)
Level of education	
Primary	55 (12.2)
Secondary	224 (49.8)
Completed grade 12	171 (38.0)
Living with	
Partner	286 (64.6)
Grandparents and parents	110 (24.4)
Older sibling	54 (12.0)
Employed household member	
No	248 (55.1)
Yes	202 (44.9)
Relationship status	
Steady partner	263 (58.4)
Casual partner	187 (41.6)
Age at first sex	
Under 16 years	172 (38.2)
Over 16 years	278 (61.8)
Age of partner at first sex	
Younger than me	147 (32.7)
My age	102 (22.7)
Older than me	201 (44.7)
Age of current sexual partner	
Younger than me	172 (38.2)
My age	74 (16.4)
Older than me	204 (45.3)
No of sexual partner in the past 12 months	
One	191 (42.9)
More than one	254 (57.1)
Planned sex in last sexual encounter	
Unplanned	250 (55.6)
Planned	200 (44.4)
Ever had transactional sex	
No	277 (61.6)
Yes	173 (38.4)
Used contraceptives in the last 6 months	
No	205 (45.6)
Yes	245 (54.4)

METHODS

This study employed a quantitative, descriptive, cross-sectional design to determine the prevalence and determinants of sexually transmitted infections (STIs) among adolescents in the Greater Letaba sub-district, Mopani District, Limpopo Province, South Africa. Mopani District is one of five districts in the province, with a population of 1,092,507, predominantly speakers of Tsonga and Northern Sotho. The district comprises five sub-districts, namely Greater Tzaneen, Marulaneng, Greater Giyani, Ba-Phalaborwa, and Greater Letaba. The Greater Letaba sub-district has a healthcare network that includes 21 clinics and five mobile clinics offering a wide range of primary healthcare services, including STI management, antiretroviral therapy (ART), antenatal and delivery care, immunizations, chronic disease management, minor ailment treatment, and youth-specific services. Clinics operate daily from 07h00 to 19h00, with referrals to community hospitals for emergency cases outside of these hours. Each clinic serves between 10 and 12 villages.

The study population consisted of adolescents and young adults aged 18–24 years attending three purposively selected clinics within the Greater Letaba sub-district. Each of the three clinics serves an estimated 3,000 clients monthly, of whom between 450 and 550 belong to the adolescent age group targeted for this study. The sample size was calculated using a 95% confidence level, a 5% margin of error, and a 50% population proportion, resulting in a minimum requirement of 150 participants per clinic. This yielded a total sample size of 450 respondents. Adolescents were selected randomly from the waiting areas after completing clinical consultations to minimize disruption to routine healthcare services.

The inclusion criteria for this study comprised adolescents and young adults aged 18–24 years who were residents of the Greater Letaba sub-district, attended the selected clinics during the study period, and were willing to provide informed consent after receiving an explanation of the study's purpose and procedures. Only individuals who met these requirements and voluntarily consented to participate were included in the study.

Table 2
Risky Sexual Behaviours by Gender

Statement	Yes		p-value
	Female n (%)	Male n (%)	
In past 6 months, did you have sex in exchange for money?	0 (0.0)	124 (100)	<0.001*
Was there a time when you had more than one sexual partner?	0 (0.0)	153 (100.0)	<0.001*
Have you had casual sex with a non-regular partner?	0 (0.0)	132 (100)	<0.001*
Had alcohol during last sex	51 (20.6)	197 (79.4)	<0.001*
Discussed contraceptive use with partner	50 (20.2)	197 (79.8)	<0.001*
Did you use a condom the last time you had sex?	67 (25.4)	197 (74.6)	<0.001*
Are male condoms easily available in the community?	128 (39.4)	197 (60.6)	<0.001*
Are female condoms easily available in the community?	0 (0.0)	126 (100.0)	<0.001*
I could go and get condoms from a public place without feeling embarrassed	70 (26.2)	197 (73.8)	<0.001*
I always carry a condom with me in case I should need one	130 (67.0)	64 (33.0)	<0.001*
I feel confident suggesting condom use with a new partner	87 (30.6)	197 (69.4)	<0.001*
I could refuse sex if my partner does not want to use a condom	0 (0.0)	174 (100.0)	<0.001*
Tested for HIV in the past 12 months	0 (0.0)	182 (100.0)	<0.001*
Knowledge of current partner's HIV status	58 (22.7)	197 (77.3)	<0.001*
Discussed HIV testing with partner	32 (14.0)	197 (86.0)	<0.001*
Likely to ask partner for HIV testing with me	232 (100.0)	0 (0.0)	<0.001*

Note: * significant value ($p < 0.05$)

A structured questionnaire was developed in English and later translated into the local language, with back-translation to ensure accuracy. Pre-testing was conducted with six adolescents from two of the participating clinics, confirming clarity and validity of the instrument. No modifications were required. Data collection was conducted by the researcher, who administered the questionnaire in a private office allocated by clinic management to ensure confidentiality and minimize disruptions. For participants with literacy challenges, the researcher read the questions aloud and recorded the responses.

