

Reproductive Health Knowledge, Contraceptive Practices and Predictors of Unprotected Sexual Intercourse among Female Undergraduates in Ogbomoso, Nigeria

Omoruan Augustine Idowu^{1*}, Ayandele Olusanjo Ayandiji¹, Phillips Oluwaseun Folusho¹, Bamidele Akinfemi Philip¹, Ayegboyin Matthew²

¹Department of Sociology, Ladoke Akintola University of Technology Ogbomoso, Ogbomosho, Nigeria

²Centre for Education Rights and Transformation Johannesburg, University of Johannesburg, South Africa

***Corresponding author:** Omoruan Augustine Idowu. Department of Sociology, Ladoke Akintola University of Technology Ogbomoso, Ogbomosho, Nigeria. Email: aiomoruan@lautech.edu.ng. ORCID: <https://orcid.org/0009-0008-4752-3307>

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Abstract

Background

Unprotected sex among female undergraduates remains a significant reproductive health concern in Nigerian tertiary institutions, yet evidence on socio-cultural predictors remains limited. This study examined reproductive health knowledge and factors associated with contraceptive use and engagement in unprotected sex among female undergraduates at Ladoke Akintola University of Technology, Ogbomoso, Nigeria.

Methods

A cross-sectional survey was conducted among 286 female undergraduate students selected, using multistage sampling techniques. Data were collected using a structured questionnaire and analysed using IBM SPSS version 27. Descriptive statistics, Chi-square tests, and binary logistic regression were employed, with statistical significance set at $p < 0.05$.

Results

The study revealed that most respondents (63.6%) demonstrated good knowledge of reproductive health, and the majority (85.0%) perceived institutional reproductive health support services as inadequate. Students in higher academic levels had lower odds of using contraceptives; on the other hand, married students and those influenced by religious values had lower odds of engaging in unprotected sex.

Conclusion

Consistent contraceptive use remains low among female undergraduates, irrespective of the relatively high reproductive health knowledge. Socio-cultural factors were significantly associated with engagement in unprotected sex. Universities should strengthen youth-friendly health services and sexuality education programmes.

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Keywords: Adolescent reproductive health, Contraceptive use, Female undergraduates, Nigeria, Unprotected sex.

Introduction

Adolescent and young adult reproductive health remains a major public health concern, particularly in low-and middle-income countries where access to comprehensive sexual and reproductive health information and services is often inadequate.[1] In Sub-Saharan Africa, young women continue to experience high rates of unintended pregnancy, unsafe abortion, and sexually transmitted infections due to limited access to contraception, socio-cultural restrictions, poor sexuality education, and inadequate youth-friendly health services.[2,3] Reports from the Guttmacher Institute revealed that adolescent girls are especially vulnerable to risky sexual behaviours because of the physical, emotional, and psychological transitions associated with this stage of life.[4] These vulnerabilities are further worsened by poverty, gender inequality, stigma surrounding premarital sexual activity, and limited reproductive autonomy among young women.[4,5]

University students are often assumed to possess adequate reproductive health knowledge because of their educational exposure. However, evidence demonstrates a paradox between contraceptive knowledge and effective utilisation among university students.[6] Although awareness of contraceptive methods is generally high among university students, it does not translate to effective utilisation. Studies conducted among university students in Tanzania, Ethiopia, Sri Lanka and Nigeria revealed relatively high levels of contraceptive awareness but low and inconsistent contraceptive utilisation.[7–10] For instance, a study among undergraduates in Sri Lanka found that although 93% of respondents knew at least one contraceptive method, only 21% demonstrated good knowledge of condom use.[7] Similarly, a survey among female undergraduates in Tanzania found that although all participants were aware of contraception, utilisation remained relatively low, with only 24.3% reporting condom use and 16.8% using contraceptive pills.[8]

In addition, a study among female undergraduates at Lagos State University, Nigeria, reported that 34% of respondents had experienced pregnancy, of which 82% were unintended.[9] Only 20.6% of the University students in Bhutan used emergency contraceptives, despite their knowledge.[11] These findings indicate a persistent gap between reproductive health knowledge and practice among university students.

