


Research Article

# Epidemiology of Sexually Transmitted Infections Among Sexually Active Individuals in Monze District, Zambia

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## Abstract

Sexually transmitted infections (STIs) are infections that can be passed on through unprotected vaginal, oral, or anal intercourse with an infected partner. The study aimed to assess the epidemiology of sexually transmitted infections (STIs) among sexually active individuals (15-70) in Monze District of Zambia. Descriptive, retrospective, and cross-sectional study designs were utilized to investigate an epidemiology of sexually transmitted infections among sexually active individuals aged between 15 and 70 years. Ethical approval was sought from CHRESO University Research and Ethics Committee and Monze District Health Office. Both stratified and simple random sampling techniques were utilized to select 271 respondents to participate in the study. Primary data was collected from study participants using structured questionnaire while secondary data was collected from Monze district health information office and by analyzing registers for outpatients, laboratory and MCH departments. The collected data was analyzed by Statistical Package for Social Sciences (SPSS) version 28.0 and was presented by tables. Multivariate logistic regression analysis was used to examine the relationships between socio-demographic characteristics and parameters for epidemiology of sexually transmitted infections. The study revealed that 91.5% of respondents were able to identify sexually transmitted infections in Monze District. Additionally, 69.4% of respondents reported being diagnosed with STIs, indicating a high prevalence in the district. A significant portion of respondents (27.2% to 31.2%) reported experiencing symptoms suggestive of STIs in the past year, highlighting potential undiagnosed infections and emphasizing the importance of symptom awareness. While 68.3% of respondents reported ever undergoing STI screening, regular testing remains crucial for early detection and treatment for higher risk patients. The study also showed that, while awareness of different STIs was

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relatively high (84.9%), there is still a need for health education to address misconceptions and encourage regular testing. The results also showed that, 56.8% of respondents had adequate level of knowledge on the safe sex practices while 72.3% of respondents believed in the effectiveness of condoms for STI prevention. The study further exposed that, many respondents (82.3%) identified stigma to be a barrier to seeking treatment for STIs. Moreover, the results showed that, many respondents (95.6% to 99.6%) affirmed that, health educational campaigns promote safe sexual practices, reduce STI occurrences, improve knowledge levels, and encourage utilization of available testing and treatment services. Sex, age, marital status, and occupation were found to have significant statistical correlation with impact of educational and awareness campaigns in the prevention of STIs ( $P < 0.05$ ).

## Keywords

Epidemiology, STIs, Sexually Active Individuals, Monze District, Zambia

## 1. Introduction

Sexually transmitted infections (STIs) continue to pose a significant public health challenge globally due to their elevated potential for causing illness, death and fast spreading within communities. Some STIs can be passed down from mother to child during breastfeeding, pregnancy, labour, and childbirth, as well as via infected blood or blood products. Sub-Saharan Africa bears a disproportionate burden of HIV and accounts for more than 70% of the worldwide burden of infection [1, 25]. Additional evidence clarifies that globally, over 1 million sexually transmitted infections (STIs) are contracted on a daily basis, with the majority of cases showing no symptoms. Other than that, in 2018, Chlamydia, trichomoniasis, genital herpes, and HPV collectively accounted for a significant 98% of all prevalent sexually transmitted infections (STIs) and contributed to 93% of newly reported cases. These infections, which include chlamydia, gonorrhea, hepatitis B virus (HBV), herpes simplex virus type 2 (HSV-2), human immunodeficiency virus (HIV), human papillomavirus (HPV), syphilis, and trichomoniasis, pose a substantial public health challenge [2].

Sexually Transmitted infections (STIs) remain one of the most critical public health challenges facing entire world. Not only that, these STIs pose a significant global health threat, affecting individuals of all ages, genders, and socioeconomic backgrounds. The prevalence of STIs among individuals of childbearing age (15-49 years) varies depending on factors such as geographic location, access to healthcare, and sexual behaviors. Common STIs in this age group include chlamydia, trichomoniasis, gonorrhea, syphilis, genital herpes simplex virus (HSV), genital warts, giardia infections, viral hepatitis B, lymphogranuloma venereum (LGV), HIV/AIDS, and human papillomavirus (HPV). STIs can have a profound impact on the health of sexually active individuals, particularly young people, potentially leading to sexual dysfunction, low self-esteem, infertility, increased risk of HIV transmission, and even death [3, 31].

