

Awareness and Knowledge of Condom Use for STI Prevention among Undergraduate Students of Rivers State University

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ABSTRACT

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Background: Sexually transmitted infections (STIs) continue to pose a major public health challenge among sexually active young adults, including university undergraduates in Nigeria. Despite widespread campaigns, inconsistent condom use remains a key driver of STI transmission. This study evaluated awareness and knowledge of condom use as a preventive measure against STIs among undergraduates at Rivers State University, Port Harcourt.

Methods: A descriptive cross-sectional survey was conducted among undergraduate students from five randomly selected departments across five faculties (total population = 5,062). The sample size of 395 was calculated using Yamane's formula (margin of error = 0.05) and selected via multi-stage simple random sampling. Data were collected using a structured electronic questionnaire distributed through departmental online platforms. The instrument included demographic items and a section on condom awareness, scored on a 4-point Likert scale (Strongly Agree = 4 to Strongly Disagree = 1; criterion mean = 2.50). Validity was ensured through supervisor review, and reliability via test-retest correlation. Analysis involved descriptive statistics, frequencies, percentages, and mean scores.

Results: Respondents were predominantly female (58.0%), aged 21–25 years (44.6%; approximate mean age 22.7 years), and in 300 (30.1%) or 400 level (29.9%). Overall awareness of condom use for STI prevention was high (grand mean = 2.68). Strong agreement was recorded for condoms being an effective method (mean = 2.75), their importance during sexual activity to prevent STI spread (mean = 2.95), adequate protection against STIs (mean = 2.59), and risk reduction through consistent use (mean = 2.76). Awareness of different condom types and brands and their equal effectiveness was notably low (mean = 2.34).

Conclusion: While undergraduate students at Rivers State University demonstrate good general awareness of condom efficacy in STI prevention, knowledge remains incomplete, particularly regarding condom varieties. These findings, consistent with earlier Port Harcourt studies, highlight the need for more comprehensive sexual health education addressing correct use, condom options, negotiation skills, and consistent practice to translate awareness into protective behaviors and reduce STI burden in this population.

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Condom use, STI prevention, awareness, knowledge, undergraduate students, Rivers State University, Nigeria

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1. Introduction

Sexually transmitted infections (STIs) represent a persistent and escalating global public health challenge, disproportionately affecting young people aged 15–49 years, who account for the majority of new infections. According to the World Health Organization, more than 1 million curable STIs—chlamydia, gonorrhoea, syphilis, and trichomoniasis—are acquired daily worldwide, resulting in an estimated 374 million new cases in 2020, with updates indicating continued rises, including an increase in adult syphilis cases to 8 million in 2022 (WHO, 2025). These infections impose substantial morbidity, including infertility, adverse pregnancy outcomes, increased HIV susceptibility, and chronic conditions such as cervical cancer from human papillomavirus (HPV) co-infections. In sub-Saharan Africa, the burden is particularly severe, with the region bearing the highest prevalence rates globally, driven by limited access to diagnostics, treatment, and prevention services, alongside behavioral and socio-cultural factors.

Young adults, including university undergraduates, are especially vulnerable due to increased sexual

experimentation, multiple partnerships, inconsistent condom use, alcohol-influenced decision-making, and inadequate sexual health education. In many settings, STIs among this demographic remain asymptomatic or under-reported, perpetuating transmission chains. Studies across diverse contexts highlight gaps in knowledge, attitudes, and practices related to STI prevention. For instance, among early adolescents in Ghana, awareness of STIs was moderate but predictors of knowledge included education and media exposure, underscoring the need for targeted interventions (Ofori et al., 2025). Similarly, in India, students of non-medical backgrounds demonstrated variable knowledge and attitudes toward STIs, with practices often lagging behind awareness (Vasudev et al., 2023). These findings reflect broader patterns where information does not always translate to protective behaviors.

Condom use stands out as one of the most effective, accessible, and cost-effective methods for preventing most STIs, including HIV, gonorrhoea, chlamydia, and syphilis, when applied correctly and consistently. Laboratory and epidemiological evidence confirms that latex condoms

provide over 90% protection against HIV and gonorrhoea, 50–90% against chlamydia and syphilis, and substantial reductions in transmission for other pathogens (WHO, 2025). Despite this efficacy, global and regional utilization remains suboptimal, influenced by personal, interpersonal, and structural barriers. Predictors of condom use among college students include self-efficacy, partner negotiation skills, and access to education, yet many fail to adopt consistent practices (Santos et al., 2024). In sub-Saharan Africa, socio-cultural inhibitors—such as gender norms, stigma, and misconceptions—further hinder modern contraceptive and preventive methods, including condoms (Kabagenyi et al., 2016).