Several studies have identified socio-cultural, religious, economic, and institutional factors as important determinants of contraceptive use and sexual behaviour among adolescents and young adults.[12–14] Cultural norms that discourage open discussions about sexuality, fear of social stigma, misconceptions regarding contraceptive side effects, and religious beliefs have been reported as barriers to contraceptive utilisation among female students.[15] In many African societies, discussions about sex and reproductive health remain culturally sensitive, making it difficult for young women to seek accurate information or access reproductive health services without fear of judgment.[16] In addition, gender power relations and partner influence may reduce women's ability to negotiate safe sexual practices, thereby increasing vulnerability to unprotected sex.[17]

Institutional support also plays a significant role in shaping reproductive health outcomes among university students. While some tertiary institutions provide campus health services, these services often lack youth-friendly, confidential, and accessible features needed to meet students' reproductive health requirements.[14,18] Research indicates that fears of stigma from healthcare providers, worries about confidentiality, and insufficient reproductive health policies prevent students from seeking necessary sexual and reproductive healthcare services.[18] As a result, many female undergraduates face unintended pregnancies, unsafe abortions, emotional distress, and interruptions to their academic pursuits.[19]

Despite the growing body of research on adolescent reproductive health, significant gaps still exist in the literature. Most previous studies in Nigeria have concentrated mainly on contraceptive awareness and prevalence of sexual activity among adolescents and youths, with limited attention on the factors that predict unprotected sexual practices among female undergraduates in higher education institutions.[20,21] In addition, few studies have simultaneously examined the influence of reproductive health knowledge, contraceptive practices, socio-cultural factors, and institutional support on risky sexual behaviour among female university students.[9,22] Existing studies also provide limited evidence from southwestern Nigeria, particularly within university environments where female students may face distinct academic and social pressures that affect their reproductive health choices.

Therefore, this study examined reproductive health knowledge, contraceptive practices, and socio-cultural factors associated with engagement in unprotected sex among female undergraduate students at Ladoke Akintola University of Technology (LAUTECH), Ogbomoso, Nigeria. Specifically, the study was guided by the following research questions: (a) What is the level of reproductive health knowledge among female undergraduate students at LAUTECH? (b) What contraceptive practices exist among female undergraduate students? (c) Which demographic and socio-cultural factors influence engagement in unprotected sex among female undergraduates? (d) How adequate are institutional reproductive health services available to female students? The study, therefore, hypothesised that (1) there is a significant association between demographic and socio-cultural factors and unprotected sex among female undergraduates. (2) Demographic and socio-cultural factors significantly predict contraceptive use and unprotected sex among female undergraduates.

Methods

Study design and setting

This study employed a cross-sectional survey design to examine female students' knowledge of reproductive health, contraceptive practices, and factors associated with engagement in unprotected sex at LAUTECH, Ogbomoso. A cross-sectional design was considered appropriate because it enables the assessment of relationships between socio-demographic characteristics, reproductive health behaviours, and associated factors at a single point in time. The research was conducted at LAUTECH, a public university in Oyo State, Nigeria. The institution has a diverse student population of approximately 30,000 students distributed across several faculties, including Agricultural Sciences, Arts and Social Sciences, Basic Medical Sciences, Computing and Informatics, Engineering, Management Sciences, and Pure and Applied Sciences.[23] The study period was from January 13 to March 14, 2025.

Study population and eligibility criteria

The study population comprised all female undergraduate students in the Faculty of Arts and Social Sciences at LAUTECH. The faculty consists of eleven departments across the Arts and Social Sciences disciplines, including English Language and Literary Studies, History, Philosophy, Theatre Arts, Linguistics and Yoruba Language, Economics, Sociology, Psychology, Political Science, Mass Communication, and Library and Information Science. Female undergraduate students aged 15 years and above who were duly registered and consented to participate in the study were considered eligible.

Inclusion criteria

Eligible participants were female undergraduate students at LAUTECH in the selected departments who consented to participate in the study.

Exclusion criteria

Female undergraduate students who were absent during data collection.

Sampling size and sampling procedures

To determine the appropriate sample size for a population of 1,220 female students (data from the departmental records), the Taro Yamane formula at a 5% margin of error was used:[24]

$$n = \frac{N}{1 + N(e)^2}$$

Where:

N=1,220 (population)

e=0.05 (margin of error)

Calculation:

$$n = \frac{1,220}{1 + 1,220 \times (0.05)^2}$$

Thus, the sample size (n) is 301

A multistage sampling technique was adopted for the study. In the first stage, two departments were purposively selected from the Arts division and two from the Social Sciences division based on their relatively large female student populations and departmental accessibility. The selected departments were English Language and Literary Studies, Philosophy, Sociology, and Economics.

