



Knowledge and Attitudes toward Comprehensive Sexuality Education among Adolescents in Senior Secondary Schools in Plateau State, Nigeria

O.E. Jegede¹, O.O. Jegede², J.O. Ikwulono¹, M.C. Jibrin¹, S.P. Jirgi¹, A.P. Bassi¹

¹Department of Community and Primary Health Care, College of Medicine and Allied Health Sciences, Bingham University, Karu, Nasarawa State, Nigeria

²Department of Anatomic Pathology, David Umahi Federal University of Health Sciences, Uburu, Ebonyi State / Federal Medical Centre, Umuahia, Abia State, Nigeria

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*Corresponding Author: Jegede Olushola Olakunle

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Abstract

Original Research

Introduction: Comprehensive sexuality education (CSE) is a curriculum-based process of teaching and learning about the cognitive, emotional, physical, and social aspects of sexuality, aimed at equipping young people with the knowledge, skills, attitudes, and values needed to realize their health, well-being, and dignity, and to develop respectful relationships. Adolescent knowledge and attitudes toward CSE remain under-documented in north-central Nigeria.

Aim: To assess the knowledge and attitudes toward comprehensive sexuality education among senior secondary school adolescents in Plateau State, Nigeria.

Methodology: This was a cross-sectional descriptive study involving 460 senior secondary school adolescents drawn from five randomly selected secondary schools in Jos North and Jos South Local Government Areas, Plateau State, using a multistage sampling technique and a pre-tested structured questionnaire, conducted in the third quarter of 2023.

Results: Respondents demonstrated good knowledge (99.0%) and good attitudes (98.5%) toward comprehensive sexuality education. The main sources of existing knowledge were home (47.8%) and school (42.8%), while parents (60.9%) were the predominant source consulted for new questions; 15.4% of respondents reported having no one to consult. Knowledge of specific sexually transmitted infections beyond HIV was limited, and awareness of the human papillomavirus vaccine was low (only 6.3% had received it). A statistically significant association was found between whom respondents lived with and both their knowledge ($\chi^2=8.279$, $p=0.041$) and attitude ($\chi^2=38.69$, $p<0.001$) toward comprehensive sexuality education.

Conclusion and Recommendation: Respondents' overall knowledge and attitude toward comprehensive sexuality education were good, though specific gaps remain around sexually transmitted infections and HPV vaccination. Sustained parental and school engagement, alongside targeted awareness programmes addressing these specific gaps, is recommended to strengthen adolescent sexual health literacy in this population.

Keywords: Comprehensive sexuality education, Adolescents, Knowledge, Attitude, Plateau State, Nigeria.

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1. INTRODUCTION

Adolescence is the transitional phase of growth and development between childhood and adulthood, defined by the World Health Organization (WHO) as the period between 10 and 19 years of age.¹ It is commonly divided into early adolescence (10–13 years), middle adolescence (14–17 years), and late adolescence/young adulthood (18–19 years). Adolescents constitute approximately 20% of the global population, with the vast majority living in low- and middle-income countries.¹ Nigeria is home to a substantial share of Africa's adolescent population, making adolescent health, including sexual and reproductive health, a priority area for the country's public health system.²

Comprehensive sexuality education (CSE) has been defined as a rights-based and gender-focused approach to sexuality education, delivered either in school or out of school,³ and as a curriculum-based process of teaching and learning about the cognitive, emotional, physical, and social aspects of sexuality that equips young people with the knowledge, skills, attitudes, and values needed to realise their health, well-being, and dignity; develop respectful social and sexual relationships; consider how their choices affect their own well-being and that of others; and understand and protect their rights throughout their lives.⁴ Core CSE content areas include the human body and development, gender, values and rights, sexual and reproductive health, violence and safety, relationships, and sexual behaviour.⁴ With respect to gender specifically, CSE emphasises the distinction between biological sex and gender, the equal worth of boys and girls, the human-rights implications of gender-based discrimination, and the social and familial influences that shape attitudes toward sex and gender.⁴

Health education of this kind is itself a human right and supports the development of communication skills, self-esteem, and health literacy. In its absence, myths, stigma, secrecy, and negative media messaging leave young people vulnerable to uninformed decision-making, unprotected sex, unplanned pregnancy, and sexually transmitted infections (STIs), including HIV.² Adolescent pregnancy remains a major global public health and

social problem, and its reduction is central to the Sustainable Development Goals. Nigeria recorded 106 adolescent births per 1,000 women in 2021, a rate that has been rising.⁵ Unsafe abortion compounds this burden: because induced abortion is legally restricted in Nigeria except to save the mother's life, most terminations are performed covertly or by unskilled providers. National estimates suggest that approximately 610,000 abortions occurred in 1996, rising to a projected 760,000 by 2006 if the abortion rate remained unchanged, with unsafe abortion contributing substantially to maternal mortality.⁶ Adolescents also make up a disproportionate share of new STI diagnoses in Nigeria, reflecting both peer pressure and experimentation with new sexual behaviors.⁷

School dropout linked to unintended adolescent pregnancy is a further, related concern: roughly a quarter of Nigerian women aged 15–19 leave school prematurely, a pattern attributable to limited access to education, cultural norms, and poverty that together predispose young girls to early sexual activity.⁸ A case study from Obio-Akpor LGA, Rivers State, found that 61.2% of teenage mothers were likely to drop out of school owing to their new financial and caregiving responsibilities,⁸ illustrating the wider cycle of poverty, child neglect, and intergenerational disadvantage that can follow from inadequate sexual health knowledge and the limited ability of young people to negotiate safe sexual practices.