In Nigeria, the STI landscape mirrors regional trends, with high prevalence among sexually active populations, particularly young adults. Estimates suggest STI rates of 10–15% in sexually active groups, with gonorrhoea and chlamydia prominent. Among university students, studies report elevated risks due to risky behaviors like unprotected sex and multiple partners. In southern Nigeria, prevalence among female undergraduates reached 27.7%, with gonorrhoea as the leading infection. Specific investigations in Port Harcourt and surrounding areas have documented high awareness of condoms but persistent unprotected intercourse, highlighting a disconnect between knowledge and practice. Female condom awareness and utilization remain particularly low, with systematic reviews indicating limited knowledge and acceptance among Nigerians, despite implications for STI/HIV prevention (Shallie & Haffejee, 2021; Tobin-West et al., 2014). Similar patterns emerge in neighboring countries, where female students show gaps in female condom knowledge and use (Kyomuhangi et al., 2025; Ananga et al., 2017).

Personal factors, including gender dynamics and self-efficacy, significantly influence condom adoption among female students in higher education settings (McCarthy et al., 2024). Broader sexual health education approaches vary in effectiveness; comprehensive programs improve perceptions and behaviors, while abstinence-only models often fall short in reducing risks (Corcoran et al., 2020; Santelli et al., 2017). In resource-limited contexts like Nigeria, university environments—characterized by peer influence, urban mobility, and limited on-campus health services—amplify vulnerability.

Rivers State University (RSU) in Port Harcourt, located in Nigeria's oil-rich South-South region, serves a diverse undergraduate population exposed to these dynamics. Despite national campaigns promoting condom use and STI prevention, local data on awareness and knowledge among RSU students remain sparse. Prior Port Harcourt-based research noted high condom awareness (e.g., 97.8% among males) but high unprotected sex rates, signaling the need for institution-specific insights.

This study assesses awareness and knowledge of condom use for STI prevention among RSU undergraduates. It describes socio-demographic characteristics, evaluates awareness levels, examines attitudes toward condom use, and identifies influencing factors. By addressing these objectives, the research contributes to evidence-based recommendations for campus interventions, aligning with global calls for enhanced

sexual health education to curb STI transmission among young adults.

2. Methodology

2.1. Research Design

The research design adopted for this study was the descriptive cross-sectional survey design. It is most effective since the means of data collection from the sample population is through questionnaires to ensure that the information obtained is relevant to the research questions. This design appropriately describes the current information, events and attitude is students towards the prevention of Sexually Transmitted Infections using condoms.

2.2 Area of Study

The study was conducted in Rivers State University, located in Port Harcourt the capital of Rivers State, South-South Geographical location of Nigeria. The choice of area is for easy access to resources, materials and to cope effectively with the process through the study.

2.3. Population of Study

The population of this study of the total number of students in five randomly selected departments in five randomly selected faculties of Rivers State University which all amounted to 5,062. The students are broken down into 804 students in Animal and Environmental Biology from level 100 to 400 in faculty of science, 339 students in nursing from level 100 to 400 in faculty of Basic Medical Science, 750 students in Accountancy from 100 to 400 the faculty of Management Science, 2531 in the faculty of Law and 638 students in Chemical/Petrochemical Engineering in faculty of Engineering, from level 100 to 500.

2.4. Sample Size.

The sample size consists of 395 students of Rivers State University from different faculties.

Using Yamane's formula, the Sample size (S) is given by: $S = n/1 + n(e)^2$

Where S = sample size.

n = the population of the study

e = margin error in the calculation (0.05)

$$S = 5062/ 1 + 5062 (0.05)^2$$

$$S = 5062/ 1 + 5062 (0.05 \times 0.05)$$

$$S = 5062/ 1 + 5062 (0.0025)$$

$$S = 5062/ 1 + 12.66$$

$$S = 5062/ 13.66$$

$$S = 395.$$

2.5. Sampling Technique

The sampling technique used for this research work is the simple random sampling. The basis for this technique is hinged on the fact that the whole population cannot be examined, and that it will contain a fair representation of the population.