In the second stage, proportionate sampling was used to determine the number of respondents from each department. The total female student population in the four selected departments was 1,220, distributed as follows: English Language and Literary Studies – 312; Philosophy – 277; Sociology – 267; and Economics – 364. The sample size for each department was calculated using the proportionate sampling formula ($n_i = (N_i/N) \times n$). Where n_i = sample of each department, N_i = population of the department, N = total population across the selected departments, and n = total sample size. Thus, English Language and Literary Studies contributed 77 participants, Philosophy 68, Sociology 66, and Economics 90, and the total sample size was 301.

In the final stage, simple random sampling using the ballot method was employed to select eligible participants from departmental student lists. Specifically, the ballot method (a manual form of simple random sampling) was used. This involved writing the matriculation number of all eligible female students on slips of paper, folding them uniformly, and placing them in a container. The slips were then shuffled, and the required number of participants was drawn without replacement. This method ensured that each eligible female student had an equal chance of selection, thereby minimising selection bias and enhancing the representativeness of the sample.[25]

Data collection instruments, procedures and quality control

Data were collected using a structured self-administered questionnaire developed from previous studies on adolescent reproductive health and contraceptive practices.[15,26] The questionnaire consisted of 20 items organised into four sections. Section A collected five demographic items: age, level of study, religion, and marital status, among others. Section B focused on reproductive health knowledge with five questions designed to assess understanding in this area. The questionnaire items include: *"I am knowledgeable about different contraceptive methods available to women," "I know where to obtain reliable reproductive health information and services,"* and *"I understand the importance of contraceptive use in preventing unintended pregnancy."* Responses were evaluated using a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). Thus, the scale demonstrated satisfactory internal consistency reliability, with McDonald's omega (ω) = 0.88. Composite scores were calculated for the Likert-scale items. Total scores ranged from 5 to 20. Scores were categorised into poor (5–9), moderate (10–14), and good (15–20) levels of reproductive health knowledge.

Section C included five questions that measure contraceptive practices using dichotomous items.

Responses were coded as 0 = “No” and 1 = “Yes.” The items comprise: “*condoms can help prevent both pregnancy and sexually transmitted infections,*” “*oral contraceptive pills must be taken daily to be effective,*” and “*emergency contraceptive pills are meant to be used after unprotected sex.*” Thus, the internal consistency reliability of the scale was satisfactory, with McDonald’s omega (ω) = 0.73, indicating good reliability. Section D investigates five items related to socio-cultural factors influencing reproductive health decisions. These include “my culture discourages the use of contraceptives before marriage,” “my partner’s opinion affects my contraceptive decisions,” and “my religious beliefs affect my decision to use contraceptives.” Responses were evaluated using a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). The internal consistency reliability was 0.90, indicating a very good reliability.

To ensure the instrument's validity, experts in reproductive health and social research methodology reviewed the questionnaire. Their feedback led to essential modifications that improved the wording and structure of the questionnaire. Before the main study, the questionnaire was pretested with 30 female undergraduate students from departments outside the selected study areas to assess clarity, comprehensibility, and validity. Feedback obtained during the pilot exercise informed minor modifications and restructuring of some questionnaire items to improve clarity and content validity. To reduce recall bias, the questions primarily focused on participants’ current knowledge, perceptions, and recent experiences. Similarly, to address social desirability bias, the questionnaires were administered anonymously, and participants were assured of confidentiality; no identifying information was collected. These steps were intended to encourage accurate and truthful responses.

Data processing, study variables and analysis

Out of the 301 questionnaires distributed, 286 were cleaned and analysed, representing a response rate of 95.0%.

The independent variables included reproductive health knowledge, contraceptive practices, and socio-cultural factors. The dependent variable examined in the study was engagement in unprotected sex, measured dichotomously and coded as 1 = “Yes” and 0 = “No.” Descriptive statistics, including frequency and percentage distributions, were used to summarise respondents’ socio-demographic characteristics and key study variables. Chi-square analysis was used to test the association between variables, and two binary logistic regression models were fitted to determine demographic and socio-cultural predictors of contraceptive use and unprotected sex using IBM SPSS version 27 (IBM Corp, Armonk, NY, USA). Adjusted odds ratios (AORs) and 95% confidence intervals were reported.[27] Statistical significance was set at $p < 0.05$.