Infectious disease burden adds further urgency: hepatitis B seroprevalence of 12.6% was reported among residents of Jos, north-central Nigeria, in 2014,⁹ and Nigeria has historically carried one of the highest paediatric HIV burdens globally, with several hundred thousand children living with HIV and only a minority accessing antiretroviral therapy.¹⁰ Unsafe abortion alone is estimated to contribute tens of thousands of deaths annually in Nigeria.¹¹ Robust, evidence-based sexuality education has been proposed as a key structural intervention capable of addressing this cluster of interrelated problems; yet Nigeria continues to lag behind in prioritizing funding and consistent implementation of CSE despite having formally

endorsed international guidance on the subject.¹²

Despite this pressing need, adolescent knowledge and attitudes toward CSE remain poorly documented in Plateau State and the wider north-central region of Nigeria, where socio-cultural and religious factors may shape both the content and the reception of sexuality education differently from the southern regions where most existing Nigerian studies have been conducted. This study therefore assessed the knowledge and attitudes toward comprehensive sexuality education among senior secondary school adolescents in Jos North and Jos South Local Government Areas, Plateau State, and identified the principal sources from which adolescents currently obtain sexuality-related information.

Research Objectives

General Objective: To ascertain the knowledge and attitudes toward comprehensive sexuality education among senior secondary school adolescents in Plateau State.

Specific Objectives: (1) To determine the knowledge of CSE among in-school adolescents in Plateau State; (2) To assess adolescents' attitudes toward CSE; (3) To ascertain the sources of information on CSE among these adolescents; (4) To make recommendations to relevant stakeholders.

2. MATERIALS AND METHODS

Study Area

This study was conducted in Jos North and Jos South Local Government Areas (LGAs) of Plateau State, located in north-central Nigeria. Plateau State comprises 17 LGAs, an estimated population of 4,433,501, and an area of 27,147 km², and is bordered by Bauchi, Nasarawa, Taraba, and Kaduna States. Its administrative capital, Jos, spans three LGAs—Jos North, Jos South, and Jos East. The state is multi-ethno-linguistic, with predominantly agrarian communities sharing broadly similar cultural traditions. Jos North LGA, the most populated in the state, had an estimated population of 429,300 at the 2006 census; it is inhabited chiefly by the Anaguta, Berom, Irigwe, Hausa, and Fulani

ethnic groups and hosts 94 secondary schools (68 private, 26 government).

Study Design

This was a cross-sectional descriptive study.

Study Population

The study population comprised students in senior secondary schools (SSS1–3) in Jos North and Jos South LGAs, Plateau State.

Inclusion and Exclusion Criteria

Eligible participants were students aged 10–19 years in SSS1–3 in Jos North and Jos South who consented to participate and were present at school on the day of data collection. Students below 10 or above 19 years, those absent during data collection, and those who declined consent were excluded.

Study Duration

Data collection was carried out over a three-month period in the third quarter of 2023 (July–September 2023).

Sample Size Determination

The minimum sample size was determined using the Fisher formula: $n = z^2pq/d^2$, where $z = 1.96$ (standard normal deviate at 95% confidence), $p = 0.5$ (assumed proportion, in the absence of a directly comparable regional estimate), $q = 1 - p = 0.5$, and $d = 0.05$ (level of precision). This yielded a minimum sample size of 384, which was inflated by 10% to account for non-response/attrition ($384 + 38.4 = 422.4$, rounded to 422). A final sample of 460 respondents was achieved.

Sampling Technique

A multistage sampling technique was used. Stage 1: Jos North and Jos South LGAs were selected from the three LGAs comprising Jos metropolis by simple random sampling (balloting). Stage 2: Five secondary schools (three from Jos North, two from Jos South) were selected using simple random

sampling (balloting). Stage 3: Cluster sampling was used to select participants, with eligibility restricted to students in SSS1–3.

Data Collection Method and Tools

A quantitative, interviewer-administered, pre-tested structured questionnaire was used, comprising three sections: Section A (socio-demographic data: age, sex, tribe, religion, class, marital status, and living arrangement), Section B (knowledge of comprehensive sexuality education), and Section C (attitude toward comprehensive sexuality education).

Composite knowledge and attitude scores were derived from the questionnaire as follows. The Knowledge score (maximum 9 points) comprised 1 point for an affirmative response to prior awareness of sexually transmitted infections (STIs), 1 point for each specific STI correctly identified from a list of seven (HIV, human papillomavirus, herpes, chlamydia, hepatitis, gonorrhoea, and syphilis), and 1 point for awareness or uptake of the HPV vaccine. The Attitude score (maximum 7 points) comprised 1 point per statement across the seven attitude statements for the response in the expected positive direction: Agree/Strongly Agree for the four positively framed statements (CSE should be taught by parents and teachers; CSE helps young people develop good behaviour and attitudes; unprotected sex causes STDs; knowledge of CSE helps avoid unwholesome sexual practices) and Disagree/Strongly Disagree for the three negatively framed statements (CSE teaches bad things and should be avoided; feeling uncomfortable asking questions about one's body/sexual health; it is good to engage in sexual practices before marriage). For both scores, respondents scoring 5 or above were classified as having good knowledge/attitude, and those scoring 4 or below as having poor knowledge/attitude, reflecting whether the respondent gave the expected positive response on a majority of scored items.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0. Descriptive

statistics (frequencies and percentages) were used to summarize socio-demographic, knowledge, and attitude variables. The Pearson chi-square test of independence was used to assess associations between socio-demographic variables and knowledge/attitude outcomes; a p-value <0.05 was considered statistically significant. Charts and figures were constructed using Microsoft Excel and Python (matplotlib).

Ethical Considerations

Ethical clearance was obtained from the Bingham University Teaching Hospital Ethics Committee, with further clearance obtained from the Plateau State Ministry of Education and the State Universal Basic Education Board. Written informed consent (and assent, for minors, alongside parental/guardian or school in loco parentis consent, as applicable) was obtained from all respondents via a separate participant information and consent form. Participants were informed that participation was voluntary, that no harm would result from participation, and that all data would be treated confidentially and stored securely; health education was provided to participating schools as a benefit of the study.

Limitations

Limitations of this study include possible response bias given the socioculturally sensitive nature of the topic, reluctance by some schools to grant research access, and constraints of time and resources that limited the study to two of Plateau State's 17 LGAs; findings should therefore be generalized to other parts of the state with caution.

