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ASSESSING UNIVERSITY STUDENTS' KNOWLEDGE AND PERCEPTIONS OF SEXUALLY TRANSMITTED INFECTIONS: SOURCES OF INFORMATION, RISK AWARENESS, AND EDUCATIONAL IMPLICATIONS.

Nontando Makhaye, Nokukhanya Thembane, Ziningi Nobuhle Jaya*
Department of Biomedical Sciences, Faculty of Applied and Health Science, Mangosuthu University of Technology, South Africa, Durban

Abstract

Introduction

There are over 376 million new cases of sexually transmitted infections (STIs) annually, with chlamydia, gonorrhea, syphilis, trichomoniasis, and human papillomavirus being the most common. Investigating STIs among university students is vital due to high-risk behavior, characteristic of university students, which increases the risk of transmission along with their long-term health risk. This study aimed to examine the knowledge and perceptions about STIs and their prevalence among students at the Mangosuthu University of Technology.

Method

A total of 284 students participated in this study. Data collection was conducted using electronic and paper-based surveys, depending on participant preference. The survey comprised of questions focused on demographics and practices, evaluating STI knowledge, and students' perceived risk of infection with STIs. STI prevalence statistics were obtained from the university clinic.

Results

Students from the Faculty of Management Sciences, Engineering, and Natural Science aged between 18 and 26 years participated in the survey. Most participants perceived their STI knowledge as either "Good" (44.37%) or "Excellent" (25%), with a small proportion rating their knowledge as "Scarce" (19.72%). Sources of information included the internet (35.56%), teachers (28.17%), and healthcare professionals (22.18%). In terms of risk awareness, most students perceived themselves at "Moderate" (42.9%) or "A lot" (37%) risk of contracting an STI. Notably, no statistically significant differences in STI knowledge were found across gender or age groups. Between February and September 2024, a total of 373 students received treatment for STIs. More female students were treated for STIs than their male counterparts.

Conclusion

The findings emphasize the need for more targeted educational approaches, particularly gender-sensitive interventions, and underscore the importance of combining multiple educational sources, including formal curricula, peer education, and digital platforms, to improve STI knowledge and risk awareness.

Recommendations

Future studies should explore the intersection between self-perceived knowledge, actual awareness, and testing behaviors to better understand how STI education can be optimized for diverse student populations.

Keywords: *Sexually Transmitted Infections; Risk Perception; University Students; Gender Differences; Health Awareness.*
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Corresponding Author: *Ziningi Nobuhle Jaya*
Email: *jaya.nobuhle@mut.ac.za*
Department of Biomedical Sciences, Faculty of Applied and Health Science, Mangosuthu University of Technology, South Africa, Durban

Introduction and background

Sexually transmitted infections (STIs) represent a significant global public health concern, contributing to both acute and long-term reproductive health complications (Zheng et al., 2022; Elendu et al., 2024). According to Hutton-Nyameaye et al. (2024), approximately 109.7 million individuals in Africa are affected by STIs. These infections are among the primary drivers of the human immunodeficiency virus (HIV) epidemic, significantly contributing to the overall disease burden in South Africa (McKinnon and Karim, 2016; Zuma et al., 2022). Notably, South Africa carries the highest STI burden globally, with KwaZulu-Natal having the highest prevalence, particularly of HIV (Wand et al., 2020; Zuma et al., 2022).

STIs are particularly prevalent among sexually active young people of university-going age, who account for at least 50% of new global infections annually (Mcharo et al., 2022; Cegolon et al., 2022). Several risk factors have

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been associated with STI acquisition among this population, including engagement in unprotected sexual intercourse with multiple partners, excessive alcohol consumption, and substance use (Nzoputam et al., 2022; Ceogolon et al., 2022; Boskey, 2023). Given the high susceptibility of young adults to STIs, it is imperative to investigate their level of knowledge and perceptions regarding these infections.

If left undiagnosed and untreated, STIs can lead to severe and long-lasting health consequences. In females, untreated infections may progress to pelvic inflammatory disease, increasing the risk of chronic pelvic pain, ectopic pregnancies, and infertility (Den Heijer et al., 2019; Hillier et al., 2021; Reid., 2023). In males, infections such as chlamydia and gonorrhea can result in epididymitis, potentially leading to sterility (Kushwaha and Gupta, 2017; Henkel, 2020). Additionally, congenital transmission of infections like syphilis and HIV can cause adverse neonatal outcomes, including stillbirth, low birth weight, congenital abnormalities, and neonatal infections.