Ethical approval was obtained from the Sefako Makgatho Health Sciences University Research and Ethics Committee, Mopani District Health Authority, and the management of participating health facilities. Study objectives, data use, confidentiality, and voluntary participation were explained to all participants. Written informed consent was obtained prior to data collection, with participants informed of their right to withdraw at any time without consequence. No personal identifiers were recorded to preserve anonymity.

Data were entered into Microsoft Excel and subsequently exported into Stata version 13 for statistical analysis. Descriptive statistics were generated to summarize sociodemographic characteristics, sexual behaviors, and reported STI symptoms. Chi-square tests of association were used to assess relationships between risk behaviors and STI prevalence, with statistical significance set at $p < 0.05$. Results were presented in frequency tables and figures for clarity.

RESULTS

The demographic and behavioural characteristics of the study participants are presented below (see Table 1). A majority (56.2%) of the study participants were female, while the majority (61.3%) comprised persons aged between 20-24, while those aged 18-19 comprised 38.7% of the sample. Almost half (49.8%) had only school level education, while 12.2% had only basic education. A majority (64%) had cohabitant spouses, while 45% had an employed cohabitant. All study samples had active partnerships, while 58.4% had steady partnerships, while 41.6% had casual partnerships. Over half (57.1%) had had multiple sex partners over the last one-year period, while 38% had admitted to engaging in exchange sex, while an additional 54.4% had ever used contraceptives over the last six months.

As demonstrated by Figure 1, 44% (n=198) of study participants had reported symptoms related to sexually transmitted diseases (STDs), including genital discharge or dysuria, in the last 12 months. In this group, 44% had experienced genital discharge over the last year, while 41% had experienced dysuria over the last six months. Among those reporting genital discharge, 57% had seen a doctor, while only 30% had told their partner. Among those reporting dysuria, by way of contrast, 66% had visited a doctor, while 50% had told their partner.

As shown in Table 2, only males (100%; n=124) had engaged in sex for money over the past six months, a statistically significant result ($p<0.001$). Compared to females, only males had had many sexual partners (100%; n=153) and sex with non-regular sex partners (100%; n=132), both statistically significant ($p<0.001$). More also had alcohol while last engaged in sex (79.4%; n=197 vs. 20.6%; n=51, $p<0.001$), while 79.8% (n=197) of the males had negotiated contraceptive use by the partner, while only 20.2% (n=50) had negotiated it by the partner, being both statistically significant ($p<0.001$).

Table 3
Risky Sexual Behaviours by Age

Statement	Yes**		p-value
	18-19 years	20-24 years	
In past the six months, did you have sex in exchange for money?	0 (0.0)	124 (100)	<0.001*
Was there a time when you had more than one sexual partner?	0 (0.0)	153 (100.0)	<0.001*
Have you had casual sex with a non-regular partner?	0 (0.0)	132 (100)	<0.001*
Had alcohol during last sex	0 (0.0)	248 (100.0)	<0.001*
Discuss contraceptive use with partner	0 (0.0)	247 (100.0)	<0.001*
Did you use a condom the last time you had sex?	0 (0.0)	264 (100.0)	<0.001*
Are male condoms easily available in the community?	49 (15.1)	276 (84.9)	<0.001*
Are female condoms easily available in the community?	0 (0.0)	126 (100.0)	<0.001*
I could go and get condoms from a public place without feeling embarrassed	0 (0.0)	268 (100)	<0.001*
I always carry a condom with me in case I should need one	92 (47.4)	102 (52.6)	<0.001*
I feel confident suggesting condom use with a new partner	8 (2.8)	276 (97.2)	<0.001*
I could refuse sex if my partner does not want to use a condom	0 (0.0)	174 (100.0)	<0.001*
Tested for HIV in the past 12 months	0 (0.0)	182 (100.0)	<0.001*
Knowledge of current partner's HIV status	0 (0.0)	255 (100.0)	<0.001*
Discussed HIV testing with partner	0 (14.0)	229 (100.0)	<0.001*
Likely to ask partner for HIV testing with me	174 (75.0)	58 (25.0)	<0.001*

