

Article

HIV Prevention Practices Among South African University Students

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Abstract

Since 2005, the decline in HIV incidence has slowed down, and there is a need to optimise prevention services among young people to sustain and accelerate the HIV decline. This study aimed to describe HIV prevention practices among university students in South Africa. The Arksey and O'Malley Framework for conducting scoping reviews was used. South African studies that described the HIV prevention practices among university students, published in English from 2015 to 2025, were included. The search strategy was developed on the 8 December 2024, then on the 7 November 2025, and five databases were searched using key search terms: university students, HIV prevention, and South Africa. Two reviewers selected articles and extracted data using an extraction tool developed by the researchers. Extracted data was analysed using content analysis. Consultation was performed with students, conveniently selected from one university, and data was collected using interviews. Data from these students was analysed using Braun and Clarke's thematic analysis. Thirteen studies were included in the review. Most (30.8%) were from KwaZulu-Natal province. A total of 15 students aged between 19 and 22 years were consulted. Most (53.3%) students were female. HIV prevention interventions used included HIV testing, which was sub-optimal due to stigma. Students also used condoms, although female condom use was minimal. Biomedical HIV prevention interventions used included post-exposure prophylaxis and pre-exposure prophylaxis, and these were used together with other HIV prevention interventions. Gaps remain to ensure optimal HIV prevention practices, and it is recommended that other biological HIV prevention methods like voluntary medical male circumcision, should be utilised.

Keywords: human immunodeficiency virus; HIV prevention practices; university students; young people; HIV testing; South Africa



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1. Introduction

Globally, by the end of 2023, 39.9 million people were living with Human Immunodeficiency Virus (HIV), and most were in Sub-Saharan Africa ([World Health Organization, 2025](#)). South Africa bears the burden of most HIV infections, with an estimated 7.9 million people living with HIV (PLWH) by the end of 2017 ([Zuma et al., 2022](#)). Commendably, in the past decade, there has been a decline in HIV incidence in Sub-Saharan Africa (including South Africa) ([Joshi et al., 2021](#); [Risher et al., 2021](#); [Vandormael et al., 2019](#)), partly attributed to HIV prevention interventions such as condom promotion ([Johnson et al., 2022](#)). However, the decline in HIV incidence in South Africa has been slow since 2005 ([Govender et al., 2021](#)), especially among young women 15–24 years and young men 20–29 years ([Risher](#)

et al., 2021). To illustrate this, it is predicted that with South Africa's current HIV testing services in the risk environment, HIV incidence would decline to an elimination threshold by 2055 (Rautenbach et al., 2024). This slow decline may affect the achievement of the Joint United Nations Programme on AIDS (UNAIDS) HIV elimination target of ensuring that HIV is not a public health threat by 2030 (Joint United Nations Programme on HIV/AIDS, 2021). Therefore, it is important to describe what HIV prevention practices young people, like university students, use to enable the scaling up of these interventions.

Several HIV prevention measures are available that may help accelerate the slow decline in HIV incidence in South Africa. These prevention measures date back to the early 1980s, when condom use may have been the only preventative product for the sexual transmission of HIV (Beckham et al., 2020). Currently, additional measures include biomedical options such as Treatment as Prevention or Undetectable=Untransmissible (U=U), Pre-exposure prophylaxis (PrEP), Post Exposure Prophylaxis (PEP), and Voluntary Medical Male Circumcision (VMMC) (Beckham et al., 2020; Liao et al., 2025). Additionally, HIV testing and counselling are recommended at least annually to enable access to prevention measures (World Health Organization, 2024). The different prevention interventions have had varying impacts on reducing HIV incidence, with condom use and HIV treatment having the most significant impact (Johnson et al., 2022).

University students often have adequate knowledge about several HIV prevention measures, (Murwira et al., 2021; Owusu-Ansah et al., 2023). However, this knowledge is not often translated into safe sexual behaviours (Owusu-Ansah et al., 2023). In sub-Saharan Africa, a systematic review estimated that 52.9% of university students had used condoms in their last sexual encounter (Izudi et al., 2022). Comparably, among young adults attending a technical vocational training college in South Africa, it was estimated that 60% used condoms in their last sexual encounter (Mwanri et al., 2023). The decision to practice any HIV prevention measure(s) depends on several factors, such as knowledge levels (Adeagbo et al., 2022), the preferences of both partners (Kabir et al., 2022), a person's autonomy in reproductive health decision-making (Izudi et al., 2022), availability of HIV prevention measures (Mlangeni et al., 2023), and risk perception (Obeagu et al., 2023).

Concerning the availability of HIV prevention services for South African university students, Higher Health organisation, which was established in 2001 and previously known as Higher Education and Training HIV and AIDS Programme (HEAIDS), provides HIV services (Higher Health, 2024). However, there is evidence of low uptake of campus health services in South Africa (Musakwa et al., 2021). Nonetheless, university students can also access HIV prevention services from community-based programmes such as the Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe women (DREAMS) programme, whose funding was ceased by the USA administration in March 2025 (Brotherton, 2025; Joint United Nations Programme on HIV/AIDS, 2025; Kohnert, 2025). This, in turn, may have affected the provision of HIV prevention services for South African university students. Whilst such funding cuts to young people's HIV prevention initiatives may be temporary or permanent, sustained and self-reliant initiatives for HIV prevention still ought to be considered.

