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STUDENTS' KNOWLEDGE OF SEXUALLY TRANSMITTED INFECTIONS (STIs)

Cahya Kusuma Dewi, Tina Mawardika*
Program Studi S1 Keperawatan, Fakultas Kesehatan, Universitas Ngudi Waluyo, Jl. Diponegoro No.186, Ngablak, Gedanganak, Ungaran Timur, Kabupaten Semarang, Jawa Tengah 50512, Indonesia
*tinamawardika@gmail.com

ABSTRACT

Sexually Transmitted Infections (STIs) are reproductive health problems that remain a global concern, particularly among young adults, including university students. Lack of knowledge regarding STIs may increase the risk of engaging in risky sexual behaviors, which can have long-term impacts on reproductive health. Students, as individuals in the productive age group, need to have adequate understanding of STIs, including definitions, modes of transmission, symptoms, complications, and prevention as part of promotive and preventive health efforts. This study aimed to describe the level of students' knowledge regarding the transmission of Sexually Transmitted Infections (STIs). This study used a descriptive analytic design with a cross-sectional approach. The population consisted of all undergraduate nursing students at Ngudi Waluyo University, class of 2025, totaling 493 students. The sample comprised 221 respondents selected using purposive sampling. Data were collected using the Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ), which has been tested for validity and reliability. Data analysis was performed using univariate analysis. The results showed that the majority of respondents had a low level of knowledge regarding STIs, with 104 respondents (47.1%). Most university students have a low level of knowledge regarding sexually transmitted infections.

Keywords: knowledge; sexually transmitted infections; students; young adults

INTRODUCTION

Sexually transmitted infections (STIs) continue to pose significant global health challenges, with more than one million new infections occurring daily worldwide (World Health Organization (WHO, 2022). Untreated STIs can result in severe complications, including infertility, ectopic pregnancy, cervical cancer, and increased susceptibility to HIV infection. Adolescents and young adults are disproportionately affected due to behavioral, biological, and social vulnerabilities (Vatrisya et al., 2024).

Young adulthood represents a critical developmental phase characterized by identity exploration, autonomy, and experimentation, including sexual behaviors. According (Rod et al., 2025) this transitional period has long-term implications for health trajectories. Without adequate knowledge and risk perception, young adults may engage in unsafe sexual practices that increase STI transmission risk. Therefore, knowledge serves as a foundational determinant influencing attitudes and preventive behaviors (Notoadmojo, 2018)

Despite increased access to information through digital platforms, comprehensive sexual and reproductive health education remains inconsistent in many higher education settings. Studies indicate that students who receive structured sexual education demonstrate significantly higher STI knowledge compared to those who rely solely on informal information sources (Nigussie & Yosef, 2020). Furthermore, social media has emerged as a dominant information channel; however, misinformation may contribute to misconceptions and unsafe behaviors (Alshelleh et al., 2023) Given these concerns, assessing STI knowledge among university students is essential for informing targeted educational interventions (Agung et al., 2024). Therefore, this study aims to describe the level of knowledge regarding Sexually Transmitted Infections (STIs) among university students.

METHOD

This study employed a descriptive design with a cross-sectional approach to provide an overview of Sexually Transmitted Infections (STIs) knowledge among university students, in which variables were measured at a single point in time without the intention of determining causal relationships (Sharma et al., 2019). The study involved 221 university students selected through total sampling, with inclusion criteria requiring participants to be actively enrolled students who were willing to participate and sign informed consent. Ethical approval was obtained prior to data collection. Data were collected using a structured questionnaire covering demographic characteristics (age, gender, and source of information) as well as questions assessing STI knowledge.

The instrument used was the Sexually Transmitted Disease Knowledge Questionnaire (STD-KQ), which has demonstrated good validity and reliability, with a Cronbach's alpha coefficient greater than 0.70, indicating acceptable internal consistency. Knowledge scores were categorized into three levels: good (76–100%), moderate (56–75%), and poor (≤55%) according to standard health research knowledge assessment guidelines (Hidayat, 2020; Notoatmodjo, 2018). Data were analyzed using univariate statistical methods to describe frequency distributions and percentages for each variable (Lubis et al., 2024).