Note: * significant value (p < 0.05), ** in frequency (percent)

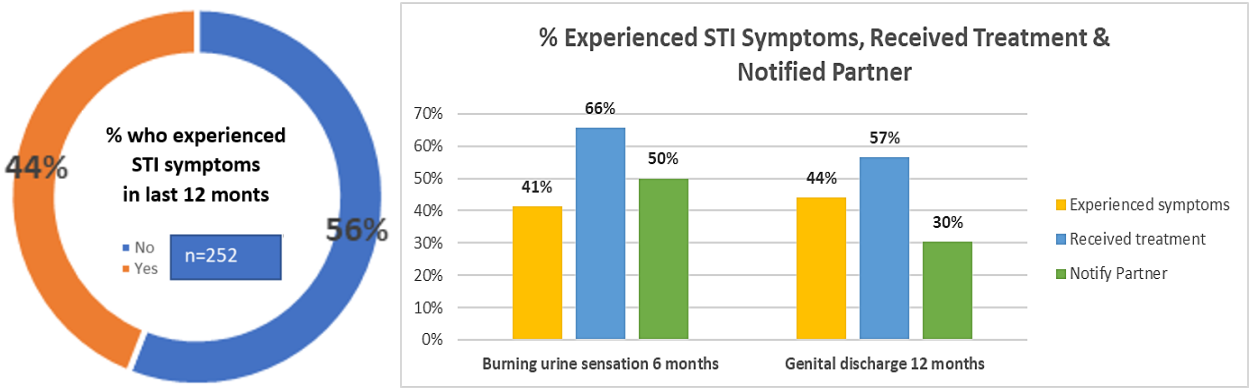
Condom use had the same tendency, whereby more males (74.6%; n=197) had ever used a condom during last sex had, while less had had it (25.4%; n=67, p<0.001). More (60.6%; n=197 vs. 39.4%; n=128, p<0.001) had also stated that it was easy to get male condoms from the community, while only (100%; n=126) had easy access to female condoms. More (73.8%; n=197 vs. 26.2%; n=70, p<0.001) had also had it easy to get the condom from an open place without embarrassment. However, more (67.0%; n=130 vs. 33.0%; n=64, p<0.001) had had it easy carrying the condom. Confidence level in proposing the use of a condom with an unknown partner had also shown greater level by males (69.4%; n=197 vs. 30.6%, n=87, while only (100%, n=174) had agreed it if sex had not agreed by partner. All the findings had shown the result as <0.001 (See Table 2).

A greater percentage of men (77.3%; n=197) over women (22.7%; n=58) had known the HIV status of their partner or had had discussions about HIV testing with their partner (86% vs. 14%). HIV testing over the last 12 months had only been reported by men (100%; n=182), while only women (100%; n=232) had indicated likelihood to get their partner tested together. All the noted differences proved to be statistically significant (p<0.001) (See Table 2).

As illustrated by Table 3, the only group reporting the use of transactional sex, multiple sex partnerships, casual sex, sex while drunk, contraceptive method discussions, and condom use were those in the 20-24-year-age group. The same group also only indicated easy accessibility of female condoms, comfort buying condoms in open areas, HIV testing over the last 12 months, HIV partner awareness, and HIV-testing discussions. All the observed variations achieved statistical significance (p<0.05).

When compared with those aged 18-19 years, more individuals from the 20-24-year-age group indicated easy accessibility of male condoms (84.9% vs. 15.1%), carrying condoms (52.6% vs. 47.4%), and showing comfort

Figure 1
Prevalence of STI Experience in The Last 12 Months and Subsequent Treatment With Partner Notification



discussing condom use with a new partner (97.2% vs. 2.8%). In return, more individuals from the 18-19-year-age group were found to prefer that their partner get HIV-tested (75% vs. 25%). All the observed variations were statistically significant ($p<0.05$).