Considering the suboptimal uptake of HIV prevention services among university students in South Africa, this study used the Health Belief model as a theoretical framework. The model describes six primary cognitive constructs, including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, self-efficacy, and cues to action (Champion & Skinner, 2008). Perceived susceptibility refers to beliefs about acquiring an illness. Perceived severity is defined as the understanding of the severity of the illness, while perceived benefits are beliefs about how effective the treatment is. Perceived barriers denote beliefs about the obstacles to performing a recommended health action. Self-efficacy

refers to a person's belief in their capacity to act. Lastly, cues to action refer to strategies to activate one's readiness (Champion & Skinner, 2008).

Therefore, considering the low uptake of university campus HIV services and decreased community HIV prevention support services, it is important to rationalise resources for the HIV prevention practices that university students engage in. Previous systematic reviews on university students have focused on condom use in several sub-Saharan African countries (Izudi et al., 2022), and original research designs have also focused on a single university in South Africa (Mokgatle et al., 2021). This study fills a methodological gap by synthesising all HIV prevention practices only for South African university students. Therefore, the review sought to describe the HIV prevention practices among South African university students, with the specific research question: What HIV prevention practices are used by South African university students?

2. Materials and Methods

This scoping review was conducted according to the Arksey and O'Malley framework for conducting scoping reviews (Arksey & O'Malley, 2005) and reported following the Preferred Reporting System for Systematic Reviews and Meta-analysis -Scoping reviews (PRISMA-SR) (Mattos et al., 2023). The study method was selected to summarise key HIV prevention strategies used by students and form a basis for further cross-sectional studies (Arksey & O'Malley, 2005). The protocol for the scoping review was registered on the Open Science Framework, registration number <https://osf.io/jkqg2/> (accessed on 22 July 2025).

This study was guided by the research question: What HIV prevention practices are used by South African university students? To develop the inclusion criteria, the Population, Concept, and Context (PCC) framework was considered (Peters et al., 2015). The inclusion criteria were studies that described HIV prevention measures used by university students in South Africa. This study included university undergraduate and postgraduate students from all disciplines and in any type of settlement where a South African university was located-urban or rural, which ensured inclusivity of all South African contexts. Included studies were from 2015 to 2025 to maintain the relevance of our findings, given the changes made in HIV prevention services over the past years. Only studies published in English were included to minimise translation bias. The review excluded studies not written in English and systematic reviews that included students outside the South African context. Grey literature, such as dissertations and conference proceedings, was excluded because of the difficulty in assessing quality, and institutional reports were excluded as they may not have been based on empirical studies. The article selection search was first carried out using three databases: PubMed, Scopus, and Google Scholar (first 10 pages) on the 8 December 2024. A second database search was conducted using OVID and Web of Science on the 7th of November 2025. In both searches, key search terms were "HIV prevention", "university students", and "South Africa". Index words and keywords used in articles for HIV prevention among university students were used to develop a search strategy in consultation with a medical librarian (Arksey & O'Malley, 2005). In addition, the reference lists of included studies were searched for similar studies (Arksey & O'Malley, 2005). The PubMed, Web of Science and OVID search strategies are included as Supplementary File S1. Articles identified were exported to the Mendeley reference manager and screened by NLM and ABN using Covidence against the eligibility criteria. Disagreements between the reviewers were resolved through discussion until consensus was reached. Data extraction was performed using a chart developed by the researchers. The data extraction tool was used to chart the years of publication, the province where the study was conducted, the study approach used, the type of prevention method described, and the sample size. The data extraction tool was pilot tested using two studies that met the inclusion criteria by

the researchers, NLM and ABN. From the screening, 672 studies were identified, with 381 screened by title only, with most studies were excluded as they did not meet the inclusion criteria. A total of 39 full-text studies were screened, and a final selection of 13 was made. Descriptive statistics using Microsoft Excel were used to analyse study characteristics, and findings were presented using percentages. Content analysis using four steps, including identifying the unit of synthesis, which in this case was a phrase or sentence describing HIV prevention practices, developing codes, grouping the codes, and reporting the findings, was used to analyse data (Kleinheksel et al., 2020).

2.1. Assessment of Risk of Bias

The Critical Appraisal Skills Programme (CASP) checklists for qualitative studies and cross-sectional studies (Critical Appraisal Skills Programme, 2023a, 2023b) were used to assess the risk of bias of the included studies. The checklists were used to assess the methodological quality and the relevance of included studies. Two reviewers, NLM and ABN, appraised the included studies.

2.2. Consultation

Findings from the scoping review were used to develop an interview protocol for university students. This consultation process broadly followed a descriptive qualitative study approach.