Beyond physical health consequences, untreated STIs can lead to psychological and social challenges that impact students' daily lives, including their academic performance. The presence of visible STI symptoms, such as genital warts, lesions, or persistent infections, may contribute to social withdrawal due to self-consciousness or fear of stigma and disclosure (Unemo et al., 2021). Anxiety and stress associated with STIs can further hinder students' ability to concentrate, participate in class, and perform academically, ultimately affecting their career aspirations and overall well-being.

Considering the serious health and social implications of untreated STIs, timely screening, access to treatment, and educational interventions are essential to safeguarding students' health and promoting academic success. To address these concerns, we conducted a study to assess STI knowledge, perception, and prevalence among students at a university of technology in KwaZulu-Natal, a region of South Africa with high STI prevalence. The study explored STI awareness and perceptions among students at the Mangosuthu University of Technology (MUT). By employing a mixed-method data collection method, the study highlights the necessity for multifaceted interventions, including psychosocial support programs and educational initiatives that promote safe sexual practices, such as condom use and contraception, to prevent STI transmission. Efforts to reduce stigma and encourage open discussions about sexual health are vital for increasing awareness, improving early detection, and preventing infections. Strengthening STI education and intervention programs within university settings can contribute to minimizing the long-term health, social, and academic consequences of STIs, ultimately fostering student well-being and academic achievement.

Methodology

Study Design

The study employed a quantitative cross-sectional design approach. A survey questionnaire was used to collect quantitative data investigating the students' knowledge and perception of STIs.

Study Setting and Population

The study was conducted at MUT, a University of Technology located in the province of KwaZulu-Natal in South Africa. The study population included students aged 18–26 years from both rural and urban areas, enrolled in the faculties of Engineering, Natural Sciences, and Management Sciences.

Sampling and Sample Size

Random sampling was used to select participants. The minimum target sample size was 375 participants, which was based on a 95% confidence level, 5% margin of error, and 50% population proportion of 14,500 students.

Participant eligibility criteria:

The following inclusion criteria were used to select suitable study participants:

- Male and female students enrolled in different academic programs in the Faculties of Management Sciences, Engineering, and Natural Science.
- Students aged 18 – 26 years.

The following exclusion criteria were used to determine eligibility for study participation:

- Students whose age was outside of the study age group.
- Students who did not fully comprehend the nature of the study.

Addressing Bias

To avoid bias, we randomly selected study participants and provided a paper-based format and an electronic format of the survey. We provided clear, standardized instructions to all respondents to ensure consistency in how the survey was understood and completed. We assured respondents that their responses were anonymous and confidential to encourage honest answers.

Data Collection

Data were collected from February 2024 to September 2024. Surveys were distributed both electronically and in paper format, allowing participants to choose their preferred format. The study involved a single point of contact with participants, and no follow-up or longitudinal tracking was conducted. STI statistical data for the period of February 2024 to September 2024 was obtained from the MUT campus-based healthcare clinic.

Statistical Analysis

Study data was analyzed using Microsoft Excel and GraphPad. Pearson correlation coefficients and p-value calculations were used for inferential statistical analysis.

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Ethical Considerations

Ethical approval was granted by the MUT research ethics committee on 19 Feb 2024 (RD/10/2024). Study participation was voluntary; all prospective participants were issued an information letter detailing the study and signed an informed consent before data collection. Participant confidentiality was maintained throughout the study. After collection, all data was password-protected and only accessible to the researcher.

Research Results/Findings

Descriptive Analysis Demographics

Table 1: The study sample consisted of 284 participants, with a higher proportion of females 183 (64.44%) compared to males 101 (35.56%). Most participants, 112 (39.44%), were aged 24–26 years, followed by 21–23 years 96 (34.15%) and 18–20 years 75 (26.41%), showing an increasing trend with age. Participants were evenly distributed across academic faculties, with the highest representation from the Faculty of Natural Sciences (34.2%), followed by Engineering Sciences (33.1%), and Management Sciences (32.7%). This distribution ensured a diverse representation of gender, age, and academic background within the study.