3. RESULTS

3.1 Socio-Demographic Characteristics

Of the 460 respondents, 283 (61.5%) were female and 177 (38.5%) were male. The majority (367, 79.8%) were in middle adolescence (15–17 years), with 72 (15.7%) in early adolescence (10–14 years) and 21 (4.6%) in late adolescence (18–19 years). Most respondents were Christian (429, 93.3%), with

the remainder Muslim (31, 6.7%). Respondents were fairly evenly split between SSS1 (186, 40.4%) and SSS2 (190, 41.3%), with fewer in SSS3 (84, 18.3%).

The great majority were single (408, 88.7%), with 50 (10.9%) in a relationship and 2 (0.4%) married (Figure 1).

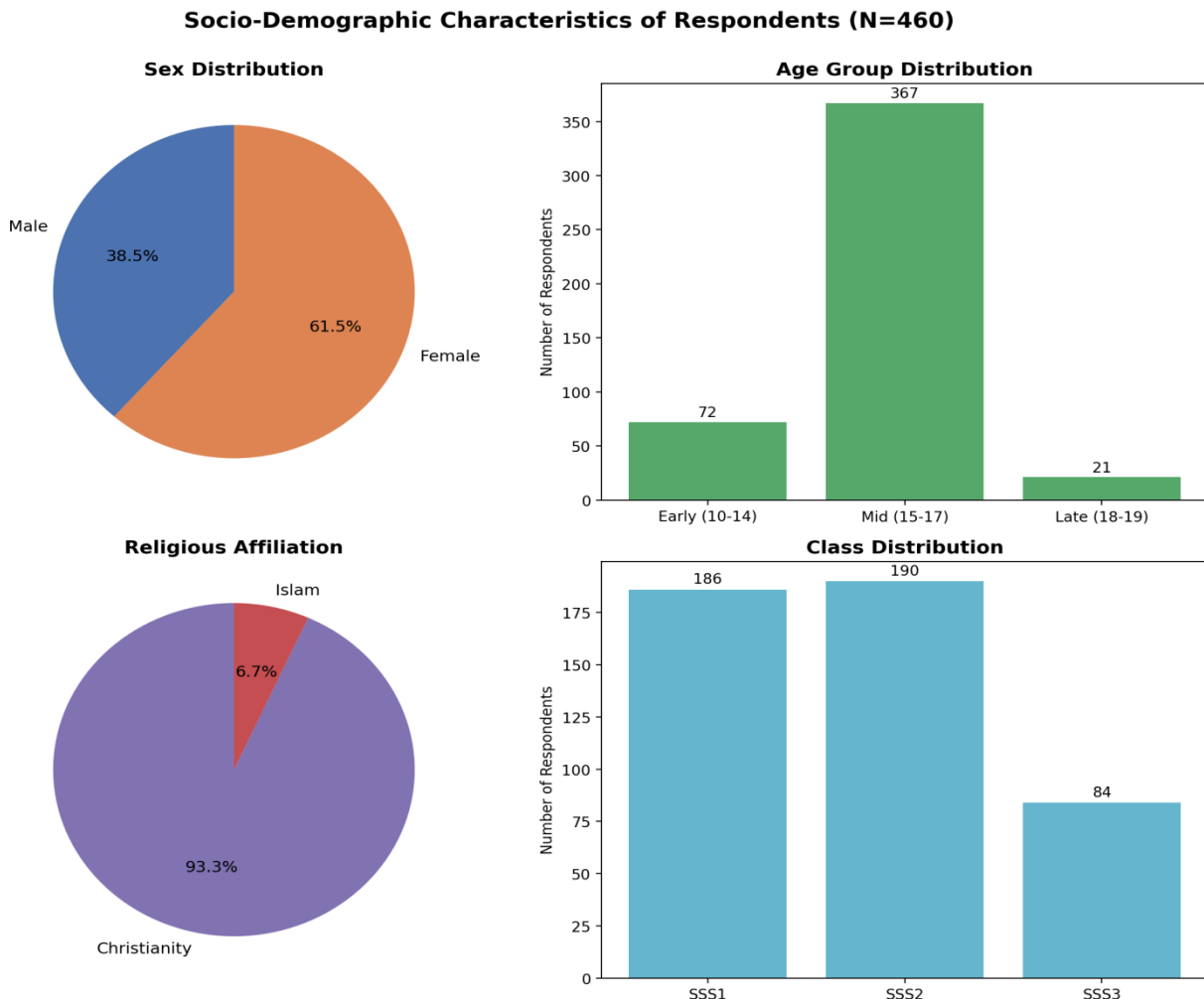


Figure 1. Socio-demographic characteristics of respondents (N=460).

Living arrangements were strongly skewed toward the nuclear family: 448 respondents (97.4%) lived with their parents, 9 (2.0%) with extended family, 2 (0.4%) with other non-related families, and 1 (0.2%) reported being internally displaced (Figure 2).

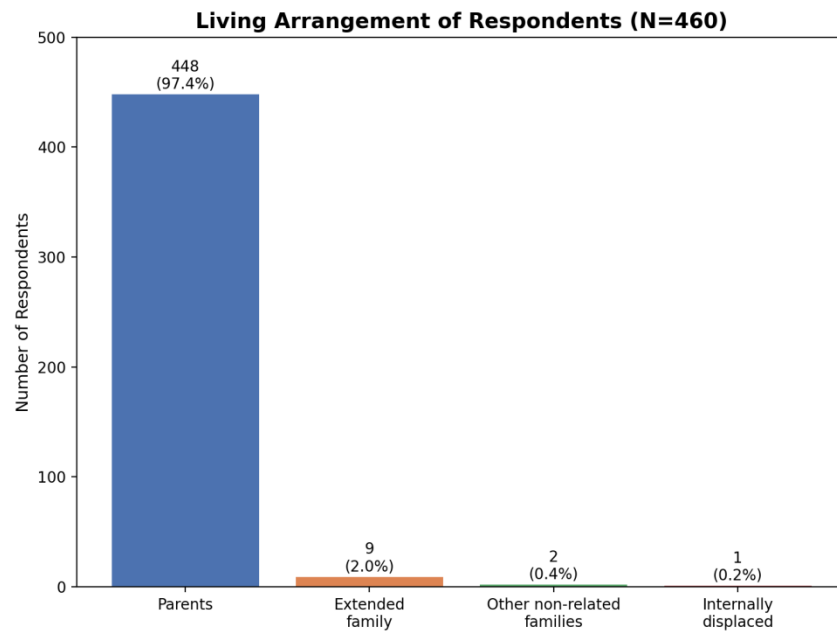


Figure 2. Living arrangement of respondents (N=460).