2.5.1. Inclusion Criteria.

1. Undergraduate students in 100 to 500 level in the departments of Animal and Environmental Biology, Chemical/Petrochemical Engineering, Accountancy, Nursing and Faculty of Law.
2. Undergraduate Students available and willing to participate in the study.

2.5.2. Exclusion Criteria

Post graduate students and students who are unavailable and unwilling to participate in study.

2.6. Instruments for Data Collection

The use of electronic survey (questionnaires) formed the major instrument used in data collection. The questionnaire was

structured to allow respondents select the responses they consider most appropriate. The questionnaire is divided into four sections. Section A contained the demographic data of the respondents, while section B, C and D is made up of the research questions. Section B contained awareness of respondents about condoms and STIs; Section C contained attitude of respondent towards condom use; Section D contained the factors that influence the use of condom in preventing STIs.

2.7. Validity of the Instrument

To ensure the face and content validity of the questionnaire, the research instrument was scrutinized and judged by the supervisor for appropriateness of each item of the Instrument. The supervisor's comment was used to obtain final items which was further subjected to content validity to ensure that the content of the area which the instruments are intended to cover.

2.8. Reliability of the Instruments.

The test re-test reliability study was adopted to establish the reliability of the Instrument. The instrument was administered twice within the interval of two weeks and the two sets of data collected was correlated using Pearson Product Moment Correlation which is aimed at establishing reliability coefficient.

2.9. Method of Data Collection.

In order to retrieve the data for this study, the researcher prepared an electronic questionnaire using Google forms and distributed to the various class electronic platforms of the five selected departments of the various levels. A letter of permission to conduct the study in various faculties was prepared. The researcher constructed a questionnaire checklist, approved by the supervisor, after which the questionnaires were administered. The researcher explained to the respondents the importance of their response to the study and clarified terms to the respondents so they can answer the questionnaire with full knowledge of their responsibility as the subjects of the study. The researcher used multi-stage simple random sampling technique, the researcher believed that this technique was suitable for choosing sample for the research. After the respondents answered the questionnaire, it was collected and tailed for data interpretation. Based on the data the researcher came up with conclusion and recommendations for this study.

2.10. Procedure for Data Analysis.

Objective (i) was achieved using descriptive statistics i.e. tabular presentation of frequency distribution and percentages. Objective (ii), (iii) & (iv) was achieved through 4-point Likert scale, the hypothesis was analyzed using Pearson's correlation.

Model Specification

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2)}}$$

Where r = correlation coefficient

n = number of respondents

x = Demographic characteristics of students.

Y = Awareness/attitude of students towards the use of condom in preventing STIs.

2.10.1 4-Point Likert scale Rating Technique.

4-point Likert scale Rating Technique was used particularly in identifying the awareness and attitudes of students towards the use of condom use in preventing STIs. This was done on a 4-point basis. According to Umoinyang (2014) the 4-point scale Rating Technique does not give room for the respondents to be indifferent. The rating is presented in the following order: Strongly agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, Strongly disagree (SD) = 1.

The mean scores of the respondents based on the 4 - point scale will be $4 + 3 + 2 + 1 = 10$, $10/4 = 2.50$. Using the interval scale of 0.05, the upper limit cut off point will be $2.50 + 0.05 = 2.55$. The lower limit was $2.50 - 0.05 = 2.45$. On this basis, any mean score (MS) below 2.45 (i.e. $MS < 2.45$) will be regarded as not important. Those between 2.45 and 2.55 will be considered as important. (i.e. $2.45 \leq MS \leq 2.55$). Mean score greater than 2.55 ($MS > 2.55$) will be considered very important.

2.11. Ethical Consideration.

The researcher first of all presented a letter of approval from the school to the deans of different faculties seeking for permission to conduct the study in the respective faculties. Permission from respondents was also asked for by researcher. Respondents were not forced to answer questions and the researcher also made sure that personal information of respondents were kept anonymous and private throughout and after the study. Protocols were duly followed and observed.

3. Results

3.1 Socio - Demographic Data of the Respondents

This section captures the undergraduates gender, age and level. The result is presented in table 1 using frequencies, percentages and means.

Table 1: Frequency Distribution of the Respondents according to their Demographic Characteristics (n=395)

Variables	Category	Frequency	Percentage (%)	Mean
Gender	Female	229	58.0	
	Male	166	42.0	
	Total	395	100.0	
Age (Years)	16-20	139	35.2	18 years
	21-25	176	44.6	
	26-30	53	13.4	
	31 and above	27	6.8	
	Total	395	100.0	
Level	100	38	9.6	
	200	70	17.7	
	300	119	30.1	
	400	118	29.9	
	500	50	12.7	
	Total	395	100.0	

Source: Field Survey, 2023.