Evidence shows that, if sexually transmitted infections

remain untreated, they can lead to serious consequences including neurological and cardiovascular diseases, infertility, ectopic pregnancy, stillbirths, and increased risk of Human Immunodeficiency Virus (HIV). They are also associated with stigma, domestic violence, and affects quality of life. The majority of STIs have no symptoms but when they are present, common symptoms of STIs are abnormal vaginal discharges, urethral discharges, genital ulcers and lumps, and lower abdominal pain [4].

Another study discovered that factors that were significantly related to a high incidence of STIs included the type of occupation, awareness of STIs, place of residence, having several sexual partners, transactional sex, not using condoms, drinking alcohol, and not caring about the behaviors of one's sex partner. As a result, significant awareness efforts on the hazards of having multiple sex partners, managing one's alcohol intake, and practicing safe sex practices, including the use of condoms, are required. The author did recommend the creation of awareness approaches that encourage safe sexual practices, particularly among individuals that do not choose abstinence or a single sexual partner lifestyle [5].

Not only that, Sexually transmitted infections (STIs) pose a significant public health threat, affecting millions of people worldwide and contributing to sudden illness, infertility, long-term health complications, and even death. STIs remain a major concern, particularly for pregnant women. STIs and bacterial vaginosis (BV) can have detrimental consequences for an individual's sexual, reproductive, and maternal-child health. Over 30 bacterial, viral, and parasitic infections have been identified as transmissible through sexual contact. Accurate data on the prevalence and impact of these diseases is essential for planning effective interventions and securing necessary funding [6].

Moreover, evidence shows that, the overall prevalence of syndromic STIs in a multi-country cohort across four sub-Saharan African nations was 7.7%, and there was no significant difference in prevalence based on HIV status. The

study also found that women participants had a higher prevalence of symptomatic STIs than men. The authors attributed this difference to gender inequities, which can limit women's access to education and employment opportunities and increase the likelihood of engaging in risky sexual behaviors such as transactional sex. Additionally, biological factors such as the vaginal microbiome and a thinner vaginal lining may make women more susceptible to STI acquisition compared to men. The authors recommend prioritizing STI prevention and treatment for women, particularly those of reproductive age who are at higher risk of STI-related complications and pregnancy difficulties [7].

Sexually transmitted infections (STIs) pose a significant public health challenge, particularly in developing nations with limited healthcare infrastructure. Despite the availability of effective treatments, the incidence and prevalence of STIs are rising in Sub-Saharan Africa. Sub-Saharan Africa remains the region most severely affected by the HIV pandemic, accounting for nearly three-quarters (69%) of the 23.5 million individuals infected globally. The majority of Sub-Saharan African countries exhibit a generalized epidemic with pockets of concentrated epidemics in key populations (infection rates > 1%). Over 6 million individuals in South Africa are estimated to be HIV-positive. Swaziland has the highest adult prevalence rate at 26.5%, followed by South Africa (17.9%), Namibia (13.3%), and Mozambique (11.1%) [8].

Moreover, Monze District, located in the Southern Province of Zambia, represents a microcosm of the challenges and opportunities facing public health initiatives in sub-Saharan Africa. The epidemiology of STIs in this region offers crucial insights into broader patterns of disease transmission, public health responses, and the socio-cultural dynamics that influence health outcomes. Sexually transmitted infections remain a significant public health issue in Zambia, with considerable implications for the health and well-being of sexually active adults. The high prevalence of STIs such as HIV, syphilis, gonorrhea, and chlamydia in Monze District underscores the urgent need for effective prevention and treatment strategies. This prevalence is exacerbated by factors such as limited access to healthcare services, stigma associated with STIs, and socioeconomic conditions that impede public health efforts [28].

## 2. Method

This study employed descriptive, retrospective, and cross-sectional study designs to investigate an epidemiology of sexually transmitted infections among sexually active individuals aged between 15 and 70 years from 2020 to 2022 in Monze District of Zambia. The ethical approval for this