DISCUSSION

The objective of this study is to assess the prevalence and determinants of risky sexual behaviors among adolescents residing in the Greater Letaba sub-district, Limpopo Province, South Africa. The findings highlighted various concerns relating to adolescents' sexual behaviors. In the three clinics located in the Greater Letaba sub-district, there were more female adolescents accessing healthcare services or visiting the clinics compared with their male counterparts. Llangarí-Arizo et al. (2024) posit that males tend to seek healthcare less frequently than females and delay seeking care even if presented with severe health issues. These tendencies may increase men's likelihood to develop severe health complications, partly explaining the prevalence of severe diseases, as well as the shorter lifespans of men compared with women (Francis et al., 2018). More than half (57%) reported having two or more sexual partners over the last 12 months. A greater number of sexual partners increases the likelihood of contracting sexually transmitted diseases (STDs). A majority (55.6%, n = 250) reported an unplanned sexual encounter. Participants attributed these encounters to peer pressure, maintaining emotional ties, seeking prestige or admiration, excitement, money, school grades in exchange for sex, and other sex-related motivations (Ayodele et al., 2025).

Prevalence of sexually transmitted infections

Among participants, 44% reported symptoms associated with STIs over the last year; 44% reported genital discharge, and 41% reported burning during urination. These findings suggest that a notable majority of study participants did not show apparet symptoms of STIs over the last year, indicating a declining prevalence rate of STIs among adolescents in the Greater Letaba sub-district. However, many STIs remain asymptomatic, so individuals may be infected without awareness, underscoring the importance of continuous testing for accurate diagnosis. Raising awareness and understanding of STIs and their complications is essential for effective prevention and treatment. Individuals unaware of STI symptoms may not seek medical care, thereby delaying treatment. Evidence indicates that in many developing regions, awareness campaigns focus primarily on HIV/AIDS, with limited attention to other STIs (Alageel et al., 2024). Improving education and sensitization efforts, therefore, play an essential role in reducing STI transmission rates and enabling early detection.

Experienced STI symptoms and received treatment

Among those reporting genital discharge, 57% visited a doctor, while 66% of those reporting painful urination had visited a doctor. This raises serious concerns about individuals with STI symptoms who do not seek treatment, given the severity of infections and associated risks. Adolescents living in low- and middle-income nations face severe obstacles when seeking treatment for STIs. To enhance effectiveness of treatment centers, improving clinic infrastructure and addressing perceptions of healthcare providers, especially concerning confidentiality, is essential. Other obstacles hindering care-seeking include lack of information regarding STIs and treatment, financial barriers, embarrassment over visiting a doctor, long waiting times, perceptions of discrimination, and the invasive procedures required to collect infection samples from the urethra (Zhang et al., 2025).

Risky sexual behavior

A substantial proportion of male participants (79.4%) reported consuming alcohol before their most recent sexual encounter. A significant concern among young people in the Greater Letaba sub-district is the easy availability of alcohol, facilitated by the widespread presence of bottle stores in every village. Transitioning from adolescence to early adulthood involves significant changes, both physical, emotional, and lifestyle-related. Puberty onset, coupled with increased demands for independence, is linked to increased alcohol use. Adolescence itself has been identified as a key factor influencing both initiation into alcohol use and engagement in risky drinking behaviors (Carels et al., 2022). Cho & Yang (2023) reports that regions increasing the minimum legal drinking age observed a decline in cases, suggesting a correlation between alcohol consumption and risky sexual behavior. These findings, coupled with the general hypothesis that alcohol causes disinhibition, have prompted scholars and health experts to posit that alcohol, as well as other substances, may lead to increased risky sex (Boyd et al., 2022).

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Condom use among adolescents

A majority of males (74.6%) reported using condoms during their most recent sexual encounter. In the Greater Letaba region, many female participants expressed concerns about the unavailability of female condoms. However, while this issue was frequently mentioned, it was not the primary factor underlying the lack of condom negotiation with partners. Some participants used this concern as an excuse when attending youth-focused healthcare sessions. Risky sexual acts, such as inconsistent condom use coupled with multiple sexual partnerships, remain common among adolescents (Cain et al., 2023). In South Africa, despite the high prevalence of HIV infection and unintended pregnancies, particularly among individuals aged 15–24, female condom use remains minimal (Woldesenbet et al., 2021). Two major barriers to wider

female condom use are the inability to negotiate use with partners and difficulties in insertion. Resistance by partners is commonly associated with issues such as lack of awareness, embarrassment regarding the device's physical form, peer pressure, risk perception, and doubts about effectiveness. In some areas of sub-Saharan Africa, women must obtain partner approval before using female condoms, further complicating sexual health decision-making (Seidu et al., 2021).