Ethical consideration

The study went through ethical review and received formal approval from the Ethical Research Committee at LAUTECH Ogbomoso, with Approval Number: ERCBMSLAUTECH:090/01/2025. Informed consent was obtained from all participants before data collection to ensure the confidentiality and security of their personal information. Throughout the research process, a strong commitment to protecting the privacy of all participants was upheld, in line with recognised ethical principles.

Results

Demographic characteristics of the respondents

Most of the respondents were aged 17–20 (61.2%) years. The majority (68.5%) were in their second and third year of study, accounting for more than two-thirds of the sample. More than half (52.4%) were predominantly Christian. Almost all respondents (91.6%) reported being single (Table 1).

Table 1. Socio-demographic characteristics of the respondents

Variable	Frequency (n=286)	Percentage %
Age in years		
≤16	40	14.0
17-20	175	61.2
21-24	49	17.1
≥25	22	7.7
Level		
100	40	14.0
200	89	31.1
300	107	37.4
400	50	17.5
Religion		
Christianity	150	52.4
Islam	103	36.0
Others	33	11.5
Marital Status		
Single	262	91.6
Married	24	8.4

Reproductive health knowledge

A majority of the respondents had a good level of reproductive health knowledge,

followed by a moderate level, while only a small proportion had poor knowledge (Figure 1).

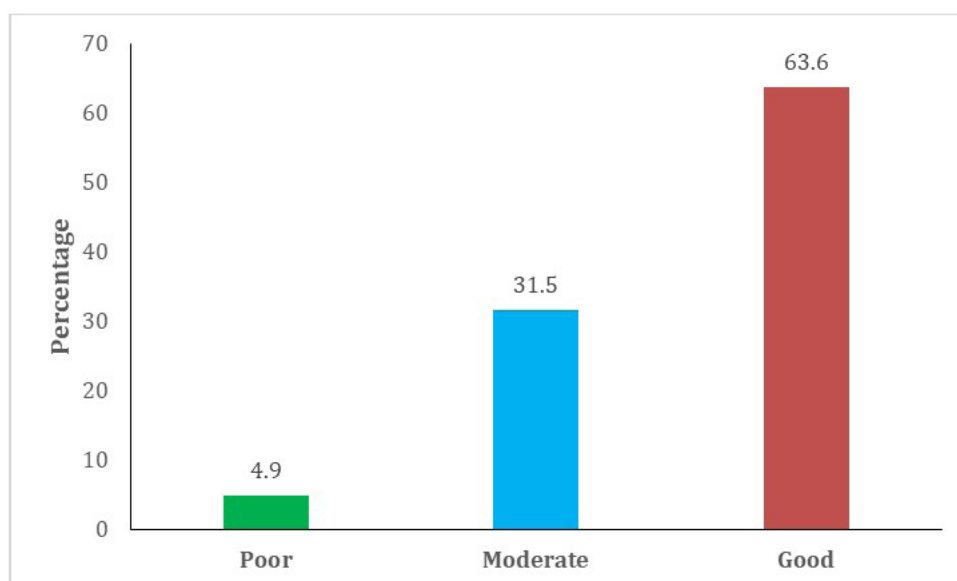


Figure 1. Reproductive health knowledge of the respondents

Knowledge of contraceptive practices and institutional support

Almost two-thirds of respondents (64.3%) correctly identified that condoms can prevent both pregnancy and sexually transmitted infections. In addition, 59.1% understood that oral contraceptive pills must be taken daily to maintain their effectiveness. More than half of the participants (54.5%) had the knowledge that emergency contraceptive pills are intended for use after unprotected sex. However, a significant proportion of the respondents (65.0%) incorrectly believed that the withdrawal method is one of the

most effective contraceptive methods, thus indicating the persistence of misconceptions regarding contraceptive effectiveness. Despite this level of knowledge, contraceptive utilisation remained relatively low, with only 30.4% of respondents reporting current use of any contraceptive method, and 29.4% indicating they have engaged in unprotected sex in the last 12 months. Furthermore, a majority of respondents (85.0%) perceived that the university does not provide adequate reproductive health support services, indicating significant gaps in institutional reproductive health provision (Table 2).