3.2 Knowledge of Comprehensive Sexuality Education

Respondents reported high levels of prior exposure to core CSE knowledge domains: 459 (99.8%) had

been taught about personal hygiene, 452 (98.3%) about the human body, and 450 (97.8%) about sexual and reproductive health, with only small proportions reporting no exposure or uncertainty in each domain (Figure 3).

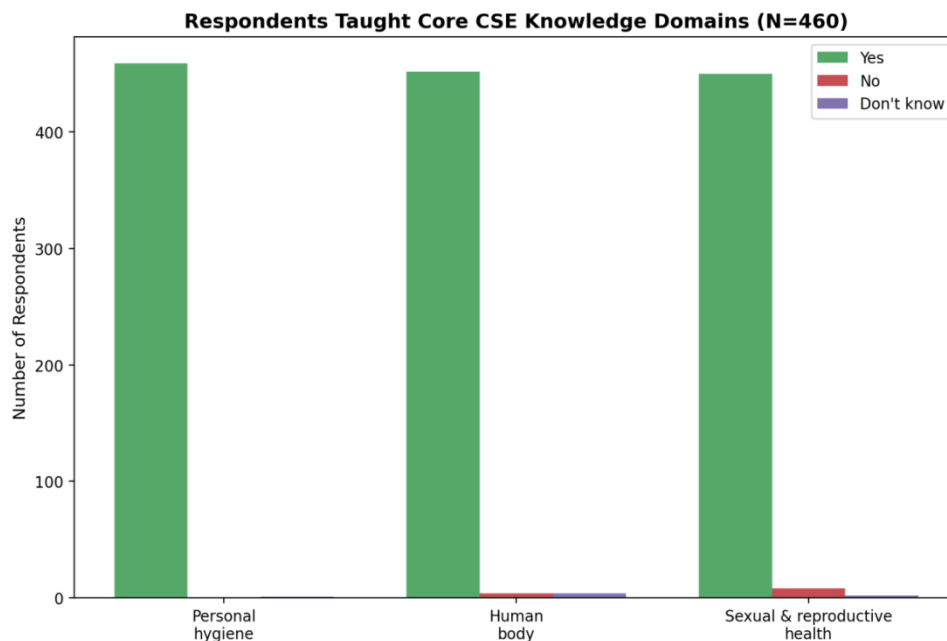


Figure 3. Respondents taught core CSE knowledge domains (N=460).

Home was the leading source of this existing knowledge (220, 47.8%), closely followed by school (197, 42.8%); the internet (28, 6.1%), friends (11, 2.4%), and neighbourhood (4, 0.9%) contributed comparatively little (Figure 4).

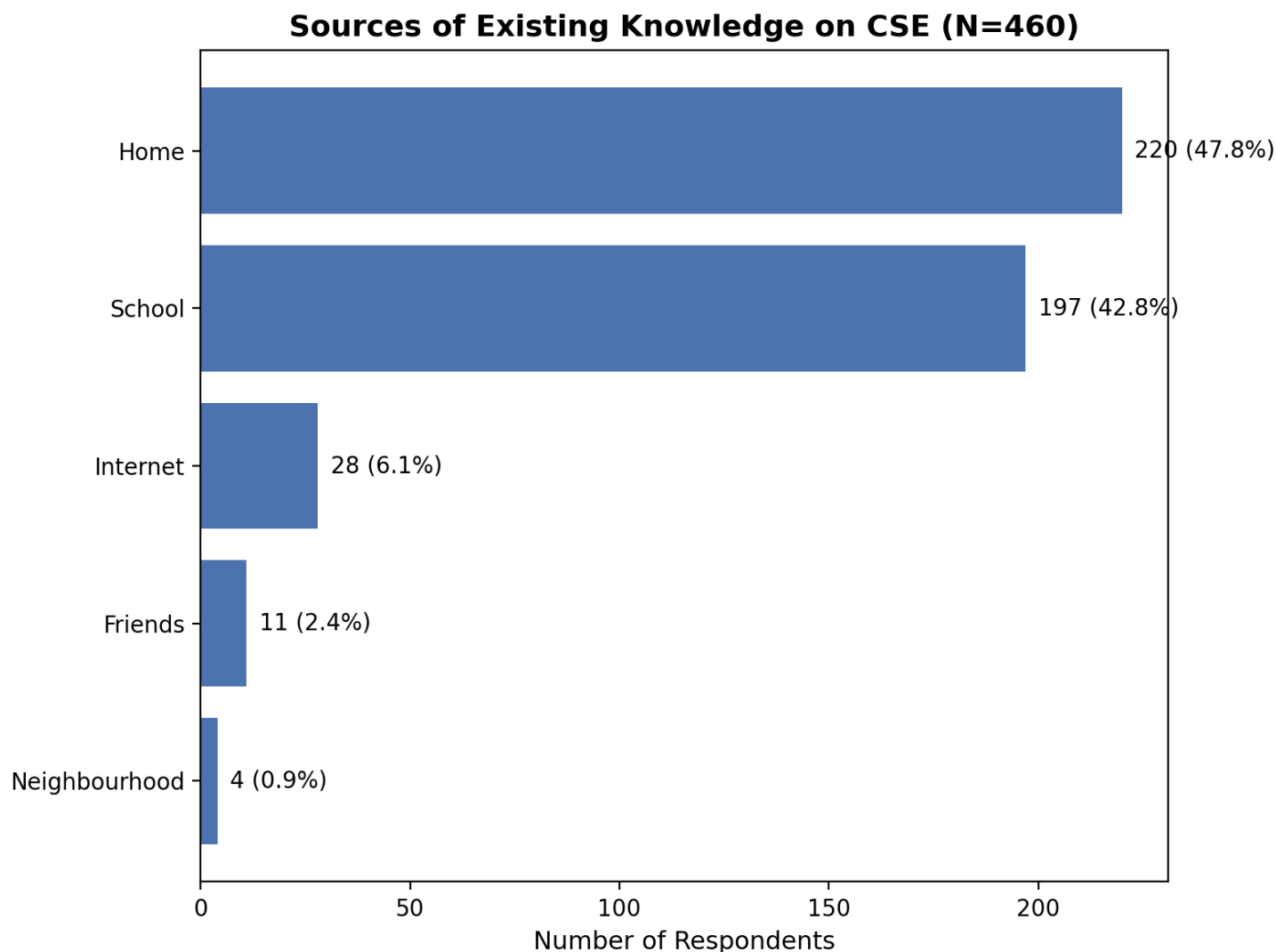


Figure 4. Sources of existing knowledge on comprehensive sexuality education (N=460).