study was sought from CHRESO University Research and Ethics Committee, Texila American University, and Monze District Health Office respectively. Apart from that, both stratified and simple random sampling techniques were utilized to select 271 respondents from randomly selected health facilities to participate in this study. The target population for this study consisted of men and women aged between 15 and 70 years residing in Monze District of Zambia. This age range was chosen because it helped to capture a broad spectrum of the population, including adolescents, young adults, and older individuals, who may have different, risk perceptions about STIs. On the other hand, the study population consisted of patients and clients coming to seek various health services in outpatient, maternal and child health (MCH), and laboratory departments over a four-week period. Other than that, efforts were made to explain to the study participants that no harm would be done to them by participating in the study, neither will they gain any personal benefit by participating in the study and that their anonymity would be assured. The nature of the research was explained to every study participant, and all those who willingly or voluntarily consented were given the questionnaire to complete, enabling their participation in the study. Similarly, participants were given the opportunity to opt out of the study at any point without coercion. The overall time commitment for participants was expected to be ten minutes and their valuable input was expected to significantly contribute to advancing our understanding of the epidemiology of sexually transmitted infections (STIs) among sexually active adults in Monze district of Zambia. Before the main data collection process began, a pilot study was conducted at Zambia College of Agriculture Rural Health Centre in order to assess the validity, reliability, clarity, relevance, and feasibility of data collection instrument. Feedback from the pilot study participants was used to fine tune the questionnaire and make necessary adjustments to ensure the validity and reliability of the data collection instrument. Zambia College of Agriculture Rural Health Centre was not part and parcel of the final study in order to avoid bias. Primary data was collected from respondents using structured questionnaire while secondary data was collected from Monze district health information office and by analyzing registers for outpatient, laboratory and MCH departments. Structured questionnaire was used as primary data collection instrument because it allowed for systematic and standardized data collection. The collected data was analyzed by Statistical Package for Social Sciences (SPSS) version 22.0 and was presented by tables and pie charts. Multivariate logistic regression analysis was used to examine the relationships between socio-demographic characteristics and parameters for epidemiology of sexually transmitted infections.

### 3. Results

**Table 1. DEMOGRAPHIC DATA.**

DEMOGRAPHIC DATA		
1	AGE	15-20 25.8%
		21-30 42.1%
		31-40 25.8%
		41-50 3.0%
		51-60 2.2%
		61-70 1.1%
2	MARITAL STATUS	SINGLE 54.6%
		MARRIED 35.1%
		DIVORCED 3.7%
		WIDOWED 3.0%
3	GENDER	SEPARATED 3.7%
		MALE 48.0%
4	SOCIAL CLASS	FEMALE 52.0%
		UPPER CLASS 22.9%
		MIDDLE CLASS 50.6%
5	RELIGION	LOWER CLASS 26.6%
		CHRISTIAN 92.3%
		MUSLIM 2.6%
		OTHERS 5.2%
6	LEVEL OF EDUCATION	NONE 16.6%
		PRIMARY 24.0%
		SECONDARY 31.7%
7	OCCUPATION	TERTIARY 27.7%
		UNEMPLOYED 52.8%

#### DEMOGRAPHIC DATA

8	NUMBER OF CHILDREN	ONE 51.7%
		TWO 26.9%
		THREE 11.8%
		FOUR 5.5%
		FIVE 1.1%
		SIX 0.4%
		SEVEN 1.1%
		EIGHT 0.7%
		NINE 0.4%
		TEN 0.4%

The results in table 1 shows that, the majority of study participants (42.1%) were aged between 21 and 30 while 25.8% of the respondents were aged between 15-20 and 31-40 respectively. The results from this table shows that, most of the study participants (54.6%) were single while 35.1% of respondents were married. The study also revealed that most of the respondents (52%) were females while 48% of study participants were males. The study further disclosed that, most of study participants (50.6%) belonged to middle class while a small proportion of respondents (26.6%) belonged to lower class. The study revealed that, the majority of the respondents (92.3%) were Christians. The study also uncovered that, few respondents had attained secondary (31.7%) and tertiary (27.7%) levels of education respectively. The study also exposed that, most of the respondents (52.8%) were unemployed and many of them (51.7%) had one child only.

**Table 2. Prevalence of STIS in Monze District of Zambia.**

PREVALENCE OF SEXUALLY TRANSMITTED INFECTIONS			
1	Have you ever been diagnosed with a sexually transmitted infection?	YES	69.4%
		NO	25.1%
		NOT SURE	5.5%
2	Which of the following are the sexually transmitted infections?	SYPHILLIS, GONORRHOEA, HPV, CHANCROID AND HIV	91.5%
		CORONAVIRUS	8.5%
3	In the past 12 months, have you experienced any of the following signs and symptoms of	GENITAL ULCERS	27.9%
		URETHRAL DISCHARGES	31.2%