Table 2. Knowledge of contraceptive practices and institutional support

Variables	Categories	N=286	Percentage
Condoms can help prevent both pregnancy and sexually transmitted infections.	Yes	184	64.3
	No	102	35.7
Oral contraceptive pills must be taken daily to be effective.	Yes	169	59.1
	No	117	40.9
Emergency contraceptive pills are meant to be used after unprotected sex	Yes	156	54.5
	No	130	45.5
Withdrawal method is one of the most effective contraceptive methods.	Yes	186	65.0
	No	100	35.0
I am currently using contraceptives	Yes	87	30.4
	No	199	69.6
Have you engaged in unprotected sex in the past 12 months?	Yes	84	29.4
	No	202	70.6
LAUTECH provide adequate reproductive health support	Yes	43	15.0
	No	243	85.0

Demographic and socio-cultural factors influencing unprotected sex among female undergraduates

Hypothesis 1, which posits that there is a significant association between demographic and socio-cultural factors and unprotected sex among female undergraduates, was partially supported.

Marital status ($\chi^2=7.765$, $p=0.005$), contraception use ($\chi^2=4.417$, $p=0.036$), and religious values ($\chi^2=17.440$, $p=0.001$) emerged as variables demonstrating a statistically significant relationship with engagement in unprotected sex. Other factors, including age, level of study, and peer pressure, did not reveal statistically significant relationships (Table 3).

Table 3. Factors associated with engagement in unprotected sex

Variables	Yes (n=84) n (%)	No (n=202) n (%)	Total (n=286) n (%)	Chi-square	p-value
Age in years					
<17	10 (25.0)	30 (75.0)	40 (100.0)	2.663	0.447
17 - 20	49 (28.0)	126 (72.0)	175 (100.0)		
21 - 24	19 (38.8)	30 (61.2)	49 (100.0)		
25>	6 (27.3)	16 (72.7)	22 (100.0)		
Level of study					
100	10 (25.0)	30 (75.0)	40 (100.0)	3.258	0.353
200	24 (27.0)	65 (73.0)	89 (100.0)		
300	38 (35.5)	69 (64.5)	107 (100.0)		
400	12 (24.0)	38 (76.0)	50 (100.0)		
Marital status					
Single	71 (54.2)	191 (72.9)	262 (100.0)	7.765	0.005**
Married	13 (27.1)	11 (45.8)	24(100.0)		
Currently using any form of Contraception					
Yes	51 (25.6)	148 (74.4)	199 (100.0)	4.417	0.036**
No	33 (37.9)	54 (62.1)	87 (100.0)		
Religious values					
Yes	11 (12.5)	77 (87.5)	88 (100.0)	17.440	0.001**
No	73 (36.9)	125 (63.1)	198 (100.0)		
Peer pressure					
Yes	28 (27.5)	74 (72.5)	102 (100.0)	0.282	0.596
No	56 (30.4)	128 (69.6)	184 (100.0)		

** =Statistical significance at $p < 0.05$

Demographic and socio-cultural factors as predictors of contraceptive use and unprotected sex among female undergraduates

The second hypothesis, which posits that demographic and socio-cultural factors will significantly predict contraceptive use and engagement in unprotected sex among female undergraduates, was partially supported. Specifically, the results indicated that students in the third year (300-level) and above had lower odds of using contraceptives compared to those in the second year (200-level) or lower (AOR = 0.336, 95% CI: 0.181– 0.623, $P = 0.001$).

Again, those who reported that religious values influenced their reproductive decisions had lower odds of using contraception compared to those who did not (AOR = 0.220, 95% CI: 0.101–0.477, $P = 0.001$). Those who were married had lower odds of engaging in unprotected sex compared to their single peers (AOR = 0.195, 95% CI: 0.073–0.519, $p = 0.001$). In addition, those whose sexual decisions were influenced by religious values had lower odds of engaging in unprotected sex than those not influenced by religion (AOR = 0.163, 95% CI: 0.071 – 0.376, $p = 0.001$) (Table 4).