When respondents had new questions about understanding their bodies or sexual health, parents were overwhelmingly the preferred source of guidance (280, 60.9%), followed by friends (44, 9.6%) and teachers (39, 8.5%); notably, 71 respondents (15.4%) reported having no one to talk to about such questions (Figure 5).

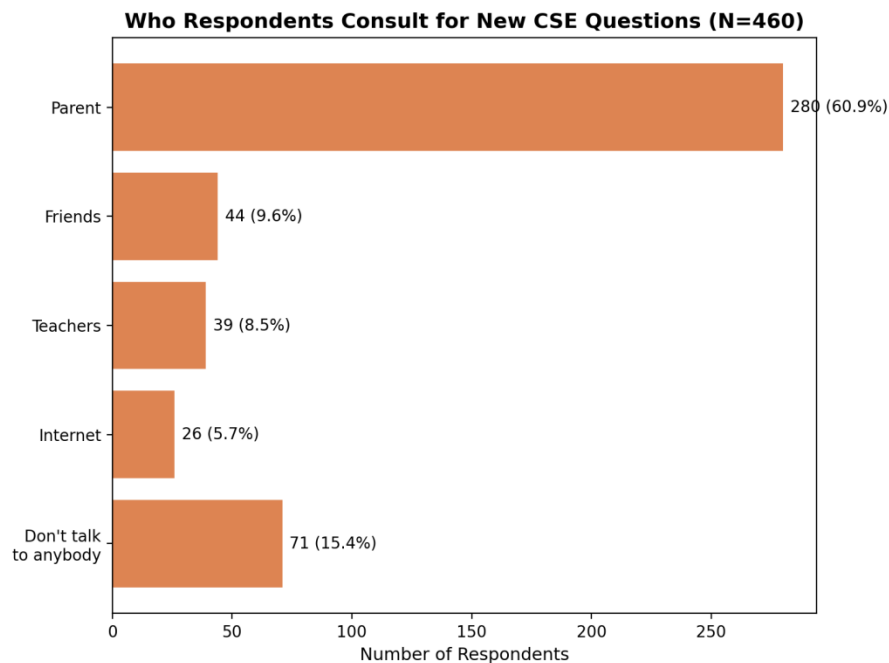


Figure 5. Who respondents consult for new questions on CSE (N=460).

Awareness of sexually transmitted infections was high in general (409, 88.9%), but knowledge of specific infections beyond HIV (239, 52.2%) was comparatively limited. Gonorrhea (40, 8.7%), hepatitis (39, 8.5%), HPV (38, 8.3%), syphilis (33, 7.2%), herpes (17, 3.7%), and chlamydia (13, 2.8%) were each known to fewer than 1 in 10 respondents, and 41 respondents (8.9%) could not name any specific STI (Figure 6).

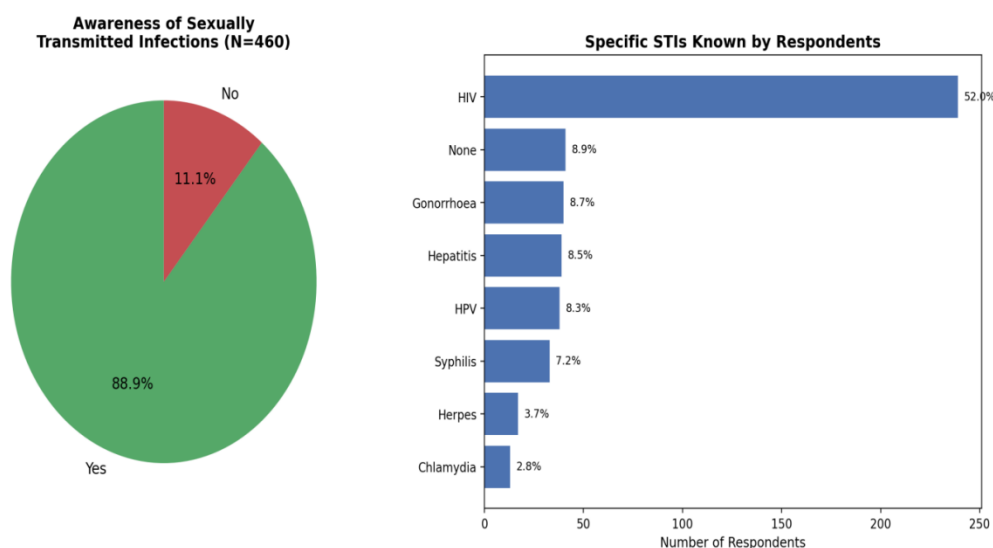


Figure 6. Awareness of STIs generally and knowledge of specific STIs (N=460).

Awareness and uptake of the human papillomavirus (HPV) vaccine were markedly low: 345 respondents (75.0%) had not heard of the vaccine, 86 (18.7%) had heard of it but not received it, and only 29 (6.3%) had both heard of it and been vaccinated (Figure 7).