Table 1: Frequency of study participants as per faculty

CATEGORY	DETAILS	
Total Participants	284	
Gender Distribution	Female:	183(64.44%)
	Male:	101 (35.56%)
Age Groups	18–20 years:	75 (26.41%)
	21–23 years:	97 (34.15%)
	24–26 years:	112 (39.44%)
Faculty Distribution	Natural Sciences:	97 (34.2%)
	Engineering Sciences:	94 (33.1%)
	Management Sciences:	93 (32.7%)

Perceived knowledge about STIs

Figure 1 presents responses about the perceived level of understanding and knowledge about STIs in general. More than 45% of the students perceived their knowledge levels to be good.

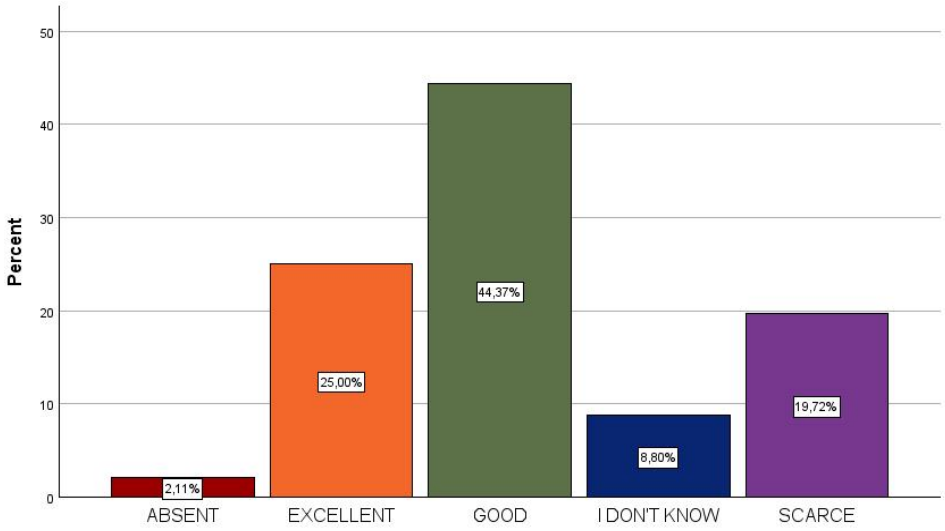

Figure 1: Participants' perceived knowledge about STIs

On the usefulness of STI education

Figure 2 presents responses on the usefulness of STI education material as perceived by the students. A large proportion, 265 (93.3%) of students felt the education material is useful.

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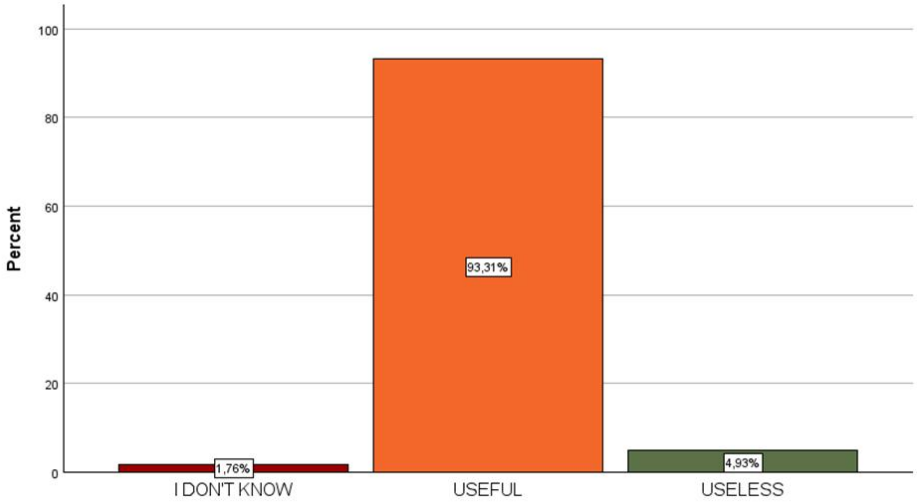

Figure 2: Participants' thoughts on educational material about STIs

On sources of information

Figure 3 presents information about the different sources of STI educational information. A large proportion, 101 (35.56%) of students, named the internet as a major source of information. Only 7 (2.46%) reported their parents and relatives as sources of information.