The consultation was conducted at a university in the Eastern Cape province, which has the third-highest prevalence of HIV in South Africa (Simbayi & Zungu, 2017). The university predominantly serves a peri-urban and rural community, with an enrolment of approximately 30,000 across seven faculties and four campuses (Walter Sisulu University, 2025). The population was undergraduate and postgraduate students enrolled at the university at the time of data collection at one of the four campuses. To recruit students, permission was first sought from the gatekeeper—the acting director of postgraduate studies—from the university's Department of Research and Innovation. The researcher AM used convenience sampling and approached potential participants in the campus environment. This included outside lecture rooms or exam rooms, and outside the student health services centre, and arranged interviews with them in private spaces within the student health service centre. We included willing students who affirmed that they had previously used an HIV prevention product or service, who were enrolled at the university, and could speak English and/or isiXhosa. We excluded students who declined to participate and had not used any HIV prevention service, and were not physically available at one of the campuses when data was collected. Participants were selected until data saturation.

Broad topics discussed during the interviews were HIV testing, condom use, and biomedical interventions (PEP and PrEP use). Data were collected through individual face-to-face interviews conducted by the researcher AM in February 2025. Data were collected in English and isiXhosa, and all interviews were audio-recorded with consent from the participants. Before collecting data, AM was trained in research methods, including interview techniques, which were part of their postgraduate diploma in health promotion training. Individual interviews were used instead of focus group discussions, as recommended by Arksey and O'Malley (2005), due to the sensitive nature of the topic; some participants would be unable to share their experiences openly in a group setup. In this regard, the interviews were conducted in a private room at the campus health facility, and participants were also assured that the information shared would be kept confidential, and no names were used during the interviews.

The data analysis included a descriptive numerical analysis of sample characteristics using Microsoft Excel. Narrative data were analysed using Clarke and Braun's (2014)

six steps of thematic analysis, and ATLAS.ti was used for coding. The researchers, NLM and ABN, used an inductive approach and analysed the data independently. Four transcripts were first selected and read for familiarisation. Transcripts were then imported to ATLAS.ti to generate codes. After the initial codes were generated, the codes were merged to form categories across the dataset. All transcripts were then reviewed, and data were grouped into the generated categories of similar meaning to form themes. Themes were labelled and data were presented in a narrative format. To ensure trustworthiness, quotes from participants' own words were used to ensure credibility. The researchers also checked with six participants that the transcribed data reflected what was discussed in the interviews, and no changes were made after the member checking. Additionally, the study findings were shared with the members of the faculty to ensure the findings reflected the participants' views and not the researchers' own biases. The researchers constantly reflected on their experiences by discussing HIV prevention measures they had used as young people.

2.3. Ethical Considerations

This study received ethical approval from the Walter Sisulu University Health Sciences Research Ethics Committee approval number 169/2024. This study was conducted following ethical guidance stipulated in the Helsinki Declaration 1978, updated in 2013 ([World Medical Association, 2013](#)). Individual participants gave their written consent to participate. Confidentiality was maintained by keeping all data in a password-protected computer, and participants were not required to give their names or any information that identifies them.

3. Results

A total of 672 studies were identified through the database search; of these, 291 were duplicate references, which were removed using the Mendeley reference manager. An additional 336 articles were removed as they did not meet the inclusion criteria. A total of 39 full-text articles were screened, and the final selection included 13 studies. The decision process is shown in the PRISMA flow chart (Figure 1) below.

3.1. Results from the Risk of Bias Assessment

The overall decision on the risk of bias assessment for the studies was that they were methodologically sound. Three (42.9%) studies assessed using the CASP checklist for cross-sectional studies ([Critical Appraisal Skills Programme, 2023b](#)) had all items reported. From the studies assessed using the CASP checklist for qualitative studies ([Critical Appraisal Skills Programme, 2023a](#)), 66.7% had one item not reported. The outcomes from the assessment of risk of bias are shown in Supplementary File S1.

3.2. Characteristics of the Studies Included

Studies included were from 2015 to 2024. Three (23.1%) studies were from 2023, followed by two (15.4%) each from 2020, 2022, and 2024. One (7.7%) study each was from 2015, 2016, 2019, and 2021. The reviewed studies were selected from six provinces: KwaZulu-Natal (30.8%), Gauteng (23.1%), Limpopo (15.4%), Northern Cape (7.7%), Free State (7.7%), and the Eastern Cape (7.7%). One study did not specify the province. Most (53.8% $n = 7$) studies used a descriptive cross-sectional research design, while (46.2%, $n = 6$) used a qualitative study design. Table 1 shows the characteristics of the included studies.