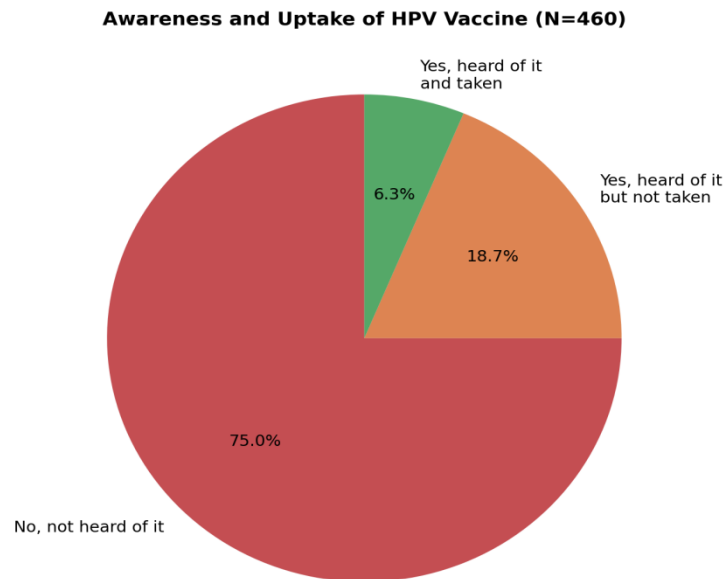


Figure 7. Awareness and uptake of the HPV vaccine (N=460).

Internet access was fairly widespread: 306 respondents (66.5%) owned a phone with internet access, 111 (24.1%) could access the internet via someone else's device, and 43 (9.3%) had no internet access at all (Figure 8).

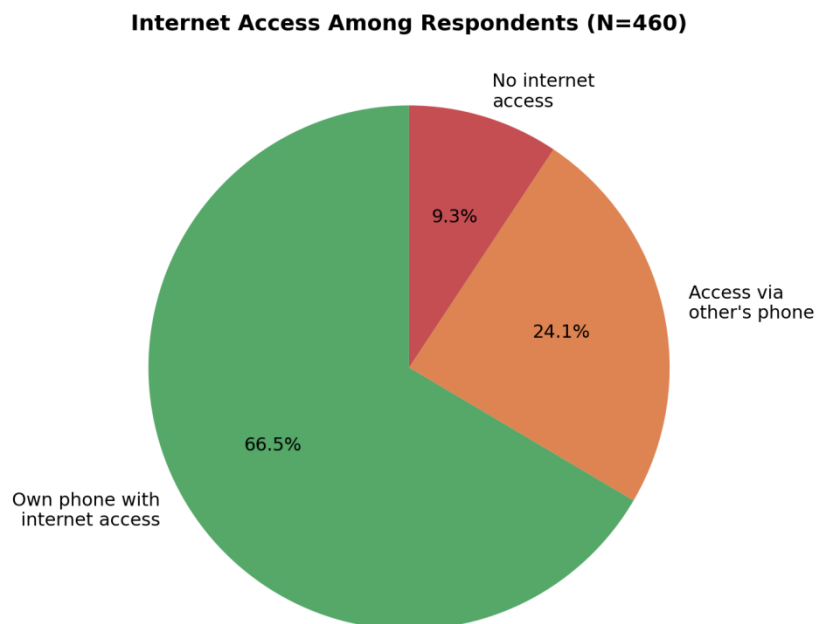


Figure 8. Internet access among respondents (N=460).

3.3 Attitude toward Comprehensive Sexuality Education

Attitudes toward CSE were predominantly positive across all seven statements assessed. The great majority of respondents agreed or strongly agreed that CSE should be taught by parents and teachers (92.4%), that it helps young people develop good behaviors and attitudes later in life (85.7%), that unprotected sex causes sexually transmitted diseases (87.4%), and that knowledge from CSE helps them

avoid unwholesome sexual practices (81.7%). Correspondingly, most respondents disagreed or strongly disagreed that CSE teaches young people bad things and should be avoided (60.7%) and that it is good to engage in sexual practices before marriage (87.4%). Responses were more evenly distributed on comfort discussing sexual health, with 40.7% agreeing they felt uncomfortable asking such questions, 29.4% disagreeing, and 30.0% neutral (Figure 9).

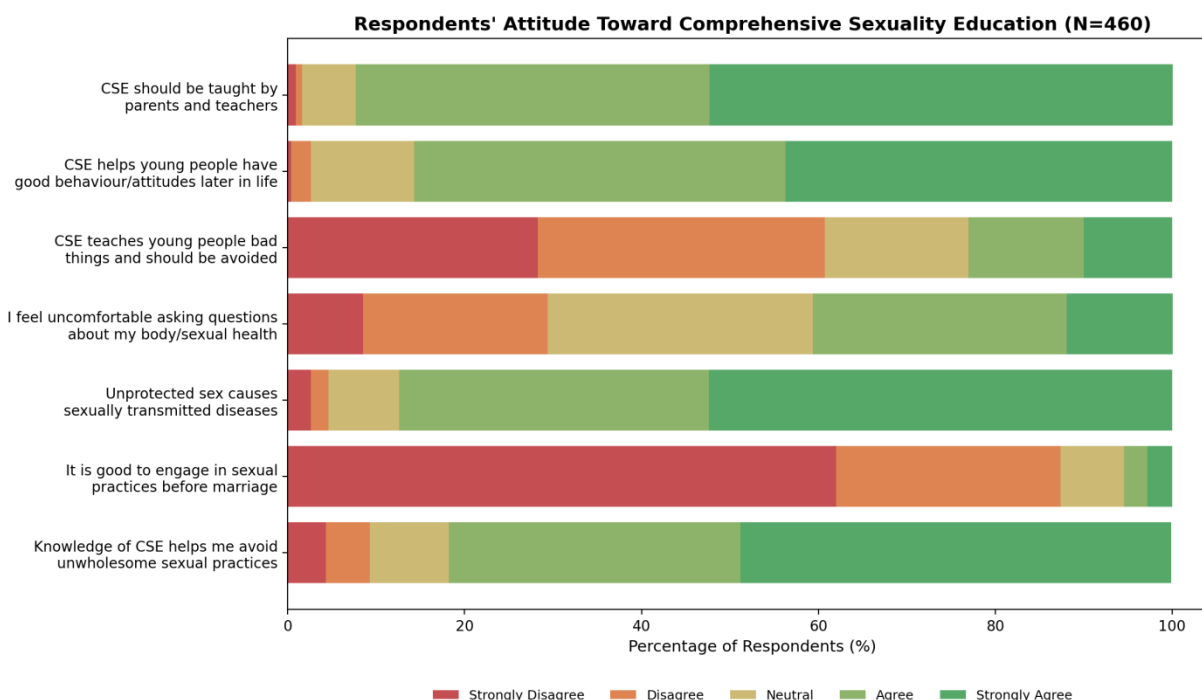


Figure 9. Respondents' attitude toward comprehensive sexuality education, by statement (N=460).