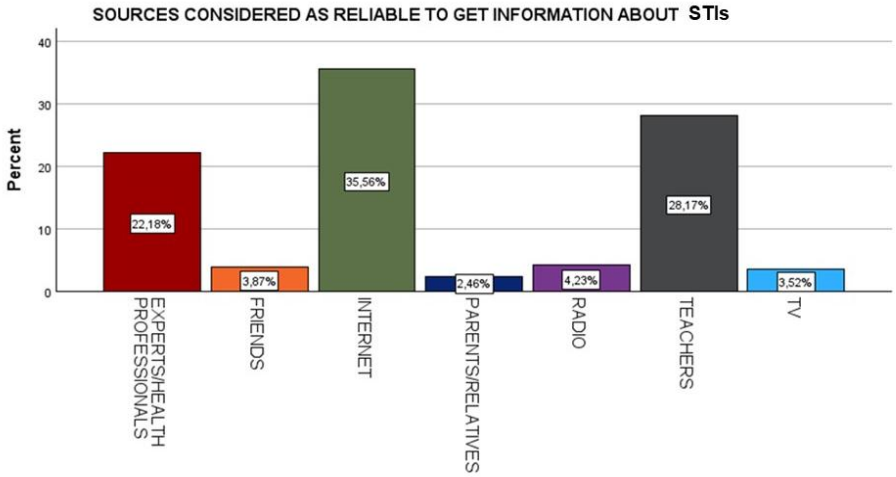

Figure 3: Study participants' sources of information about STIs

On perceived risk of STI acquisition

Table 2 presents the students' perceived risk of contracting an STI. A substantial number of students across all faculties perceived they were at various risk levels for contracting STIs.

Table 2: Study participants' perception of being at risk of contracting an STI

		RISK OF CONTRACTING HIV OR AN STI			
		A LOT	MODERATELY	NOT AT ALL	Total
FACULTY	ENGINEERING SCIENCES	29	44	21	94
	MANAGEMENT SCIENCES	35	40	18	93
	NATURAL SCIENCES	41	38	18	97
Total		105	122	57	284

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Table 3 presents details about students' feelings about the perceived protection of their peers against STI contraction. A notable number of students across all faculties perceived their peers to be a moderate risk level for contracting STIs.

Table 3: Study participants' perception of safety of peers' sexual life

		SAFETY OF PEERS' SEXUAL LIFE			
		A LOT	MODERATELY	NOT AT ALL	Total
FACULTY	ENGINEERING SCIENCES	24	52	18	94
	MANAGEMENT SCIENCES	31	46	16	93
	NATURAL SCIENCES	30	49	18	97
Total		85	147	52	284

Inferential Analysis

Correlation Analysis

The data in *Table 4* evaluates the information acquired about sexually transmitted infections (STIs) among male and female respondents. The chi-square test results indicate that there was no statistically significant association between gender and the level of information acquired about STIs, as evidenced by a Pearson Chi-Square value of 1.771 with a significance level of 0.778 ($p > 0.05$). Similarly, the Likelihood Ratio test supports this conclusion with a value of 1.778 and a p-value of 0.777.

Table 4: Pearson Chi-Square evaluation of overall knowledge about STIs by gender

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1,771a	4	,778
Likelihood Ratio	1,778	4	,777
N of Valid Cases	284		

a. 2 cells (20,0%) have expected count less than 5. The minimum expected count is 2,13.

Table 5 presents the evaluation of overall knowledge about sexually transmitted infections (STIs) categorized by age group. The chi-square test results indicate no statistically significant association between age group and the level of STI knowledge. The Pearson Chi-Square value is 6.399 with a significance level of 0.603 ($p > 0.05$), and the Likelihood Ratio test yields a value of 6.391 with a p-value of 0.604. These results suggest that STI knowledge levels are not significantly influenced by age group.

Table 5: Chi-Square Test Evaluation of overall knowledge about STIs by age group

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6,399a	8	,603
Likelihood Ratio	6,391	8	,604
N of Valid Cases	284		

a. 3 cells (20,0%) have expected count less than 5. The minimum expected count is 1,58.

Table 6 assesses the general level of STI knowledge among students from the following faculties: Natural Sciences (97 participants), Management Sciences (93 participants), and Engineering Sciences (94 participants). The results of the chi-square test show no statistically significant correlation between faculty and STI knowledge levels. The Pearson Chi-Square value is 4.008 with a significance level of 0.856 ($p > 0.05$), and the Likelihood Ratio test shows a value of 4.115 with a p-value of 0.847. These findings suggest that the level of STI knowledge does not vary significantly across faculties.

Table 6: Chi-Square Tests evaluating overall knowledge about STIs by Faculty

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	Value	df	Asymptotic (2-sided) Significance
Pearson Chi-Square	4,008a	8	,856
Likelihood Ratio	4,115	8	,847
N of Valid Cases	284		

a. 3 cells (20,0%) have expected count less than 5. The minimum expected count is 1,96.