HIV testing

A substantial majority of participants (77.3%) knew their partner's HIV status, and 86% had discussed HIV testing, compared with 14% who had not. Adolescents often conceal this information from peers to maintain social acceptance and protect themselves from victimization, exclusion, or abuse. HIV-positive disclosures by many individuals living with HIV infection may lead to continued maltreatment and conflict. Intimate partner violence (IPV) is a pervasive human rights and public health issue, resulting in serious health consequences. IPV prevalence remains high due to determinants such as poverty, abuse, cultural resistance to condom use, political obstacles hindering HIV interventions, alcohol abuse, substance abuse, and increased prevalence of STDs. Younger women in South Africa are disproportionately exposed to HIV infection (Karim & Baxter, 2021). A particularly pressing public health issue in South Africa is the documented HIV-positive disclosure by minors, with unclear determinants influencing disclosure patterns, especially among children in rural areas (Adeniyi et al., 2021).

The integration of Islamic values into adolescent sexual health interventions offers an additional pathway to reduce risky behaviors and enhance protective practices. Islamic teachings emphasize chastity, modesty, and mutual responsibility between partners, values that align with the objectives of STI prevention. Prior studies have shown that religiously framed health interventions resonate with youth, offering moral reinforcement against risky sexual behaviors while encouraging fidelity and abstinence outside marriage (Magezi et al., 2025). By incorporating values such as *hifz al-nafs* (preservation of life) and *hifz al-nasl* (protection of lineage), healthcare providers can strengthen culturally appropriate prevention strategies (AlJahsh, 2024). This integrative approach can help reduce stigma, improve community acceptance, and increase adolescent engagement in prevention and testing services.

The findings of this study underscore significant implications for family health in Greater Letaba. High rates of risky sexual behavior, untreated STIs, and gender disparities in health-seeking threaten not only adolescents' well-being but also broader family stability and reproductive health. Families play a central role in shaping adolescent decision-making; therefore, involving parents in open communication about sexual health can foster responsible behaviors. A key strength of this study is its application of the Theory of Planned Behaviour (TPB) and the Social Ecological Model (SEM), which allowed for a nuanced understanding of both individual and structural determinants of STI risk. However, limitations include reliance on self-reported data, which may be subject to bias, as well as a cross-sectional design that prevents causal inference. Furthermore, the study was restricted to adolescents attending healthcare facilities, leaving out non-attenders who may exhibit different risk profiles. Gender imbalance in the sample and cultural sensitivities surrounding sexual topics also posed challenges. Despite these limitations, the study contributes valuable evidence to guide targeted, gender-sensitive, and culturally integrated interventions for STI prevention in rural South Africa.

CONCLUSIONS

Sexually transmitted diseases (STDs) continue to pose a significant health burden among adolescents in the Greater Letaba sub-district of Limpopo Province, with prevalence strongly linked to risky sexual behaviors and gender-specific disparities in health-seeking patterns. The findings of this study reveal a concerning proportion of adolescents reporting multiple sexual partners, unplanned sexual encounters, and symptomatic infections, yet with limited treatment uptake. Male adolescents were more likely to engage in high-risk practices, such as alcohol use before sex, while females demonstrated greater willingness to undergo HIV testing with partners, underscoring the need for gender-sensitive interventions.

The implications of these findings are critical for family and community health. Strengthened preventive strategies—such as the introduction of the HPV vaccine, expansion of routine STI screening, increased condom availability, and the use of social media for health promotion—can substantially reduce infection rates. Furthermore, healthcare providers must play a proactive role in ensuring early diagnosis, timely treatment, and effective partner notification to break chains of transmission. Integrating culturally and religiously informed approaches, including Islamic values emphasizing modesty, fidelity, and protection of health, may enhance community acceptance and participation in preventive efforts. Future research should explore models of routine screening, school-based sexual health education, and community engagement strategies that address the unique needs of adolescents in rural South African settings. By prioritizing adolescent sexual health, public health systems can advance the Sustainable Development Goals, safeguard family health, and promote healthier transitions into adulthood.

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AUTHORS' CONTRIBUTIONS

Maite L.Thobakgale wrote the manuscript, acquired the data, revised the manuscript, and read and approved the final manuscript. Mathildah M. Mokgatle and Atholl Kleinhans, analyzed the data and reviewed the manuscript. Muhammad Hoque designed the study, formulated the concept, reviewed the manuscript, enrolled participants, collected data, revised the manuscript. All authors performed the field work and accepted final manuscript.

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COMPETING INTERESTS

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

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