3.4 Associations between Living Arrangement and Knowledge/Attitude

A statistically significant association was found between whom respondents lived with and their knowledge of CSE with respect to awareness of

sexually transmitted infections ($\chi^2(3, N=460) = 8.279, p = 0.041$). Respondents living with parents (399/448, 89.1%) and with extended family (8/9, 88.9%) were more likely to have heard of STIs than other groups (Table 1).

Table 1: Association between Living Arrangement and Awareness of Sexually Transmitted Infections

Living Arrangement	Aware of STIs (Yes)	Not Aware (No)	Total	%
Parents	399 (89.1%)	49 (10.9%)	448	100.0
Extended family	8 (88.9%)	1 (11.1%)	9	100.0
Internally displaced	0 (0.0%)	1 (100.0%)	1	100.0
Other non-related families	2 (100.0%)	0 (0.0%)	2	100.0
Total	409 (88.9%)	51 (11.1%)	460	100.0

$$\chi^2 = 8.279, df = 3, p = 0.041$$

A similarly significant association was found between living arrangement and attitude toward CSE, with respect to agreement that unprotected sex causes sexually transmitted diseases ($\chi^2(12, N = 460)$

= 38.69, $p < 0.001$); respondents living with parents showed a markedly more favorable attitude profile than other groups (Table 2).

Table 2: Association between Living Arrangement and Attitude toward CSE (Unprotected Sex Causes STDs)

Living Arrangement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Parents	229 (51.7%)	158 (35.7%)	36 (8.1%)	9 (2.0%)	11 (2.5%)	443
Extended family	6 (66.7%)	2 (22.2%)	1 (11.1%)	0 (0.0%)	0 (0.0%)	9
Internally displaced	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (100.0%)	1
Other non-related families	1 (50.0%)	1 (50.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2
Total	236 (51.9%)	161 (35.4%)	37 (8.1%)	9 (2.0%)	12 (2.6%)	455

$$\chi^2 = 38.69, df = 12, p < 0.001$$

3.5 Overall Knowledge and Attitude Profile

Overall, 459 respondents (99.0%) demonstrated good knowledge and 453 (98.5%) demonstrated a

good attitude toward comprehensive sexuality education, with only 1 (0.2%) and 7 (1.5%) classified as having poor knowledge and poor attitude, respectively (Figure 10).

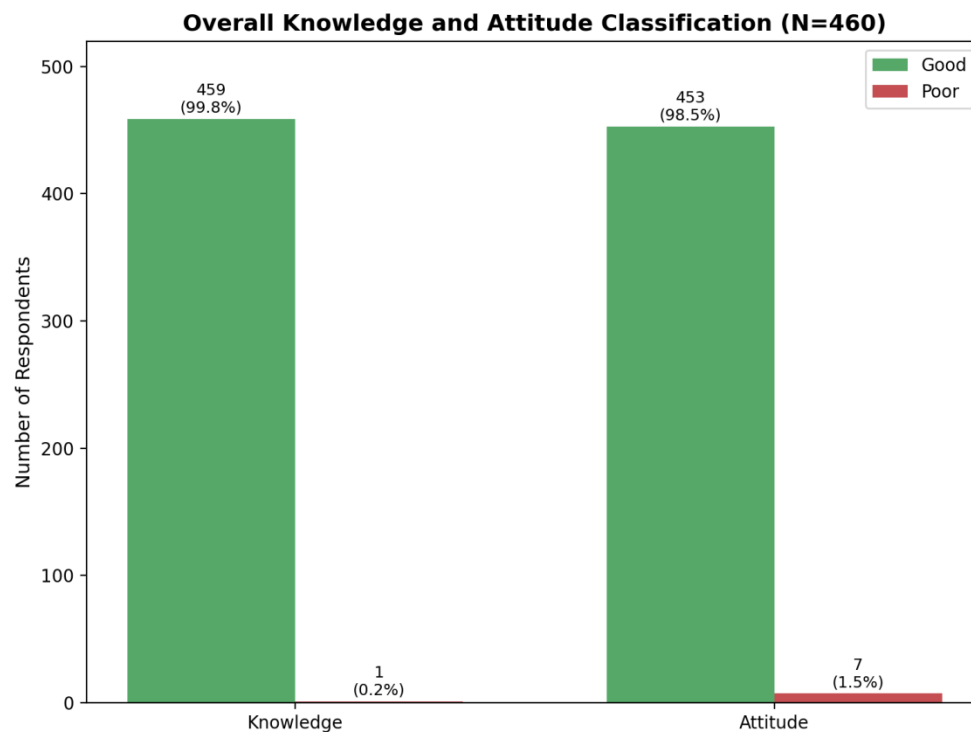


Figure 10. Overall knowledge and attitude classification of respondents (N=460).

4. DISCUSSION

Socio-Demographic Characteristics

All respondents in this study fell within the 10–19-year WHO-defined adolescent age range, with the great majority (79.8%) in middle adolescence. A female preponderance (61.5% vs. 38.5% male) was observed, closely mirroring a 2022 study conducted in Yaba, Lagos, where 62% of respondents were female and 38% male.¹³ The predominance of Christian respondents (93.3%) in this study similarly mirrored the Yaba study, where 92.0% of respondents were Christian and 6.3% Muslim,¹³ a pattern that likely reflects the religious composition of the specific LGAs sampled in each study rather than a Plateau-State-wide or nationally representative pattern, and should not be over-interpreted as such. The overwhelming majority of respondents (97.4%) lived with their parents in a nuclear-family setting, a factor that, as discussed below, was significantly associated with both knowledge and attitude outcomes in this study.