STI incidence from February to September 2024

Table 7 shows the statistics of STIs among MUT students from February 2024 to September 2024. All these participants received syndromic treatment from the university clinic.

Table 7: Prevalence statistics of patients treated for STIs

Category	**Number of infections (n)**
Males	110
Females	263
Prevalence (%)	2.6

Discussion

This study aimed to assess the knowledge and perceptions of sexually transmitted infections (STIs) among students at MUT and to determine the prevalence of STIs within this population. The study sample included 284 participants, with a higher proportion of females (64.44%) than males (35.56%), aligning with studies indicating that female students are more likely to participate in health-related research (Jabour et al., 2021). Most participants fell within the 24–26 years age group (39.44%), reflecting delayed educational trajectories, which are common in South African tertiary institutions (Walker et al., 2022).

Reliability of Self-Perceived Knowledge and Risk Awareness

Most participants perceived their STI knowledge as either "Good" (44.37%) or "Excellent" (25%), with only 19.72% rating their knowledge as "Scarce." While these self-assessments suggest a moderate-to-high level of perceived knowledge, the reliability of self-perceived knowledge in the context of STIs is concerning. The high levels of self-reported knowledge may reflect the influence of educational initiatives in the university environment. However, research has shown that self-assessed knowledge does not always align with actual STI awareness, as individuals often overestimate their understanding of transmission, prevention, and symptoms (Kamenidou et al., 2020; Richner, 2021).

Perceived risk levels also exhibited a similarly high degree of self-perception. Most students considered themselves at a "Moderate" (42.9%) or "A lot" (37%) risk of contracting an STI. This finding indicates that students had a strong sense of self-awareness regarding their risk of contracting STIs. This finding aligns with existing literature suggesting that heightened awareness about STI risks often correlates with a greater perceived likelihood of contracting an STI (Zizza et al., 2021). However, it is important to consider that self-perceived risk may not always align with actual behavior (Fennie & Laas, 2014). Overall, misaligned perceptions of knowledge and awareness levels can have serious implications for public health education, as individuals may feel overly confident while unknowingly perpetuating misconceptions. As such, there is a need for standardized, evidence-based sexual health education programs that provide accurate and scientifically grounded information to address these misconceptions.

Gender Disparities in STI Prevalence

The study revealed notable gender disparities in STI prevalence, with 110 males and 263 females reporting being affected by STIs. This aligns with global research suggesting that women tend to experience higher rates of STIs due to biological susceptibility and sociocultural factors (Ginindza et al., 2017). Additionally, studies indicate that women are more likely to undergo STI screening and receive diagnoses compared to men, who often delay seeking medical attention due to stigma or perceived invulnerability (Thompson et al., 2021). This gendered disparity raises concerns regarding the effectiveness of STI awareness campaigns in reaching both male and female students equally and suggests the need for gender-sensitive educational interventions.

Research shows that men are often less likely to participate in routine STI testing, leading to a skewed representation of STI prevalence (Su, Belton, and Ryer, 2016; Thompson et al., 2021). Given these barriers to STI diagnosis, the integration of innovative diagnostic interventions such as self-sampling could be explored to improve accessibility and reduce stigma. Studies emphasize that self-sampling can improve STI detection rates by offering privacy, reducing stigma, and enhancing accessibility (Paudyal et al., 2015; Jaya et al., 2022). While self-sampling is not yet a standard diagnostic method, it represents a promising intervention that could increase testing rates, particularly for students who may be hesitant to seek traditional healthcare services.

Comparing knowledge across different genders and age groups

The study found no significant differences in STI knowledge across gender and age groups, contrasting with literature that suggests that women and younger individuals typically have higher STI knowledge due to earlier exposure to sexual health education (de Melo et al., 2022). However, other studies indicate that academic exposure, rather than demographic factors alone, plays a more crucial role in shaping STI knowledge in university settings (de Wit et al., 2023). This emphasizes the importance of the university environment in influencing students' knowledge and perceptions of STIs. Universities play a key role in disseminating sexual health education, highlighting the need for more comprehensive programs that target diverse student groups and consider varying levels of prior knowledge.