**PREVALENCE OF SEXUALLY TRANSMITTED INFECTIONS**

	a sexually transmitted infection?	LOWER ABDOMINAL PAIN	27.2%
		HEADACHE	12.9%
		HAVE NEVER EXPERIENCED SIGNS AND SYMPTOMS OF STIS	7%
		YES, REGULARLY	42.1%
4	Have you ever undergone a routine STI screening or testing?	YES, ONCE	26.2%
		NO	31.7%
		DAILY	28.8%
		WEEKLY	36.2%
5	How often do you engage in sexual activity?	MONTHLY	11.8%
		RARELY	17.7%
		NEVER	5.5%
		SINGLE	47.6%
6	What is your current relationship status?	COHABITING	21%
		MARRIED	29.5%
		DIVORCED	1.8%
		YES	84.9%
7	Are you aware of the different types of sexually transmitted infections?	NO	7.4%
		NOT SURE	7.7%

Table 2 shows that, a high proportion of respondents (69.4%) reported ever being diagnosed with an STI, suggesting a significant public health concern in the district. A concerning number of respondents (27.2% to 31.2%) reported experiencing symptoms suggestive of STIs in the past year, indicating potential undiagnosed infections and the importance of symptom awareness. While encouraging that a substantial percentage (68.3%) of respondents reported ever undergoing STI screening, regular testing remains crucial for early detection and treatment, especially for those with higher

risk factors. The study singles formed the largest group (47.6%), potentially indicating higher risk behavior due to more frequent partner changes. The study shows that, while awareness of different STIs is relatively high (84.9%), there is still a need for education to address misconceptions and encourage regular testing. The study has also revealed that 91.5% of respondents in the Monze District of Zambia were able to identify such sexually transmitted infections as Syphilis, Gonorrhea, HPV, chancroid and HIV.

**Table 3.** Knowledge, Attitudes And Practices Related To Safe Sex And Sti Prevention In Monze District.

**KNOWLEDGE, ATTITUDES AND PRACTICES RELATED TO SAFE SEX AND STI PREVENTION**

		VERY CONFIDENT	56.8%
1	How confident do you feel in your knowledge of safe sex practices?	SOMEWHAT CONFIDENT	26.6%
		NOT CONFIDENT	16.6%
		YES	72.3%
2	Do you believe using condoms can effectively prevent STIs?	NO	11.4%
		NOT SURE	16.2%
3	Have you ever discussed safe sex practices with your sexual	YES FREQUENTLY	45.4%

**KNOWLEDGE, ATTITUDES AND PRACTICES RELATED TO SAFE SEX AND STI PREVENTION**

	partner(s)?	YES OCCASIONALLY	26.6%
		NO	28%
		HEALTHCARE PROVIDERS	59%
4	What sources of information do you rely on for learning about STI prevention?	INTERNET	22.5%
		FRIENDS/FAMILY	12.5%
		SCHOOL/EDUCATIONAL INSTITUTIONS	5.9%
5	How comfortable are you discussing sexual health with healthcare providers?	VERY COMFORTABLE	64.9%
		SOMEWHAT COMFORTABLE	23.6%
		NOT COMFORTABLE	11.4%
6	Do you believe stigma around STIs affects people's willingness to seek treatment?	YES	82.3%
		NO	11.1%
		NOT SURE	6.6%

Table 3 shows that, the majority of the respondents (56.8%) had adequate level of knowledge on the safe sex practices while a substantial proportion of study participants (72.3%) believed in the effectiveness of condoms for STI prevention. Frequent discussions on safe sex practices with sexual partners are reported by 45.4%, emphasizing the importance of interpersonal communication. The study further revealed that, healthcare providers (59%) are the primary source of information for STI prevention for the people in the community.

However, there is a noteworthy reliance on the internet (22.5%), suggesting the need for evaluating online information quality. Comfort levels discussing sexual health with healthcare providers are generally high (64.9%), supporting the idea of open communication. The study further exposed that most of study participants (82.3%) identified stigma to be a barrier to seeking treatment for STIs which highlights the need for comprehensive health education program in Monze district of Zambia.