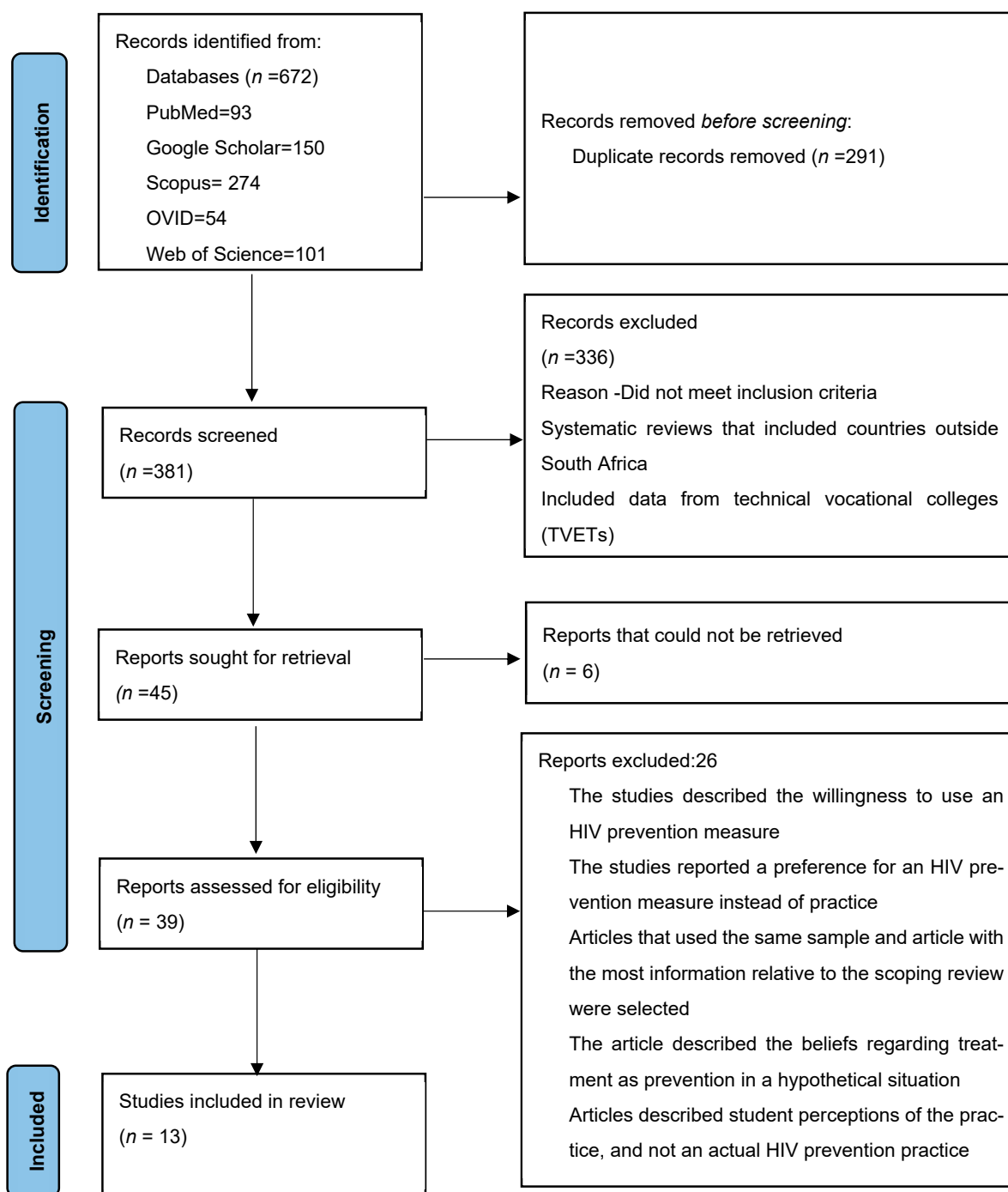


Figure 1. The PRISMA flow chart. Adapted from (Page et al., 2021).

Table 1. Characteristics of the selected studies.

Study (Year)	Province of Origin	Study Design	Objective	Sample Size	Study Outcomes	HIV Prevention Measures Practised
(Ajayi et al., 2020)	Eastern Cape	Descriptive cross-sectional study	To describe levels of PEP awareness and its use among university students.	772	There was low PEP awareness among university students.	PEP use HIV testing

Table 1. Cont.

Study (Year)	Province of Origin	Study Design	Objective	Sample Size	Study Outcomes	HIV Prevention Measures Practised
(Kruger et al., 2020)	Free State	Descriptive cross-sectional study	To assess the practices, perceptions, and needs of undergraduate medical students for HIV-prevention measures.	470	14.2% of students had used an HIV prevention measure	HIV testing Male and female condom use
(Mahlalela & Maharaj, 2015)	KwaZulu-Nata	Qualitative study	To describe barriers and facilitators to female condom use among university students	15	Facilitators of condom use included dual protection, greater autonomy to initiate safe sex	Female condom use
(Mthiyane et al., 2023)	Gauteng	Cross-sectional study	To assess knowledge, attitudes, and practices on HIV self-testing among students at a university	227	HIV self-testing among university students is low, with 15% self-testing	HIV self-testing
(Schuyler et al., 2016)	Not specified	Qualitative study	To explore whether training on partner negotiation and female condom use affected female condom use among female university students	39	Women applied the information learnt to negotiate female condom use. Insertion of the female condom became easier with practice	Use of female condoms
(Mazibuko et al., 2023)	KwaZulu-Natal	Qualitative study	To explore factors influencing non-use of sexual and reproductive health services at Mangosuthu University of Technology	20	Themes identified include perceived quality of condom use, risky sexual behaviours, drug and alcohol use, and perceived health education received.	Condom use
(McCarthy et al., 2023)	Northern Cape	Descriptive cross-sectional study	To assess personal factors that influence condom use among students at a higher education institution in South Africa	385	64.9% of students used condoms.	Condom use

Table 1. Cont.