Source of information

The findings suggest that students primarily rely on the internet and formal educational sources for STI information. However, studies have shown that a **multifaceted approach** to STI education, incorporating both **digital platforms, peer education**, and **professional counseling**, enhances knowledge retention and behavioral change (Mierrina et al., 2024). This emphasizes the need for diverse educational approaches for STI education. Given the relatively high STI incidence in this population, educational campaigns should not only focus on transmission prevention but also promote STI healthcare for early detection and treatment.

Conclusion

In conclusion, the findings of this study raise several important considerations regarding STI knowledge, risk perception, and the effectiveness of current educational interventions. The gender disparity in STI prevalence, combined with the reliability of self-perceived STI knowledge, underscores the need for targeted, evidence-based approaches to sexual health education. The university environment, with its structured educational initiatives, plays a significant role in shaping students' knowledge and perceptions of STI risk.

Study limitations

Self-reported data may introduce bias, as students may overestimate or underestimate their STI knowledge. It is important to note that a cross-sectional design limits the ability to determine causality between education and knowledge levels. The sample may not fully represent the broader student population beyond MUT. Therefore, findings may not be generalizable to the broader university population. However, such findings may be representative of students at institutions with similar settings.

Recommendations

The effectiveness of STI education can be further enhanced by incorporating innovative diagnostic interventions, such as self-sampling, to increase testing rates and address students' concerns about accessibility and stigma. Educational campaigns must not only focus on prevention but also include information about accessible testing options, ensuring that students are equipped with the knowledge and tools to protect their sexual health. Furthermore, future studies should explore the intersection between self-perceived knowledge, actual awareness, and testing behaviors to better understand how STI education can be optimized for diverse student populations.

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Grant Information

The authors declare that no funding was received to conduct this research project.

Conflict of Interest

The authors declare there is no conflict of interest.

List of Abbreviations

HIV – Human Immunodeficiency Virus
MUT – Mangosuthu University of Technology
STIs – Sexually Transmitted Infections

Data Availability

Data will not be available to avoid breaching patient confidentiality.

Author Contributions

NM collected the data. NM cleaned and analyzed the data and wrote the draft manuscript. ZNJ and NT supervised all stages of the research, reviewed the draft manuscript, and provided general supervision and mentorship.

Author Biography

Nontando Makhaye is a student in the Bachelor of Health Science in Medical Laboratory Science academic program at Mangosuthu University of Technology. She has specialized in Clinical Pathology. She has a strong work ethic and passion for lifelong learning and is dedicated to doing work that addresses healthcare needs in the community.

Ziningi Nobuhle Jaya is a qualified Medical technologist, lecturing and supervising student research in the Department of Biomedical Science at Mangosuthu University of Technology. Her research focuses on investigating diverse healthcare interventions for infectious diseases, mainly to respond to the diverse healthcare needs of people in surrounding communities.

ORCID: https://orcid.org/0000-0003-1053-5458
Nokukhanya Thembane is a Medical Laboratory Scientist/Technologist, Senior Lecturer, and Researcher at Mangosuthu University of Technology and the University of KwaZulu-Natal. She specializes in Clinical Pathology, with a focus on therapeutic drug monitoring and drug discovery. Her work involves teaching and supervising students and conducting research to contribute to advancements in patient care in disenfranchised communities and medical laboratory science.
ORCID: https://orcid.org/0000-0001-9146-3809