**Table 4.** *Impact of Educational and Awareness Campaigns on StI Prevention in Monze.*

**IMPACT OF EDUCATIONAL AND AWARENESS CAMPAIGNS ON STI PREVENTION**

1	Do educational campaigns contribute to STI prevention and management in the study population?	YES	97.4%
		NO	2.6%
2	Can awareness campaigns effectively reduce the occurrence of STIs within the study population?	YES	95.6%
		NO	4.4%
3	Are educational and awareness campaigns considered potential tools for promoting safe sexual practices and reducing STI transmission?	YES	99.3%
		NO	0.7%
4	Do educational initiatives have a positive impact on the knowledge level of the study population regarding STI prevention and management?	YES	98.9%
		NO	1.1%
5	Is there a possibility that increased awareness through campaigns can lead to a decline in the number of STI cases among the study population?	YES	98.2%
		NO	1.8%
6	Are educational and awareness campaigns likely to improve the utilization of STI testing and treatment services among the study population?	YES	98.2%
		NO	1.8%
7	Can educational interventions positively influence attitudes and behaviours related to STI prevention in the study population?	YES	99.6%
		NO	0.4%



**IMPACT OF EDUCATIONAL AND AWARENESS CAMPAIGNS ON STI PREVENTION**

8	Is it feasible that well-designed awareness campaigns can lead to early detection and timely management of STIs in the study population?	YES	98.2%
		NO	1.8%
9	Are educational and awareness efforts likely to create a sustainable impact on long-term STI prevention and management among the study population?	YES	98.5%
		NO	1.5%
10	Is there a correlation between the frequency of exposure to educational campaigns and a decrease in STI transmission rates within the study population?	YES	97.8%
		NO	2.2%

The results from Table 4 shows that, the majority of study participants (95.6% - 99.6%) affirmed the effectiveness of educational campaigns in promoting safe sexual practices, reducing STI occurrences, improving knowledge levels, and encouraging utilization of available testing and treatment services in health facilities. Notably, 98% or higher agreed that educational campaigns contribute to positive attitudes and behaviours, early detection, long-term prevention, and a potential decrease in STI transmission rates.

Association between impact of educational and awareness campaigns on STIs prevention and socio-demographic variables is shown in table 5 below.

Sex, age, marital status, and occupation were found to have significant statistical correlation with impact of educational and awareness campaigns on STIs prevention in Monze District, in the Southern Province of Zambia ( $P < 0.05$ ).

**Table 5.** Association between impact of educational and awareness campaigns on sti prevention and socio-demographic variables.

Socio-demographic Variables	$\chi^2$ value	Df	p value
SEX	20.153	2	0.000**
AGE	23.416	4	0.000**
MARITAL STATUS	21.424	5	0.010**
RELIGION	24.515	4	0.4021
OCCUPATION	24.313	3	0.002**

\*\*Significant at  $P < 0.05$ .

## 4. Discussion of the Findings

The study aimed at investigating the epidemiology of sexually transmitted infections (STIs) among sexually active adults in Monze District, Zambia, with a focus on understanding the prevalence, distribution, risk factors, and associated outcomes, and to provide actionable insights for public health interventions. The demographic data in Table 1 shows that, most of the study participants (42.1%) were aged be-

tween 21 and 30 while 25.8% of the respondents were aged between 15-20 and 31-40 respectively. The results from this table show that, most of the study participants (54.6%) were single while 35.1% of respondents were married. The study also revealed that most of the respondents (52%) were females while 48% of study participants were males. The study further disclosed that, most of study participants (50.6%) belonged to middle class while a small proportion of respondents (26.6%) belonged to lower class. The study revealed that, the majority of the respondents (92.3%) were Christians while a small proportion of the respondent (2.6%) were Muslim. The study also uncovered that, few respondents had attained secondary (31.7%) and tertiary (27.7%) levels of education respectively. The study also exposed that, most of the respondents (52.8%) were unemployed and many of them (51.7%) had one child only.

Other than that, the results in Table 2 show that, a high proportion of respondents (69.4%) reported ever being diagnosed with an STI, suggesting a significant public health concern in the district. A concerning number of respondents (27.2%, 27.9% and 31.2%) reported experiencing symptoms suggestive of such STIs as lower abdominal pain, genital ulcer, and urethral discharges respectively in the past year, indicating potential undiagnosed infections and the importance of symptom awareness. While it is encouraging that a substantial percentage (68.3%) of respondents reported ever undergoing STI screening, regular testing remains crucial for early detection and treatment, especially for those with higher risk factors such as having unprotected sex, having multiple sexual partners and inconsistent STIs screening and testing. Other than that, involving in sex work, lack of education and awareness, and drug and alcohol abuse also put people at risk of acquiring STIs. The study singles formed the largest group (47.6%), potentially indicating higher risk behavior due to more frequent partner changes. The study also shows that, while awareness of different STIs is relatively high (84.9%), there is still a need for education to address misconceptions and encourage regular testing. The study also revealed that 91.5% of respondents in the Monze District of Zambia had at least one of such sexually transmitted infections as Syphilis, Gonorrhea, HPV, chancroid and HIV. This clearly indicates an extremely high prevalence of STIs in the district, far ex-