Study (Year)	Province of Origin	Study Design	Objective	Sample Size	Study Outcomes	HIV Prevention Measures Practised
(Mokgatle et al., 2021)	Gauteng	Descriptive cross-sectional study	To assess the self-reported partner notification practices, STIs, intentions to notify, and notification preferences among university students	918	The odds of delivering an STI notification slip to a former sexual partner were not statistically significant.	HIV testing Female condom use
(Mthembu et al., 2019)	KwaZulu-Natal	Qualitative study	To explore risky sexual behaviours among university students	20	Students use condoms for HIV prevention, however there is inconsistent use. Most students do not use condoms during first sexual encounter due to lack of preparedness	Condom use
(Rasweswe et al., 2024)	Limpopo	Descriptive cross-sectional study	To describe HIV voluntary counselling and testing utilisation among university students	324	65.8% of students used voluntary counselling and testing services	HIV testing
(Shamu et al., 2024)	Gauteng	Qualitative study	To explore young women's preference and willingness to use PrEP	22	Students least preferred using the Dapivirine vaginal ring, and some had used oral PrEP; however, discontinued due to busy schedules.	Use of PrEP
(Gumindaga & Maharaj, 2022)	KwaZulu-Natal	Qualitative study	To explore factors that inhibit couples' HIV testing and counselling among MSM at a university	15	Barriers to HIV testing were homophobia at testing centres, trust assumptions of sexual partners and participants used alternative means such as HIV self-testing	HIV testing

Table 1. *Cont.*

Study (Year)	Province of Origin	Study Design	Objective	Sample Size	Study Outcomes	HIV Prevention Measures Practised
(Tshivhase et al., 2022)	Limpopo	Descriptive Cross-sectional study	To determine factors contributing to low HIV testing service uptake among university students	306	44% of students used HIV testing services. Barriers to HIV testing were fear of a positive result, negative attitudes towards health workers, and HIV related stigma	HIV testing

Source: Researchers.

Concerning the sample characteristics, two studies (Gumindega & Maharaj, 2022; Mahlalela & Maharaj, 2015) used the smallest sample with 15 participants each, while the largest sample size of 918 was drawn from the study conducted in Gauteng (Mokgatle et al., 2021). Participants also included key populations such as Men who have Sex with Men (MSM), only in one study (Gumindega & Maharaj, 2022), in other studies (Mahlalela & Maharaj, 2015; McCarthy et al., 2023; Schuyler et al., 2016; Shamu et al., 2024) only females participated. Of these studies that included only female participants, one study, (McCarthy et al., 2023) note that 1.9% were gender non-conforming. In three of the included studies, only students from the Schools of Health Sciences (Mthiyane et al., 2023; Rasweswe et al., 2024) and medical students (Kruger et al., 2020) participated. In seven studies, (Ajayi et al., 2020; Kruger et al., 2020; Mazibuko et al., 2023; Mokgatle et al., 2021; Mthiyane et al., 2023; Rasweswe et al., 2024; Tshivhase et al., 2022) more female participants than males were included.

3.3. What Are the HIV Prevention Measures Used by University Students in South Africa?

This review found that South African university students used HIV testing, condoms, and biomedical prevention interventions to prevent HIV. Figure 2 below summarises the findings from the different South African provinces.

3.4. HIV Testing

Seven studies (Ajayi et al., 2020; Gumindega & Maharaj, 2022; Kruger et al., 2020; Mokgatle et al., 2021; Mthiyane et al., 2023; Rasweswe et al., 2024; Tshivhase et al., 2022) described university students practising HIV testing. Three studies (Ajayi et al., 2019; Mokgatle et al., 2021; Rasweswe et al., 2024) reported that more than half of students had tested for HIV, and those who had tested for HIV were more likely to know about other HIV prevention measures, such as PrEP (Ajayi et al., 2020). In addition, there is acknowledgment that university students use HIV testing services outside the university campus (Kruger et al., 2020; Rasweswe et al., 2024) and use HIV testing services more than once (Rasweswe et al., 2024). Some of the reasons cited for not using HIV testing services on campus were HIV-related stigma, negative attitudes towards health workers, and fear of a positive result (Tshivhase et al., 2022). The KwaZulu-Natal study among MSM also explored couples counselling and testing and found that “fewer” students used couples HIV testing and counselling services, with students opting for self-HIV testing (Gumindega & Maharaj, 2022). Contrarily, another study noted that university students knew their partners’ HIV status (Mokgatle et al., 2021). Although students opted for HIV self-testing,

another study found that there was a low uptake of HIV self-testing, with only 15% of students having self-tested for HIV (Mthiyane et al., 2023). Despite the low uptake of HIV self-testing, students noted that reasons for HIV self-testing included stigma-free, privacy, user-friendliness, and that it was quick (Mthiyane et al., 2023).