References

1. Boskey, E.R., Lossie, A., Staffa, S.J. and Grimstad, F.W., 2023. Preventive Practices and Knowledge of Human Papillomavirus in Mayer-Rokitansky-Küster-Hauser (MRKH) Syndrome Individuals. Sexually Transmitted Diseases, pp.10-1097.
2. Cegolon, L., Bortolotto, M., Bellizzi, S., Cegolon, A., Bubbico, L., Pichierri, G., Mastrangelo, G. and Xodo, C., 2022. A survey on knowledge, prevention, and occurrence of sexually transmitted infections among freshmen from four Italian universities. *International Journal of Environmental Research and Public Health*, *19*(2), p.897. https://doi.org/10.3390/ijerph19020897
3. de Melo, L.D., Sodré, C.P., Spindola, T., Martins, E.R.C., André, N.L.N.O. and da Motta, C.V.V., 2022. Prevention of sexually transmitted infections among young people and the importance of health education. Enfermería Global, 21(1), pp.102-115. https://doi.org/10.6018/eglobal.481541
4. de Wit, J.B., Adam, P.C., Den Daas, C. and Jonas, K., 2023. Sexually transmitted infection prevention behaviors: health impact, prevalence, correlates, and interventions. *Psychology & Health*, *38*(6), pp.675-700. https://doi.org/10.1080/08870446.2022.2090560
5. Elendu, C., Amaechi, D.C., Elendu, I.D., Elendu, T.C., Amaechi, E.C., Usoro, E.U., Chima-Ogbuiyi, N.L., Agbor, D.B.A., Onwuegbule, C.J., Afolayan, E.F. and Balogun, B.B., 2024. Global perspectives on the burden of sexually transmitted diseases: A narrative review. *Medicine*, *103*(20), p.e38199. *DOI:* 10.1097/MD.0000000000038199
6. Den Heijer, C.D., Hoebe, C.J., Driessen, J.H., Wolffs, P., Van Den Broek, I.V., Hoenderboom, B.M., Williams, R., De Vries, F. and Dukers-Muijrers, N.H., 2019. Chlamydia trachomatis and the risk of pelvic inflammatory disease, ectopic pregnancy, and female infertility: a retrospective cohort study among primary care patients. *Clinical Infectious Diseases*, *69*(9), pp.1517-1525. https://doi.org/10.1093/cid/ciz429
7. Fennie, T. and Laas, A., 2014. HIV/AIDS-related knowledge, attitudes and risky sexual behavior among a sample of South African university students. *Gender and Behaviour*, *12*(1), pp.6035-6044.
8. Ginindza, T.G., Stefan, C.D., Tsoka-Gwegweni, J.M., Dlamini, X., Jolly, P.E., Weiderpass, E., Broutet, N. and Sartorius, B., 2017. Prevalence and risk factors associated with sexually transmitted infections (STIs) among women of reproductive age in Swaziland. *Infectious agents and cancer*, *12*, pp.1-12. DOI 10.1186/s13027-017-0140-y
9. Henkel, R., 2020. Infection in infertility. *Male Infertility: Contemporary Clinical Approaches, Andrology, ART and Antioxidants*, pp.409-424.
10. Hillier, S.L., Bernstein, K.T. and Aral, S., 2021. A review of the challenges and complexities in the diagnosis, etiology, epidemiology, and pathogenesis of pelvic inflammatory disease. *The Journal of Infectious Diseases*, *224*(Supplement_2), pp.S23-S28. https://doi.org/10.1093/infdis/jiab116
11. Hutton-Nyameaye, A.A., Asiamah, M., Asafo-Adjei, K., Benneh, C.K., Kwakye, A.O., Mensah, K.B., Duedu, K.O. and Buabeng, K.O., 2024. Knowledge and prevalence of common sexually transmitted infections among patients seeking care at selected health facilities in Southern Ghana. *PLOS Global Public Health*, *4*(7), p.e0003422. https://doi.org/10.1371/journal.pgph.0003422
12. Jabour, A.M., Rehman, W., Idrees, S., Thanganadar, H., Hira, K. and Alarifi, M.A., 2021. The adoption of mobile health applications among university students in health colleges. Journal of Multidisciplinary Healthcare, pp.1267-1273. https://doi.org/10.2147/JMDH.S310539
13. Jaya, Z.N., Mapanga, W., Van Niekerk, B., Dlangalala, T., Kgarosi, K., Dzobo, M., Mulqueeny, D. and Mashamba-Thompson, T.P., 2022. Mapping evidence of self-sampling to diagnose sexually transmitted infections in women: a scoping review. *Diagnostics*, *12*(8), p.1803. https://doi.org/10.3390/diagnostics12081803
14. Kamenidou, I., Stavrianea, A., Mamalis, S. and Mylona, I., 2020. Knowledge assessment of COVID-19 symptoms: Gender differences and communication routes for the generation z cohort. *International journal of environmental research and public health*, *17*(19), p.6964. https://doi.org/10.3390/ijerph17196964
15. Kushwaha, B. and Gupta, G., 2017. Sexually transmitted infections and male infertility: old enigma, New insights. *Male infertility:*

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https://doi.org/10.51168/sjhrafrica.v6i3.1563
Original Article

Understanding, causes and treatment, pp.183-212.