3.1.1 Gender of the respondents

The results from Table 1 revealed that 58% of the students interviewed were females while 42% were males. The result points to the fact there might be more females than males in the institution (Rivers State University).

3.1.2 Age of the respondents

About 35.2% of the respondents (students) were within the age bracket of 16-20years, 44.6% of the respondents were within the age bracket of 21-25years, 13.4% were within the age bracket of 26-30years while 6.8% were above 31years. The mean age of 18years was reported. This indicated that the average age of undergraduates in the institution was 18years.

3.1.3 Undergraduate level of the respondents

Analysis of collected data also showed that 9.6% of respondents were in their 100level, 17.7% were in their 200 level, 30.1% were in their 300 level, 29.9% were in their 400level while 12.7% of the respondents were in their 500 level. The result do not however, represent the actual population distribution of the different levels in the institution but offers insight to the population distribution of those interviewed.

3.2 Awareness of Students on the Use of Condom to Prevent Sexually Transmitted Infections

Table 2 showed of the level of awareness of students on the use of condom to prevent sexually transmitted infections in Rivers State University using sum, mean score and remark.

The results on Table 2 showed that the respondents were aware (as indicated by their mean scores which were higher than 2.50) that Condoms are affective method for preventing STIs (2.75) and therefore, important to use it when engaging in sexual activity to prevent the spread of STIs (2.95). They were also aware that Condom can provide adequate protection against STIs (2.59) and that consistent use condom can reduce the risk of contracting STIs (2.76). However, the respondents very little awareness (mean score < 2.50) that there are different types and brand of condoms available and they are all effective (2.34). A grand mean of 2.68 indicated that the respondents, generally, were aware of the use of condom to prevent sexually transmitted infections.

According to the report there was a high level of awareness of condom use among students. The study found that 97.8% of male students and 78.9% of female students were aware of condom use. However, the practice of unprotected sexual intercourse was still high among students

Table 2: Awareness of Students on the Use of Condom to Prevent Sexually Transmitted Infections

Variables	Strongly agree (4)	Agree (3)	Disagree (2)	Strongly disagree (1)	Sum	Mean	Remark
Condoms are affective method for preventing STIs	77	162	137	19	1087	2.75	Agree
It is important to use condoms when engaging in sexual activity to prevent the spread of STIs	109	183	78	25	1166	2.95	Agree
Condoms can provide adequate protection against STIs	57	152	154	32	1024	2.59	Agree
Consistent use condom can reduce the risk of contracting STIs	74	165	144	12	1091	2.76	Agree
There are different types and brand of condoms available and they are all effective	33	108	214	40	924	2.34	Disagree
Grand mean = 2.68							

Source: Field Survey, 2023.

Criterion Mean: ≥ 2.50

4. Discussion

The findings of this study reveal a generally high level of awareness among undergraduate students at Rivers State University regarding the role of condoms in preventing sexually transmitted infections (STIs). With a grand mean score of 2.68 on the awareness items (exceeding the criterion mean of 2.50), respondents strongly endorsed statements affirming condoms as an effective preventive method (mean = 2.75), their importance during sexual activity (mean = 2.95), adequate protection against STIs (mean = 2.59), and risk reduction through consistent use (mean = 2.76). These results align closely with prior research in similar Nigerian contexts, particularly Oranu et al. (2020), who reported exceptionally high awareness of male condoms (97.8%) and female condoms (78.9%) among university undergraduates in Port Harcourt, yet noted persistently high rates of unprotected sexual intercourse. The consistency in high awareness levels suggests that public health messaging, media exposure, and peer discussions have successfully disseminated basic

information about condom efficacy for STI prevention in this region.

However, a notable gap emerged in awareness of condom varieties and brands, with a low mean score of 2.34 indicating disagreement that different types and brands are equally effective. This limited knowledge of condom diversity—such as male latex, polyurethane, female condoms, textured, flavored, or lubricated variants—may stem from inadequate exposure to comprehensive sexual health education that goes beyond basic efficacy claims. Similar deficiencies have been documented in other settings, where awareness remains superficial and fails to encompass practical details that influence informed choice and correct use. For instance, studies among non-medical students in India highlighted variable knowledge of STI prevention methods, often limited to general awareness without depth (Narasimhalu & Muhilan, 2016). In African contexts, low familiarity with female condoms persists, linked to socio-cultural barriers and limited promotion (Kabagenyi et al., 2016).