	(Ajayi et al., 2020)	(Mazibuko et al., 2023)	(Kruger et al., 2020)	(Mahlalela & Maharaj, 2015)	(Schuyler et al., 2016)	(Shamu et al., 2024)	(Tshivhase et al., 2022)	(McCarthy et al., 2023)	(Mokgatle et al., 2021)	(Mthembu et al., 2019)	(Rasweswe et al., 2024)	(Gumindaga & Maharaj, 2022)	(Mthiyane et al., 2023)
HIV testing													
Condom use													
Biomedical													

Key

Province	Colour code
Eastern Cape	
KwaZulu-Natal	
Free State	
Gauteng	
Limpopo	
Northern Cape	
Unspecified	

Figure 2. Summary of study findings (Ajayi et al., 2020; Mazibuko et al., 2023; Kruger et al., 2020; Mahlalela & Maharaj, 2015; Schuyler et al., 2016; Shamu et al., 2024; Tshivhase et al., 2022; McCarthy et al., 2023; Mokgatle et al., 2021; Mthembu et al., 2019; Rasweswe et al., 2024; Gumindaga & Maharaj, 2022; Mthiyane et al., 2023).

3.5. Male and Female Condom Use

Seven studies (Kruger et al., 2020; Mahlalela & Maharaj, 2015; Mazibuko et al., 2023; McCarthy et al., 2023; Mokgatle et al., 2021; Mthembu et al., 2019; Schuyler et al., 2016) included described the use of male and female condoms. In one study, it was noted that at least 55.9% of women and 69.7% of men used condoms (Mokgatle et al., 2021). However, other studies reported that although condoms are used, they are not used consistently (Mazibuko et al., 2023; McCarthy et al., 2023; Mthembu et al., 2019), with an estimated one-third of students using condoms consistently (McCarthy et al., 2023). Of note, one of the issues associated with inconsistent condom use was a lack of awareness during the first sexual encounter (Mthembu et al., 2019). A result of lower usage (26.2%) was reiterated in one study that students who used male condoms did so because they were accessible on campus. (Kruger et al., 2020).

Female condom use was also described in four of the included studies (Kruger et al., 2020; Mahlalela & Maharaj, 2015; Mokgatle et al., 2021; Schuyler et al., 2016). The quantitative studies (Kruger et al., 2020; Mokgatle et al., 2021) highlighted the low proportions of students using female condoms in one study (Kruger et al., 2020) noting that only 0.9% of students had ever used a female condom in the last 12 months. Similarly, another study (Mokgatle et al., 2021) found that 3.2% of women and 4.5% of men had ever used female condoms. Among women who had ever used a female condom, there was a perception that they were at risk of a Sexually Transmitted Infection (STI), and using a female condom empowered them to control their reproductive health (Mahlalela & Maharaj, 2015). In some cases, the use of female condoms was just to experiment (Mahlalela & Maharaj, 2015). In contrast, after an intervention that educated women on using female condoms, about two-thirds of women used them, and those who could not use them failed due to partner refusal, partner lack of knowledge, and difficulties with insertion (Schuyler et al., 2016).

3.6. Biomedical HIV Prevention Measures (PEP and PrEP)

In two studies, (Ajayi et al., 2020; Shamu et al., 2024), the use of PEP and PrEP was also indicated. In the Eastern Cape study, it was noted that “only” 2.6% of university students had used PEP (Ajayi et al., 2020). Furthermore, PEP use was higher among students who had experienced sexual violence (Ajayi et al., 2020). Similarly, in Gauteng found that few young women used PrEP and preferred injectable to oral PrEP, citing reasons such as forgetfulness in taking oral PrEP (Shamu et al., 2024).

3.7. Findings from the Consultation

Sample Demographic Characteristics

The sample included 15 participants; most (53.3%, $n = 8$) participants identified as female, and the remaining 46.7% identified as male. The participants’ ages ranged from 19 to 22 years. The students were drawn from different fields of study, which included nursing, social work, education, social science, orthotics and prosthetics, internal auditing, and natural sciences. Most (26.7%, $n = 4$) students were studying nursing. Table 2 below summarises the sample characteristics of the students.

Table 2. Sample demographic characteristics.

Participant	Age	Gender	Field of Study
P1	22	Female	Social Science
P2	20	Female	Nursing
P3	19	Female	Natural Science
P4	22	Female	Social Science
P5	19	Male	Education
P6	22	Male	Nursing
P7	19	Male	Nursing
P8	20	Male	Orthotics and Prosthetics
P9	22	Male	Nursing
P10	21	Male	Internal Auditing
P11	19	Female	Social sciences
P12	22	Female	Natural Science
P13	20	Female	Natural Science
P14	19	Male	Education
P15	22	Female	Social Work

Source: Researchers.

3.8. Emerging Themes from the Consultation: HIV Prevention Practices

The students shared their experiences in using the three main HIV prevention practices highlighted in the literature.

3.9. Theme 1: Regular HIV Testing, Which Includes HIV Self-Testing

Participants acknowledged that HIV testing was one of the measures they used to prevent HIV. Some participants explained that they tested for HIV more than once a year, whereas other participants tested once a year.

“I’ve been tested about two to three times this year” (P2, 20-year-old female, nursing student)

“Yes, I get tested, but I don’t know how often I don’t count, but I do get tested” (P3, 19-year-old female, natural sciences student)

“I have been tested [for HIV] once” (P6, 22-year-old, male nursing student)

Subtheme 1.1: HIV testing on campus is affected by stigma

In their shared experiences, students described how HIV testing was affected by a lack of privacy and stigma. P14 recommended availing of HIV self-testing kits because of this.