16. Martin, S.P., 2017. *Young people's sexual health literacy: seeking, understanding, and evaluating online sexual health information* (Doctoral dissertation, University of Glasgow).
17. Mcharo, R.D., Kisinda, A., Njovu, L., Mcharo, M., Mbwilo, F., Mihale, G., Komba, B., Andrew, E., Mayaud, P., Kroidl, A. and Ivanova, O., 2022. Prevalence of and risk factors associated with HIV, Herpes Simplex Virus-type 2, Chlamydia trachomatis and Neisseria gonorrhoeae infections among 18–24 year old students attending Higher Learning Institutions in Mbeya-Tanzania. *Plos one*, *17*(5), p.e0266596. https://doi.org/10.1371/journal.pone.0266596
18. Mierrina, M., Chairiyah, U. and Adi, N.R.M., 2024. THE ROLE OF SEXUAL PSYCHOEDUCATION IN FOSTERING SEXUAL AWARENESS AND SELF-DEFENSE SKILLS IN MADRASAH TSANAWIYAH STUDENTS. *Al-Tazkiah Jurnal Bimbingan dan Konseling Islam*, *13*(1), pp.29-42. https://doi.org/10.20414/altazkiah.v13i1.9686
19. McKinnon, L.R. and Karim, Q.A., 2016. Factors driving the HIV epidemic in southern Africa. *Current HIV/AIDS Reports*, *13*, pp.158-169. https://doi.org/10.1007/s11904-016-0314-z
20. Nzoputam, C., Adam, V.Y. and Nzoputam, O., 2022. Knowledge, prevalence, and factors associated with sexually transmitted diseases among female students of a Federal University in Southern Nigeria. Venereology, 1(1), pp.81-97. https://doi.org/10.3390/venereology1010006
21. Paudyal, P., Llewellyn, C., Lau, J., Mahmud, M. and Smith, H., 2015. Obtaining self-samples to diagnose curable sexually transmitted infections: a systematic review of patients' experiences. *PloS one*, *10*(4), p.e0124310. https://doi.org/10.1371/journal.pone.0124310
22. Reid, J., 2023. Pelvic inflammatory disease and other upper genital infections. In *Handbook of Gynecology* (pp. 335-345). Cham: Springer International Publishing.
23. Richner, D.C., 2021. *Relationships Between Sexual Health Knowledge, Self-Efficacy, and Trauma on Sexual Risk-Taking Among Women* (Doctoral dissertation, Idaho State University).
24. Su, J.Y., Belton, S. and Ryder, N., 2016. Why are men less tested for sexually transmitted infections in remote Australian Indigenous communities? A mixed-methods study. *Culture, Health & sexuality*, *18*(10), pp.1150-1164. https://doi.org/10.1080/13691058.2016.1175028
25. Thompson, E.L., Griner, S.B., Galvin, A.M., Lowery, A.D. and Lewis, M.A., 2021. Correlates of STI testing among US young adults: Opportunities for prevention. *Prevention Science*, *22*, pp.216-226.
26. Unemo, M., 2021. Accurate, rapid, point-of-care tests for sexually transmitted infections. The Lancet Infectious Diseases, 21(5), pp.584-586.
27. Walker, M., McLean, M. and Mukwando, P., 2022. *Low-income students, human development and higher education in South Africa: Opportunities, obstacles, and outcomes* (p. 224). African minds.
28. 10.47622/9781928502395
29. Wand, H., Reddy, T., Dassaye, R., Moodley, J., Naidoo, S. and Ramjee, G., 2020. Estimating prevalence and incidence of sexually transmitted infections among South African women: implications of combined impacts of risk factors. *International Journal of STD & AIDS*, *31*(11), pp.1093-1101. https://doi.org/10.1177/0956462420915388
30. Zheng, Y., Yu, Q., Lin, Y., Zhou, Y., Lan, L., Yang, S. and Wu, J., 2022. Global burden and trends of sexually transmitted infections from 1990 to 2019: An observational trend study. *The Lancet Infectious Diseases*, *22*(4), pp.541-551.
31. Zizza, A., Guido, M., Recchia, V., Grima, P., Banchelli, F. and Tinelli, A., 2021. Knowledge, information needs and risk perception about HIV and sexually transmitted diseases after an education intervention on Italian high school and university students. *International journal of environmental research and public health*, *18*(4), p.2069. https://doi.org/10.3390/ijerph18042069
32. Zuma, K., Simbayi, L., Zungu, N., Moyo, S., Marinda, E., Jooste, S., North, A., Nadol, P., Aynalem, G., Igumbor, E. and Dietrich, C., 2022. The HIV epidemic in South Africa: key findings from 2017 national population-based survey. *International Journal of Environmental Research and Public Health*, *19*(13), p.8125. https://doi.org/10.3390/ijerph19138125

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