RESULT AND DISCUSSION

Tabel 1.
Distribution of Respondents by Age (n = 221)

Age (years)	f	%
Young Adult		
18 years	36	16,3
19 years	35	15,8
20 years	34	15,4
21 years	32	14,5
22 years	31	14,0
23 years	30	13,6
24 years	23	10,4

The results showed that most respondents were 18 years old, accounting for 36 students (16.3%). Young adulthood (18–24 years) is a critical developmental period characterized by high curiosity, exploration of social and romantic relationships, and limited ability to assess long-term risks. This condition places young adults at a higher risk of engaging in risky sexual behaviors when not supported by adequate knowledge of sexually transmitted infections (STIs). This finding is consistent with the study by which stated that young adulthood is a transitional life stage with significant long-term implications for health and well-being. The predominance of respondents aged 18–24 years in this study indicates that they are in a crucial phase where reproductive health behaviors are strongly influenced by (Schlegel & Smith, 2022). The quality of information and education received. Therefore, reproductive health education interventions targeting this age group are essential to prevent the long-term consequences of risky sexual behavior, as emphasized by the (Nisa et al., 2025).

Tabel 2.
Distribution of Respondents by Gender (n = 221)

Gender	F	%
Male	110	49,8
Female	111	50,2

Based on the findings, 111 respondents (50.2%) were female, while 110 respondents (49.8%) were male, indicating a relatively balanced gender distribution. This balance suggests that low levels of STI knowledge are not confined to one gender but are influenced by other factors, such as access to information and reproductive health education. This finding aligns with the study by (Subotic et al., 2022) in Serbia, which reported that both male and female university students require improved STI knowledge, despite differences in characteristics and educational needs. Gender differences may

influence STI knowledge through complex mechanisms. Female students often demonstrate higher awareness of reproductive health due to greater exposure to reproductive health services, including menstrual health education, routine screenings such as Pap smears, contraceptive counseling, and cervical cancer prevention programs.

Tabel 3.
Distribution of Respondents by Sources of STI Information (n = 221)

Sources of Information	F	%
Mass media	47	21.3
Social media / Internet	49	22.2
Parents / Family	22	10.0
Formal education	31	14.0
Peers	33	14.9
Healthcare professionals	39	17.6

The majority of respondents obtained STI-related information from social media and the internet (22.2%), followed by mass media (21.3%), healthcare professionals (17.6%), peers (14.9%), formal education (14.0%), and parents or family members (10.0%). These findings indicate that students primarily rely on digital media as their main source of reproductive health information. This result is consistent with (Alkhalili et al., 2024). Who reported that university students are more likely to access STI information through social media and the internet rather than official or formal sources. However, the dominance of digital media raises concerns regarding information quality, as online content is often unverified, incomplete, or misleading, potentially leading to misconceptions about STIs (Erawati & Novianty, 2025).

Tabel 4.
Distribution of Respondents by Level of STI Knowledge (n = 221)

Level of Knowledge	f	%
Good	18	8,1
Moderate	99	44,8
Poor	104	47,1

The univariate analysis revealed that 104 respondents (47.1%) had a low level of STI knowledge, 99 respondents (44.8%) had a moderate level, and only 18 respondents (8.1%) demonstrated good knowledge. These findings indicate that the majority of students lacked adequate understanding of STIs, despite being enrolled in higher education. This finding is consistent with the study by (Yosef, 2020) which reported that more than half of university students had low to moderate levels of STI knowledge. The persistence of inadequate knowledge highlights the lack of structured and comprehensive reproductive health education among university students. Students who do not receive systematic education tend to have limited understanding of STI types, modes of transmission, and appropriate preventive measures.

Low levels of STI knowledge may result in reduced risk perception and delayed recognition of early symptoms. Students who lack understanding of STI transmission and characteristics may perceive themselves as not at risk, leading to low engagement in preventive behaviors and delayed health-seeking actions. This condition increases the likelihood of untreated infections, complications, and continued transmission to sexual partners (Belihu et al., 2024). The findings of this study demonstrate that the level of knowledge regarding sexually transmitted infections (STIs) among university students remains predominantly low. The analysis revealed that 104 respondents (47.1%) were categorized as having poor knowledge, while 99 respondents (44.8%) exhibited moderate knowledge, and only 18 respondents (8.1%) demonstrated good knowledge. These results indicate that the majority of students have not yet developed sufficient understanding of STIs, despite being situated within a higher education environment that is expected to facilitate access to accurate, scientific, and evidence-based health information. This condition reflects a critical discrepancy between academic

exposure and students' reproductive health literacy, suggesting that higher education alone does not automatically translate into adequate health-related knowledge.