ceeding what would be considered low or moderate. This high prevalence of STIs translates to a significant strain on healthcare systems, requiring more resources for diagnosis, treatment, and management of complications. Not only that, the presence of multiple STIs in many individuals (91.5%) raises concerns about potential complications, increased risk of STIs transmission to others, and the need for urgent attention and broader intervention strategies.

The results from this study are in line with the findings from one study, which found that, the prevalence of Sexually Transmitted infections in United States of America in 2018, were around 67.6 million and 26.2 million incidents. Not only that, it was also found that 93.1% of all incident STIs were caused by the human papillomavirus (HPV), genital herpes, chlamydia, trichomoniasis, and other STIs. Although they made up 45.5% (11.9 million) of all incident infections, those aged 15 to 24 made up 18.6% (12.6 million) of all prevalent illnesses [9]. The results from this study are also in line with the findings from another study, which discovered that, HIV prevalence among transgender people ranged from 0% to 49.6% in women and 0% to 8.3% in males, making it the most often investigated STI. In transgender women, the prevalence of syphilis, gonorrhea, and chlamydia varied from 1.4% to 50.4%, 2.1% to 19.1%, and 2.7% to 24.7%, respectively, whereas in transgender males, the prevalence ranged from 0% to 4.2%, 0% to 10.5%, and 1.2% to 11.1%. Testing procedures for chlamydia and gonorrhea at individual sites varied. Data on trichomoniasis prevalence were not given by any study [10]. The findings from this study are also in line with the results from one study conducted in Ethiopia which found that, the prevalence of Sexually transmitted infections among the University of Gondar regular undergraduate students was 18.20%. Previous history of sexually transmitted infections, multiple sexual partners in life, not use of condoms during sexual intercourses, and poor knowledge of sexually transmitted infections were significantly associated with sexually transmitted infections. The author, therefore, recommended that there was a need to develop and strengthen reproductive health centers on the campuses, popularize sexual and reproductive health information and education, particularly STI modes of transmission, prevention, health-seeking behaviors, and providing information and improving access to condom so as to reduce sexually transmitted infections [11].

Moreover, Table 3 shows that, the majority of the respondents (56.8%) had adequate level of knowledge on the safe sex practices while a substantial proportion of study participants (72.3%) believed in the effectiveness of condoms use for STI prevention. Frequent discussions on safe sex practices with sexual partners were reported by 45.4% of respondents, emphasizing the importance of interpersonal communication. The study further revealed that, healthcare providers (59%) are the primary source of information for STI prevention. However, there is a noteworthy reliance on the internet (22.5%), suggesting the need for evaluating online information quality. Comfort levels discussing sexual health

with healthcare providers are generally high (64.9%), supporting the idea of open communication. The study further exposed that most of study participants (82.3%) identified stigma to be a barrier to seeking treatment for STIs which highlights the need for comprehensive education programs. The results from the current study are in line with the study conducted among unmarried youths in Lagos in Nigeria which found that most of the respondents had adequate level of knowledge (84.7%) on STIs. While many (66%) understood them well and almost everyone (99%) wanted to prevent them, less than half (34%) actually took steps to do so. Interestingly, people who knew more about STIs were generally older, more educated, more positive about prevention, and more likely to protect themselves [12]. The findings from this study are also in line with a study which found moderate to high HIV/AIDS knowledge among study participants, with personal connection to someone infected leading to slightly higher scores. While no significant differences were found by gender or sexual experience, most participants (85.5%) emphasized the need for sex education in middle/high school, citing traditional views, topic sensitivity, and religious beliefs as the main barriers to the delivery of sex education among the respondents [13, 30].