The demographic profile of respondents—predominantly female (58.0%), aged 21–25 years (44.6%), and in higher levels (300 and 400)—mirrors patterns in higher education institutions where young adults engage in increased sexual activity amid transitional life stages. Personal factors, particularly among female students, significantly shape condom negotiation and use, including self-efficacy, partner dynamics, and perceived control (McCarthy et al., 2024). In this study, the female majority may have contributed to the emphasis on importance and protection, yet the low awareness of condom types could reflect gender-specific access barriers or discomfort discussing female-initiated options.

Broader behavioral contexts further explain why high awareness does not necessarily translate to consistent practice, a phenomenon repeatedly observed in youth populations. Alcohol consumption frequently impairs sexual decision-making, increasing risky behaviors such as unprotected intercourse during hookups (Scott-Sheldon et al., 2016; Garcia et al., 2019). College environments often facilitate casual encounters through dating apps or social settings, where motivations for use (e.g., convenience, thrill-seeking) overshadow preventive intentions (Sumter et al., 2017; Kuperberg & Padgett, 2017; Garcia et al., 2012). These factors likely contribute to the disconnect between awareness and behavior in Rivers State University students, similar to patterns in Port Harcourt where unprotected sex remained prevalent despite knowledge.

Effective sexual health education emerges as a critical modulator. Comprehensive school-based programs enhance knowledge, attitudes, and protective behaviors, whereas abstinence-only approaches often prove ineffective in reducing risks among sexually active youth (Li et al., 2017; Corcoran et al., 2020; Santelli et al., 2017). In Nigeria, where cultural and religious norms may inhibit open discussions, integrating evidence-based, age-appropriate education into university curricula could bridge awareness-practice gaps. Campus interventions should address not only basic efficacy but also correct use, negotiation skills, condom accessibility, and myths surrounding pleasure or reliability.

In conclusion, while this study demonstrates robust foundational awareness of condom use for STI prevention among RSU undergraduates, the identified gaps in knowledge of condom varieties and the broader literature on inconsistent practice highlight the need for multifaceted strategies. Strengthening comprehensive sexual health programs, promoting condom availability on campus, and tackling socio-cultural and behavioral barriers—such as alcohol-influenced decisions and gender dynamics—could enhance protective behaviors and reduce STI transmission in this vulnerable population.

5. Conclusion

This cross-sectional study among 395 undergraduate students at Rivers State University demonstrates a high overall level of awareness regarding the use of condoms for preventing sexually transmitted infections (STIs), with a grand mean score of 2.68 well above the criterion threshold of 2.50. Respondents strongly agreed that condoms are an effective preventive method, that their use during sexual activity is important, that they provide adequate protection, and that

consistent application reduces STI risk. These findings reflect successful dissemination of basic condom efficacy messages through media, peer networks, and public health campaigns in the Nigerian context.

However, a critical knowledge gap persists concerning the variety of condom types and brands and their equivalent effectiveness (mean = 2.34), indicating that awareness remains largely superficial rather than comprehensive. This limitation may hinder informed decision-making, correct use, and consistent adoption, particularly in a population where unprotected sexual activity remains prevalent despite high general awareness, as previously documented in Port Harcourt.

The predominantly female (58.0%), young adult (mean age ≈22.7 years) sample underscores the need for targeted interventions that address gender-specific barriers, negotiation skills, and socio-cultural influences on condom uptake. While awareness is a necessary foundation, it is insufficient alone to ensure protective behaviors amid influences such as alcohol use, casual partnering, and limited access to diverse condom options.

To reduce STI incidence among university students, institutions like Rivers State University should prioritize multifaceted strategies. These include integrating comprehensive, evidence-based sexual health education into curricula and orientation programs; ensuring free or subsidized access to a range of condom types on campus; promoting peer-led workshops on correct use and negotiation; and collaborating with health authorities for sustained awareness campaigns. Future research should employ longitudinal and mixed-methods designs to evaluate actual condom utilization rates, barriers to consistent practice, and the impact of targeted interventions.

Ultimately, bridging the gap between awareness and behavior through actionable, youth-friendly programs remains essential for safeguarding the sexual and reproductive health of this vulnerable demographic in Nigeria.

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