“I’ve been tested twice since I started university. . . It’s the stigma that makes me scared of testing because other students are going to talk about it. . . I fear being seen by others and judged for getting tested. . . They should give us more places where we can test privately” (P1, 22-year-old, female, social sciences student)

“I get tested once a year; . . .the university should make HIV self-testing kits available” (P14, 22-year-old, male, education student)

3.10. Theme 2: Condom Use for HIV Prevention

The second theme was condom use for HIV prevention. Participants explained that they regularly used male condoms, and these were accessible to them. Some participants, like P4, indicated how they used condoms as they perceived that they protected them from STIs and unplanned pregnancy.

“I feel comfortable about using condoms because they prevent pregnancy, and they prevent other diseases such as STIs” (P4, 22-year-old, female, social sciences student)

“I always use a condom. . .I have always stood my ground and insisted on using protection.” (P14, 22-year-old male, education student)

Subtheme 2.1: Trust, and having a faithful partner, is associated with inconsistent condom use

Some participants further confirmed the findings from the review by noting that, although condoms were protective, consistent use was not always possible because they trusted their partners or were shy to insist on condom use.

“I use condoms and sometimes I consider abstaining if I don’t feel safe, . . . However, sometimes you feel you can trust your partner, or you can be too shy to insist on using protection” (P1, 22-year-old, female, social sciences student)

Another participant, P9, who had disclosed that they have an HIV test once a year, also shared how sometimes, they are aware of their partner’s HIV status, they trust their partner, and may not use condoms.

“Yes, I use condoms, but there are situations in which I may not prevent HIV. Because if I know the health status of that partner, that can be possible, that I won’t use a condom, because we trust each other and know each other’s health status [results from HIV test]” (P9, 22-year-old, male, nursing student)

Participants P6 and P14 explained that one of the reasons for not using condoms consistently was having a faithful partner.

“Yeah, there are situations where HIV prevention methods, like condoms, may not be used. . . it depends on. . . but I cannot guarantee maybe out of 100 I would give 50% if you know that you have one partner, you will not use them.” (P6, 22-year-old, male nursing student)

“Yes, I stay safe by using condoms, regular testing, and being in a monogamous relationship” (P14, 22-year-old male, education student)

3.11. Theme 3: Pre-Exposure Prophylaxis Used with Other HIV Prevention Measures

Participants also confirmed the use of biomedical HIV prevention interventions. Participants P7, P13, and P15 described the use of PrEP in combination with other HIV prevention interventions such as HIV testing and condom use.

“Yes, I have been tested about four times this year, and I have also used PrEP.”
(P7, 19-year-old, male, nursing student)

Participant P13 also noted how they protected themselves from HIV using a combination of HIV testing, PrEP, and condom use.

“Using condoms, taking PrEP, and getting regularly tested”. (P13, 20-year-old, female, natural sciences student)

Similarly, participant P15 shared how they used PrEP; however, they also self-tested for HIV, but these prevention measures were hindered by cost.

“I also use prevention tools like PrEP and self-test kits ought to be more affordable and available” (P15, 22-year-old, female, social work student)

4. Discussion

This study found that South African university students prevented HIV through testing, condom use, and biomedical prevention measures such as PEP and PrEP. The study included articles from six South African provinces, and most articles had more female participants. Interestingly, most studies were drawn from KwaZulu-Natal, which has the highest prevalence of HIV in South Africa ([Simbayi & Zungu, 2017](#)).

One of the findings was the use of HIV testing services among university students; studies from five provinces highlighted the issue of HIV testing. This finding was also confirmed by the students consulted, who noted that although they tested for HIV, it was affected by stigma when the service was accessed from the campus, and this could be resolved through availing HIV self-testing. However, it was also found that HIV self-testing usage was low. The issue of utilising HIV testing services illustrates participants' perceived susceptibility to HIV infection; however, on-campus HIV testing utilisation is affected by a perceived barrier of HIV related stigma. These findings confirm a Chinese study among MSM university students, which highlighted the suboptimal HIV testing due to judgement on campus ([Ye et al., 2021](#)). Students in this study also expressed the desire for HIV self-testing to mitigate stigma, which illustrates their self-efficacy in preventing HIV and managing the perceived barriers to HIV testing. In Zimbabwe, a study among university students acknowledges that HIV self-testing is an acceptable option to increase uptake of HIV testing ([Mukora-Mutseyekwa et al., 2022](#)). However, this may not fully increase uptake of HIV testing services, as post-test HIV support services offered on campus may still be affected by stigma in closed university campus communities ([Mukora-Mutseyekwa et al., 2022](#)). As such, it is important to also strengthen community HIV services to ensure linkage to care after testing and increased uptake of HIV testing ([Mukora-Mutseyekwa et al., 2022](#)).