Furthermore, these findings are also consistent with a research on the knowledge, attitudes, hazardous behaviours, and preventative measures related to sexually transmitted infections (STIs) among Malaysian university students. The survey found that, the vast majority (86.6%) of individuals were familiar with STIs, with 50.4% understanding that these infections might emerge without symptoms. Notably, HIV appeared as the most well-known STI among students (83.6%), whereas chlamydia (26%) and trichomoniasis (21.0%) were relatively unknown. Gender, age group, faculty type and educational level all showed significant correlations with knowledge levels ( $p$ -values  $< 0.05$ ). A large majority of participants (88.8%) understood the necessity of STI screening, whereas 63.8% recognized the preventive value of condoms. Furthermore, a sizable majority (85.5%) believed strongly in getting prompt treatment if they or their partners had symptoms (87.4%). Among sexually-active students, a notable percentage engaged in risky behaviors, including 66.7% having sexual intercourse with multiple sexual partners and 18% with commercial sex workers. Additionally, 17.4% and 9.4% consumed alcohol and drugs, respectively, before engaging in sexual activity [14]. However, the findings from this study contradict a survey conducted in Malta, which discovered that 33.8% of respondents had never used a condom and 76.5% had sexual intercourse with several partners during the previous six months. The STI prevalence was 73.1%. Six of the patients examined were female Chinese sex workers working in massage parlors who may have been trafficked to Malta [15]. Moreover, the present research's findings are consistent with those from a study conducted in Mwandia district of Zambia on the factors that contribute to HIV prevalence. The study revealed that the majority of respondents



(87.7%) had appropriate awareness on HIV/AIDS infection. The study also discovered that the majority of respondents (98.5%) and (98.1%) obtained HIV/AIDS health education from frontline healthcare providers in hospitals and clinics, respectively, whereas a significant number of study participants (66.2%) learned about HIV/AIDS by reading magazines on STIs [16].

Moreover, the results from Table 4 show that, the majority of study participants (95.6% - 99.6%) affirmed the effectiveness of health educational and awareness campaigns on the prevention and management of sexually transmitted infections in Monze district of Zambia. The study also disclosed that, effective health educational and awareness campaigns on sexually transmitted infections (STIs) in health facilities and communities play a great role in promoting safe sexual practices (99.3%), reducing STI occurrences (95.6%), and improving the level of knowledge of people on STIs (98.9%). They also assist in encouraging the people to utilize the available STIs testing and treatment health services in the health facilities and communities (98.2%). Notably, it was also discovered that, a good proportion of study participants agreed that health educational campaigns positively influence the attitudes and behaviours of people related to STI prevention (99.6%), and early detection and timely management of STIs in the study population (98.2%). They also aid in the long-term prevention and management (98.5%) of STIs, and a potential decrease in STI transmission rates (97.8%) among the people in Monze district, in the Southern Province of Zambia. Such socio demographic variables as Sex, age, marital status, and occupation were found to have significant statistical correlation with impact of educational and awareness campaigns on the prevention of Sexually Transmitted Infections in Monze District, in the Southern province of Zambia ( $P < 0.05$ ). These findings are similar to the study which was conducted in Mwandia district which found that, a significant majority, 87.7% (236), of the respondents demonstrated sufficient understanding of HIV/AIDS in Mwandia District, Zambia. Conversely, 12.3% (33) of participants exhibited a lower level of knowledge on the subject. The study identified a statistically significant correlation between the level of education, occupation, number of children, and the level of knowledge regarding HIV/AIDS ( $P < 0.05$ ) [26, 27, 29].

Other than that, this study's findings are consistent with findings from previous studies on the influence of health education delivered via text messaging or social media on young adult and teenager (15-24 years old) hazardous sexual activity. According to the study, text messaging and social media was found to help people learn more about STI prevention and influence behaviour, such as sexual risk behaviors, STI acquisition, and screening/testing for STIs [17].

The findings in Table 4 also align with existing literature supporting the positive impact of health educational campaigns on the utilization of testing and treatment services for sexually transmitted infections. Another study emphasized

that well-designed health educational campaigns foster a proactive attitude toward seeking testing and treatment services, leading to improved health outcomes. The overwhelming agreement (95.6% - 99.6%) among study participants on the effectiveness of health educational campaigns reinforces the existing literature, emphasizing their role in encouraging individuals to utilize available healthcare services [18]. The overwhelming agreement (95.6% - 99.6%) among study participants on the effectiveness of health educational campaigns reinforces the existing literature, emphasizing their role in encouraging individuals to utilize available healthcare services. The findings from this study are also in line with the research which found and emphasized that well-designed health educational initiatives contribute significantly to increasing awareness and understanding of safe sexual behaviours which in turn help to prevent the spread of STIs among the people in the community [19]. Not only that, another growing body of literature underscores the crucial role of health educational campaigns in reducing the occurrences of sexually transmitted infections (STIs). This study's findings are consistent with a study which highlighted that, health educational interventions play a pivotal role in disseminating information on STI prevention and transmission among the people in the community [20]. Also the findings from this study, are well supported by evidence which explains that, information, education, and counseling services help people to recognize the signs of STIs, raise the probability that they will seek health care services, and urge a sexual partner to do the same. Unfortunately, a lack of public knowledge, a lack of training for health personnel, and a long-standing, pervasive stigma associated with STIs continue to be impediments to larger and more effective use of these treatments [21].