The dominance of low to moderate STI knowledge among students is particularly concerning considering that university students typically belong to an age group characterized by increasing autonomy, social interaction, and potential engagement in intimate relationships. At this stage of life, individuals are expected to possess the cognitive capacity to understand health risks and to make informed decisions regarding preventive behaviors. However, the findings of this study indicate that cognitive maturity alone is insufficient to ensure adequate STI knowledge in the absence of structured educational interventions.

This gap underscores the importance of formal reproductive health education within university settings. The results of this study are consistent with those reported by (Nigussie & Yosef, 2020), who found that among 453 university students, only 177 respondents (39.1%) had good knowledge of STIs, while the remaining 276 respondents (60.9%) demonstrated low to moderate knowledge. These findings reinforce the conclusion that inadequate STI knowledge among university students is a widespread and persistent issue across different educational contexts. (Nigussie & Yosef, 2020) further emphasized that insufficient knowledge is strongly associated with the absence of structured and systematic sexual and reproductive health education. Students who do not receive comprehensive education are less likely to understand the diversity of STI types, mechanisms of transmission, clinical manifestations, and effective prevention strategies.

Limited understanding of STI transmission and prevention may lead students to underestimate their susceptibility to infection. When individuals perceive themselves as being at low risk, they are less likely to adopt protective behaviors such as condom use, limiting the number of sexual partners, or seeking routine health screening. This reduced vigilance can result in delayed diagnosis and prolonged infection periods, thereby increasing the risk of complications and onward transmission. According to the (WHO, 2025), delayed detection and treatment of STIs significantly contribute to disease persistence and the continued spread of infection within communities. One of the major challenges in STI prevention highlighted by this study is the asymptomatic nature of several STI types.

Many STIs may progress without noticeable clinical symptoms, leading infected individuals to believe that they are healthy. This false sense of security reduces the likelihood of seeking medical evaluation or screening. Even among students who are familiar with the term "STIs," knowledge regarding asymptomatic infections remains limited. (Visalli et al., 2019) emphasized that lack of awareness of asymptomatic STI progression contributes substantially to low risk perception and delays in diagnosis. Consequently, infections may remain untreated for long periods, increasing the likelihood of severe reproductive health complications.

The long-term consequences of undetected and untreated STIs pose serious threats to reproductive health. Persistent infections can result in infertility, pelvic inflammatory disease, chronic pelvic pain, ectopic pregnancy, and cervical cancer associated with Human Papillomavirus (HPV) infection. These conditions not only compromise physical health but also have profound psychological, emotional, and social impacts. Individuals affected by STI-related complications may experience stigma, anxiety, reduced self-esteem, and relationship difficulties. The (WHO, 2025) has emphasized that STIs remain a leading cause of preventable reproductive morbidity worldwide, highlighting the urgency of strengthening preventive strategies among young adults. Beyond individual health outcomes, low STI knowledge among university students has broader public health implications. University students constitute a socially active and mobile population group, which increases the potential for rapid STI transmission. High transmission rates within this productive age group may significantly increase the burden on healthcare systems, including rising treatment costs, increased

demand for medical services, and greater strain on healthcare personnel. Failure to address STI knowledge gaps at an early stage may result in higher national disease prevalence and long-term economic consequences. This reinforces the notion that STIs are not solely individual health problems but represent a significant public health concern requiring coordinated and sustainable interventions.

The findings of this study also highlight the influence of information sources on students' STI knowledge. Social media and the internet were identified as the most common sources of information, reported by 49 respondents (22.2%). While digital platforms provide easy access to information, they also pose substantial risks due to the prevalence of inaccurate, misleading, or incomplete content. (Alshemeili et al., n.d.) reported that students who rely on informal sources tend to have lower levels of STI knowledge compared to those who receive information from healthcare professionals or formal educational programs.