Table 4. Predictors of contraceptive use and engagement in unprotected sex

Predictor	Contraceptive Use			Unprotected sex		
	AOR	95% CI	p-value	AOR	95% CI	p-value
Age group						
≤20 (Ref)	1			1		
≥21	0.780	0.391 – 1.556	0.453	1.485	0.791– 2.791	0.219
Level of study						
≤200 Level (Ref)				1		
≥300 Level	0.336	0.181 – 0.623	0.001*	0.790	0.399 – 1.543	0.455
Marital status						
Single (Ref)	1			1		
Married	0.431	0.161 – 1.159	0.095	0.195	0.073 – 0.519	0.001*
Cultural values						
No (Ref)	1			1		
Yes	0.641	0.346 – 1.187	0.157	0.875	0.478 – 1.603	0.666
Religious values						
No (Ref)	1			1		
Yes	0.220	0.101 – 0.477	0.001*	0.163	0.071 – 0.376	0.001*
Peer pressure						
No (Ref)	1			1		
Yes	1.575	0.825 – 3.007	0.169	0.611	0.331 – 1.129	0.115

Ref=Reference category; CI= Confidence Interval; AOR= Adjusted Odd Ratio; *significance p<0.05

Discussion

This study aimed at presenting reproductive health knowledge, contraceptive practices, and factors associated with engagement in unprotected sex among female undergraduate students at Ladoke Akintola University of Technology, Ogbomosho, Nigeria. The findings revealed that most respondents (63.4%) demonstrated good knowledge of reproductive health, suggesting that female undergraduates are increasingly exposed to such information. This finding aligns with the research conducted by Dorji et al.[11] in Bhutan, and Bertin et al.[28] in Rwanda, both of which reported a good understanding of reproductive health among their study populations. However, the present study identified a disconnect between knowledge and practice, as only about one-third of respondents reported current contraceptive use. This also reflects the study of Mutsindikwa et al.[18] who underscored low contraceptive usage among university students in Namibia.

The persistence of misconceptions regarding contraceptive effectiveness, particularly the belief that withdrawal is among the most effective contraceptive methods, highlights important knowledge gaps that may contribute to risky sexual behaviour. This finding supports Akoku et al.[6] who indicated that contraceptive knowledge did not translate into the use of oral contraceptive pills among female university students in Cameroon. The study also revealed considerable deficiencies in institutional reproductive health support. Most respondents perceived that the university did not provide adequate reproductive health services. This finding is concerning because access to youth-friendly and confidential reproductive health services has been identified as an important determinant of contraceptive uptake and healthy sexual behaviour among university students.[14,29] Inadequate institutional support may discourage students from seeking professional guidance and accessing contraceptive services, and thus, increase their vulnerability

to unintended pregnancies and sexually transmitted infections.[15] The finding underscores the need for universities to strengthen reproductive health programmes through counselling services, awareness campaigns, and accessible reproductive health clinics.

The results from the first hypothesis, which posits that there is a significant association between demographic and socio-cultural factors and unprotected sex among female undergraduates, were partially supported. The findings revealed a statistically significant relationship between marital status, contraceptive use, religious values and unprotected sex. Contraceptive use and religious values have been found to influence sexual behaviour among students in tertiary institutions in Ghana and South Africa.[12,30]

The second hypothesis, which investigated whether demographic and socio-cultural factors significantly predict contraceptive use and unprotected sex among female undergraduates, was also partially supported. The findings showed that religious values emerged as one of the most important predictors of both contraceptive use and engagement in unprotected sex. Respondents whose reproductive decisions were influenced by religious values were significantly less likely to use contraceptives and less likely to engage in unprotected sex. This finding highlights the complex role of religion in shaping reproductive health behaviour.[13] While certain religious beliefs may discourage contraceptive use, religious teachings may simultaneously promote sexual restraint and discourage behaviours perceived as risky. Similar findings have been reported in previous studies where religion influenced attitudes towards sexuality, contraceptive acceptance, and reproductive decision-making among young adults.[17,31] Faith-based organisations and religious leaders, therefore, have the potential to play meaningful roles in promoting reproductive health by endorsing messages aligned with responsible sexual behaviour.

The result indicates that reproductive health interventions targeting university students should be culturally and religiously sensitive while promoting evidence-based sexual health information.