Other than that, the findings from this study also align with another study which demonstrated that health educational initiatives contribute significantly to enhancing individuals' knowledge about STIs, prevention methods, and available testing and treatment services. In fact, health educational campaigns have long been recognized as effective tools for improving knowledge levels regarding sexual health. The high agreement percentages (95.6% - 99.6%) in Table 4 affirm the consensus in the literature, highlighting the role of health educational campaigns in increasing knowledge levels among study participants. Moreover, the findings in Table 4 align with existing literature supporting the positive impact of educational campaigns on the utilization of testing and treatment services for sexually transmitted infections [22]. Moreover, the present research challenges the findings of a prior study, which did not discern definitive evidence regarding the efficacy of peer health education in addressing adolescent pregnancy prevention, promoting sexual health, and HIV prevention, among young people in European Union member countries. The author advocates for further research to elucidate the factors influencing program effectiveness [23, 24].

## 5. Conclusion

In conclusion, the study conducted in the Monze District of Zambia reveals alarming rates of sexually transmitted infections (STIs) among the respondents, with a high prevalence of 69.4%. This highlights a significant public health concern, necessitating urgent attention and comprehensive intervention strategies. The study identifies various risk factors for sexually transmitted infections, including unprotected sex, multiple sexual partners, inconsistent screening, involvement in sex work (prostitution), lack of health education, and drug and alcohol abuse. The findings underscore the need for increased awareness, health education, and regular screening and testing to address misconceptions, reduce stigma and discrimination, and facilitate early detection and treatment of STIs, and linkage to care. The high burden of STIs which results into higher hospital admissions, clinic visits, congestion in the health facilities, and laboratory testing, poses a strain on the healthcare systems demanding additional resources for diagnosis, treatment, referral, and management of complications as well as increased healthcare disparities. This means that, marginalized communities, including people with low socioeconomic status, ethnic and racial minorities, and individuals within the LGBTQ+ community often disproportionately feel the burden of STIs. The high burden of STIs also places a strain on the healthcare workforce, requiring additional training and resources for healthcare providers to effectively diagnose, treat, and manage these infections. While the study aligns with global trends in STI prevalence, it also emphasizes the importance of tailored interventions to address specific regional challenges and risk factors. Health educational campaigns emerge as a crucial component in enhancing awareness, early detection of STIs, long-term prevention of STIs, promoting safe sexual practices in the population, and encouraging individuals to seek testing and treatment services in the healthcare facilities. It also helps in promoting positive attitudes among frontline healthcare providers towards patients with STIs, and enhances adherence to treatment and potential decrease in STI transmission rates.

## 6. Recommendations

1. The researcher recommends that, Monze District Health Office should continue conducting routine STI screening, testing and linkage to care through community engagement, especially for individuals at higher risk in order to adequately address the prevalence of STIs.
2. Ministry of health in collaboration with Ministry of education and other cooperating partners should integrate comprehensive sex education into school curriculums, complemented by community-based programs catering for diverse demographics, to dispel misconceptions, reduce stigma and discrimination related to STIs.
3. The investigator also strongly recommended that, Monze District Health Office should increase accessibility of affordable and high-quality condoms through public health facilities, schools, social gatherings and workplaces.
4. The author further recommended that, Monze District Health Office should continue to implement health educational awareness campaigns through social media, radio, and television to enhance health seeking behaviour among key and vulnerable population.

## Abbreviations

WHO	World Health Organization
CDC	Center for Disease Control and Prevention
HPV	Human Papillomavirus
HIV	Human Immunodeficiency Virus
AIDS	Acquired Immunodeficiency Syndrome
STI	Sexually Transmitted Infections
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer
CHRESO	Christian Health Education and Social Outreach

## Conflicts of Interest

The authors declare no conflicts of interest.

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