Studies across five provinces also reported that university students in South Africa use male and female condoms to prevent HIV, which also shows their self-efficacy in HIV prevention and the perceived benefits of using condoms for HIV prevention. The use of condoms was further confirmed by the students interviewed. There was also evidence of inconsistent condom use from the literature reviewed, which was confirmed by the students, which may indicate a low perceived susceptibility among students who are in relationships which they “trust” the partner. The issue of inconsistent and suboptimal condom use is confirmed in several studies from the USA ([McMann & Trout, 2021](#)), Portugal ([Santos et al., 2024](#)) and sub-Saharan Africa ([Izudi et al., 2022](#)). Additionally, another Nigerian study confirmed the issue of inconsistent condom use, noting that this was associated with trust, unavailability of condoms, dislike of condoms, and perceptions of decreased sexual pleasure when condoms are used ([Ajayi et al., 2019](#)). The Nigerian study ([Ajayi et al., 2019](#)) further indicates that consistent condom use is associated with having a steady partner,

which contrasts with our findings from the student interviews, who noted that being in a faithful relationship is associated with inconsistent condom use.

The issue of female condom use was described in studies from Gauteng, KwaZulu-Natal, and Free State. Studies indicated that the low use of female condoms could be improved by health education. Participants consulted did not confirm the use of female condoms, which may also be indicative of low female condom use. Other studies in Ghana (Amevor & Tarkang, 2022), Nigeria (Oke et al., 2021) and Tanzania (Shitindi et al., 2023) compare with these findings by noting the low female condom use among tertiary students. Therefore, HIV education programmes ought to raise awareness of female condom use to promote use.

Biomedical HIV prevention interventions (PrEP and PEP use) were also highlighted among South African students. Students who confirmed the review findings also noted how PrEP was used together with condoms and HIV testing, which may indicate a high level of perceived susceptibility. Notably, the student interviews illustrated how HIV testing provides a means of access to biomedical HIV prevention strategies described in one study reviewed (Ajayi et al., 2020). This may imply that HIV testing provided a cue to action for utilisation of biomedical HIV prevention products. Although students do use the biomedical HIV prevention practices, the studies reviewed highlight a low uptake. In the USA, low PrEP use has also been reported among black African students, and this is attributed to low HIV testing, lack of knowledge, and low risk perception (Odii et al., 2024). This low uptake could imply the need for increased promotion of these products and services. Moreover, additional research is needed, as only two studies from two provinces described PrEP and PEP use. We had also expected to describe the utilization of other biomedical interventions, such as Treatment as Prevention and VMMC (Liao et al., 2025). However, this review did not include these practices, which also warrants further studies on university students' utilisation of VMMC and Treatment as Prevention.

5. Conclusions

HIV continues to be a public health threat in South Africa, and prevention practices among university students ought to be scaled up to meet UNAIDS elimination targets. This study found that students used HIV testing services, male and female condoms, and biomedical interventions (PrEP and PEP).

5.1. Significance and Implications

This study was important at the policy level for Higher Health, which provides HIV prevention services in South African universities. Insights from this study provide an opportunity for scaling up products and providing health education for increased uptake of products like female condoms, HIV self-testing, and biomedical interventions. For health care workers providing HIV prevention services, on campus and in community services, the study is important to ensure focused health education to promote services that are not fully utilised.

5.2. Strengths and Limitations

This study's main strength was the consultation with university students in the Eastern Cape province, who elaborated and confirmed findings of the study, especially highlighting issues associated with inconsistent and low condom use, thereby enhancing the credibility of the study's findings. Despite this strength, the study also had limitations. Firstly, the study included only studies published in English, which may have excluded data published in Afrikaans, which is used in South Africa. Secondly, most studies reviewed did not indicate the inclusion of some HIV key populations, such as prisoners, who are

also known to be part of the university community and disproportionately affected by HIV. Thirdly, the exclusion of grey literature and systematic reviews that included other African countries minimised information sources for this study. Fourthly, the study was limited by using individual interviews from one university, instead of focus group discussions with other universities included. Individual interviews, due to the sensitive nature of the topic, may have resulted in participants providing socially desirable responses, and the inclusion of one university resulted in a small sample size, which cannot be generalised.

5.3. Recommendations

From these findings, it is recommended that HIV testing be scaled by facilitating self-testing with linkage to community-based HIV services to enable post-test support to minimise the effects of stigma. Furthermore, consistent condom use ought to be promoted, with health education on female condom use. This study also recommends further research on biomedical HIV prevention strategies among university students, as the data collected were limited to two provinces, with some known interventions not described. It is also recommended that future systematic reviews on HIV prevention in South Africa should include grey literature, studies that include key populations, and studies published in Afrikaans to improve the understanding of students' HIV prevention practices.

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Abbreviations

The following abbreviations are used in this manuscript:

HIV	Human Immunodeficiency Virus
PrEP	Pre-exposure Prophylaxis
PEP	Post-Exposure Prophylaxis
U=U	Undetectable=Untransmissible
VMMC	Voluntary Medical Male Circumcision
MSM	Men who have Sex with Men
PLWH	People living with HIV
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development

DREAMS	Determined, Resilient, Empowered, AIDS-Free, Mentored, and Safe women
PRISMA	Preferred Reporting for Systematic Reviews and Meta-Analysis
PCC	Population Concept Context
CASP	Critical Appraisal Skills Programme
STI	Sexually Transmitted Infections

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