The results further demonstrated that marital status significantly predicted engagement in unprotected sex. Married respondents were substantially less likely to engage in unprotected sexual intercourse compared to their unmarried peers. These findings align with previous studies suggesting that unmarried young adults, especially students, often engage in more sporadic or noncommittal sexual relationships, which may contribute to inconsistent contraceptive use.[10,32] Thus, married students may have more stable relationships and greater reproductive autonomy, enabling them to make informed decisions regarding sexual and reproductive health.

Another important finding was that students in higher academic levels were significantly less likely to use contraceptives compared with students in lower academic levels. This finding contrasts with expectations that increased educational exposure would enhance contraceptive utilisation. A possible explanation is that older students may rely on informal methods perceived to be effective or may have developed attitudes toward contraceptive use shaped by personal experiences, peer influences, or cultural beliefs.[33] Further qualitative research is needed to explore the reasons underlying this relationship.

Strengths and limitations of the study

The results of this study offer invaluable insights into the reproductive health of female undergraduate students at a university in Nigeria. A major strength lies in the use of a well-structured, validated questionnaire, achieving a high response rate of 95%. This enhances the reliability and representativeness of the data. Furthermore, the application of both descriptive and inferential statistical techniques, including chi-square tests and binary logistic regression, offers a

rigorous analysis of the relationships between socio-demographic factors and engagement in unprotected sex. More importantly, this study addresses a notable gap in the literature by focusing specifically on female students in higher education. This population is often underrepresented in reproductive health research in Nigeria.

However, the findings should be interpreted in light of certain limitations. Dependence on self-reported data could lead to recall bias and social desirability bias because the study relied on self-reported data, especially regarding sensitive subjects like sexual behaviour and contraceptive use. The cross-sectional design restricts the ability to draw causal conclusions, and the study's focus on a single faculty within a university limits the generalisability of the results to broader student populations. Furthermore, the absence of qualitative data limits the depth of understanding of the personal, cultural, and institutional dynamics that influence students' reproductive health decisions. Despite these limitations, the findings provide a valuable foundation for targeted interventions and policy recommendations within tertiary institutions.

Conclusion

This study found that female undergraduate students at LAUTECH generally had good reproductive health knowledge; however, contraceptive utilisation remained relatively low, and unprotected sex persisted among a considerable proportion of respondents. Marital status and religious values significantly influenced engagement in unprotected sex, while level of study and religious values significantly predicted contraceptive use. In addition, respondents perceived institutional reproductive health support services as inadequate. These findings suggest that improving reproductive health outcomes among female undergraduates requires more than only increasing knowledge. Universities should strengthen youth-friendly reproductive health services, expand sexual health education programmes, and

develop culturally sensitive interventions that address religious and socio-cultural influences on reproductive health behaviour. Future studies should employ qualitative, mixed-method and longitudinal approaches to provide deeper insights into the factors shaping contraceptive utilisation and sexual decision-making among university students.

Based on the findings of this study, several recommendations are made to address female university students' reproductive health challenges. Universities should strengthen youth-friendly reproductive health services by providing accessible and confidential counselling, reproductive health education programmes, and awareness campaigns that address misconceptions about contraceptive use and promote informed decision-making. Comprehensive sexual and reproductive health education should also be incorporated into student orientation and other campus activities. Health policymakers should support the establishment of student-friendly reproductive health services in tertiary institutions through policies that improve access to trained healthcare personnel, reproductive health information, and affordable contraceptive services. In addition, community stakeholders, including parents, religious leaders, youth organisations, and healthcare providers, should collaborate with universities to promote accurate reproductive health education, reduce stigma surrounding reproductive health discussions, and support responsible sexual behaviour among young women.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

AIO and OAA conceptualised the study, developed the title and wrote the first draft of the manuscript. OFP, APB, and MA contributed to data collection and analysis. All authors, including AIO, OAA, OFP, APB, and MA, participated in rewriting, reviewing, and editing the final manuscript.

Generative AI

The authors acknowledge the use of AI-assisted tools, specifically ChatGPT and Grammarly, to format and enhance the language of this manuscript. However, the conceptualisation, data collection, analysis, and interpretation of the findings were carried out by the researchers. The authors meticulously reviewed and verified all AI-generated content to ensure that the scientific ideas, interpretations, and analytical elements are solely their own. They take full responsibility for the accuracy, originality, and academic integrity of this work.

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