This suggests that the quality and credibility of information sources play a crucial role in shaping students' understanding of STIs. Reliance on informal information sources is further influenced by sociocultural factors. In many societies, discussions related to sexuality and reproductive health are considered sensitive or taboo. Such cultural norms discourage open communication and limit opportunities for students to seek accurate information from trusted sources. As a result, students may prefer anonymous and easily accessible online platforms, despite their questionable reliability. The (WHO, 2025) has highlighted that sociocultural barriers significantly hinder effective sexual health communication and contribute to low reproductive health literacy among young people.

Age characteristics of respondents also warrant consideration. Although most respondents were in early adulthood, the persistence of low STI knowledge indicates that increasing age does not automatically result in improved health knowledge. This finding suggests that experiential learning and structured education are more influential than age alone in shaping health literacy. According to (Notoatmojo, 2018), health knowledge is strongly influenced by educational exposure, learning processes, and sustained access to accurate information rather than biological maturity alone. Gender distribution in this study was relatively balanced, with female respondents comprising 50.2% and male respondents 49.8%. This balance indicates that low STI knowledge affects both genders similarly. Although female students are often perceived as having higher reproductive health awareness due to greater engagement with health services, this study demonstrates that both male and female students require comprehensive STI education. (Subotic et al., 2022) emphasized that gender-inclusive and continuous educational approaches are essential for effective STI prevention, as focusing on only one gender may limit the overall impact of interventions.

The very low proportion of students with good STI knowledge (8.1%) reflects the suboptimal role of higher education institutions in delivering reproductive health education. Universities possess a strategic position in shaping students' attitudes and behaviors through academic curricula, extracurricular activities, and campus health services. Evidence from (Nigussie & Yosef, 2020) demonstrated that students who received structured sexual health education had significantly higher knowledge levels compared to those who did not. This finding strongly supports the conclusion that systematic reproductive health education within universities is essential for improving STI knowledge.

Low STI knowledge also has direct implications for preventive behavior. Students with insufficient understanding tend to exhibit low risk perception, which reduces their motivation to engage in preventive practices such as consistent condom use, limiting risky behaviors, and participating in routine STI screening. (WHO, 2025) emphasized that inadequate knowledge and low perceived risk are major determinants of STI vulnerability among adolescents and young adults. In summary, the findings of this study demonstrate that low STI knowledge among university students—characterized by a high proportion of poor knowledge and a very small proportion of good knowledge—represents

a critical public health issue. This condition affects individual reproductive health outcomes and has broader implications for public health systems. Therefore, higher education institutions must play an active role in implementing structured, evidence-based, and sustainable reproductive health education programs. Such initiatives are essential to enhance students' knowledge, foster positive attitudes, and promote effective STI prevention behaviors in accordance with national health strategies (PERMENKES, 2022).

CONCLUSION

This study found that nearly half of university students demonstrated poor knowledge regarding Sexually Transmitted Infections (STIs). This finding indicates that despite being part of an educated population, many students still lack adequate understanding of STI transmission, symptoms, complications, and prevention. Such gaps in knowledge may increase the risk of unsafe sexual behaviors and negatively impact long-term reproductive health outcomes among young adults.

Several contributing factors may explain this condition, including developmental vulnerability during young adulthood, which is characterized by curiosity and exploration of sexual relationships without sufficient risk awareness. In addition, students tend to rely on informal sources of information, particularly digital media and social platforms, which may provide inaccurate or incomplete health information. The limited availability of structured and comprehensive reproductive health education within university settings further exacerbates this issue.

These findings highlight the urgent need for universities to take a more active role in promoting sexual and reproductive health education. Implementing structured, evidence-based educational programs, integrating reproductive health topics into the curriculum, and providing accessible counseling services can significantly improve students' knowledge and awareness. Peer education strategies and the use of credible digital platforms may also enhance the effectiveness of health promotion efforts among students.

In conclusion, strengthening STI education among university students is essential to reduce the risk of infection and improve overall reproductive health outcomes. Future research is recommended to explore factors influencing knowledge and to evaluate the effectiveness of educational interventions in improving students' understanding and preventive behaviors related

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