Knowledge of Comprehensive Sexuality Education

Respondents demonstrated excellent foundational knowledge of CSE, with the great majority having been taught about personal hygiene (99.8%), the human body (98.3%), and sexual and reproductive health (97.8%). Awareness of STIs in general was similarly high (88.9%); however, this contrasted sharply with comparatively poor knowledge of specific STIs beyond HIV, and low awareness (25.0%) and very low uptake (6.3%) of the HPV vaccine. This gap between general awareness and specific, actionable knowledge is a recurring pattern in adolescent sexual health literature and represents a clear, addressable target for future school-based health education programming in this population.

This study found no significant association between knowledge of CSE and gender, age, religion, or class, but did find a significant association with whom respondents lived with. This contrasts with a study from Ahoada East LGA, Rivers State, in which good knowledge of sex education (88.5%) was

significantly associated with gender, being more common among males (95.1%) than females (80.3%; $\chi^2=15.64$, $df=1$, $p<0.05$).¹⁴ The higher overall knowledge levels observed in the present study likely reflect the more urban character of Jos North and Jos South compared with the largely rural Ahoada East LGA.¹⁴ A separate study of 150 adolescents across four secondary schools found comparatively inadequate knowledge of sex education; for example, 40% of respondents did not know that sex education addresses the functions of sex, a marked contrast with the strong understanding of human body function observed among respondents in the present study. That study, like ours, found no significant influence of religion on knowledge or attitude.¹⁵ A cross-sectional study of 378 students in urban southwestern Nigeria similarly found good knowledge of sex education among the majority of respondents (82.1%),¹⁶ a proportion lower than in the present study, plausibly because the present study's sampling frame also included private schools, which may have additional health-education resources. A further study from Benin City found a high overall level of sex-education knowledge among in-school adolescents, unaffected by gender or school type but significantly influenced by class level,¹⁷ broadly consistent with the present findings. Internationally, a study from São Paulo, Brazil, similarly found limited adolescent knowledge of HPV and cervical cancer, with male adolescents knowing less than female adolescents,¹⁸ a pattern that resonates with the low HPV-specific knowledge observed here and suggests that HPV-related knowledge gaps may be a near-universal feature of adolescent sexual-health literacy, warranting more deliberate curricular emphasis regardless of setting.

Taken together, these findings suggest that general sexual-health knowledge among adolescents in Jos North and Jos South is good and appears to be improving relative to some earlier Nigerian studies, but that specific, clinically actionable knowledge, particularly around STI diversity and HPV vaccination, lags behind. Given that cervical cancer remains a leading cause of cancer death among Nigerian women and that HPV vaccination is now included in Nigeria's routine immunisation schedule, this specific gap has direct public health significance

and should be prioritised in future school health interventions in this region.

Attitude toward Comprehensive Sexuality Education

The large majority of respondents held positive attitudes toward CSE across nearly all statements assessed, including strong endorsement of parents and teachers as appropriate CSE educators (92.4% agreement) and strong rejection of premarital sexual activity (87.4% disagreement that it is acceptable). These findings are consistent with a study conducted in Surulere LGA, Lagos, where 82.1% of respondents held a positive attitude toward sex education,¹⁹ and with a study from Tudun Wada, Abuja, which found a somewhat lower but still majority-positive attitude (65%).¹⁹ The comparatively higher positive-attitude proportion in the present study may reflect the wider availability of social media and continued advocacy efforts on adolescent sexual health in the years since those earlier studies were conducted.

One area of more divided response concerned comfort discussing sexual health directly: 40.7% of respondents agreed that they felt uncomfortable asking questions about their body or sexual health, while 29.4% disagreed and 30.0% were neutral. This near-even split suggests that positive general attitudes toward CSE as a subject do not automatically translate into comfort with personal disclosure or help-seeking. An important distinction for programme design is that a curriculum can be well-received in principle while individual adolescents remain reluctant to ask questions in practice. This is consistent with the finding, discussed below, that 15.4% of respondents reported having no one to talk to about new sexual-health questions at all, and it reinforces the recommendation that safe, low-stigma spaces for individual question-asking are needed alongside classroom-based CSE content.

Despite Nigeria's formal endorsement of international guidance on sexuality education, implementation continues to lag behind in terms of funding priority and consistent delivery—a gap that

stands somewhat at odds with the strongly favourable attitudes documented among adolescents themselves in this and comparable studies. The demand-side receptivity for CSE appears well established, even where supply-side implementation remains inconsistent.

Sources of Information on CSE

Home (47.8%) and school (42.8%) were the dominant sources of existing CSE knowledge in this study, together accounting for over 90% of respondents' existing knowledge base. This finding diverges notably from a study conducted in Osioma Ngwa LGA, Abia State, where the internet and friends were the primary sources of sexuality information and families and schools played little role,²⁰ a difference plausibly attributable to socio-cultural differences between northern and south-eastern Nigeria, including differing patterns of adolescent internet access and differing norms around parent–child discussion of sexuality.

The strong reliance on parents as the preferred source for new questions (60.9%) far outweighing teachers (8.5%) or the internet (5.7%) combined, with the significant association found between living arrangement and both knowledge and attitude outcomes, together points to the family unit as the single most influential structure shaping adolescent sexual-health literacy in this population. This has a direct, actionable implication: interventions that strengthen parental knowledge, comfort, and communication skills around CSE are likely to have outsized impact in this setting compared with school- or media-based interventions alone, and should be prioritized accordingly, without displacing the complementary role that schools and teachers play for the substantial minority of adolescents who report no parental source at all.

The finding that 15.4% of respondents had no one to consult with new sexual-health questions, and that a further 9.3% lacked any internet access, together identify a specific, sizeable subgroup of adolescents who are effectively without any reliable channel for sexual-health information—a group that warrants targeted outreach, for example through school-based

peer education or confidential helpline services, rather than being assumed to be adequately served by the generally positive aggregate findings of this study.

5. CONCLUSION AND RECOMMENDATIONS

Conclusion

In line with the stated aims and objectives of this study, respondents demonstrated good overall knowledge (99.0%) and good overall attitude (98.5%) toward comprehensive sexuality education, with home and school identified as the dominant sources of existing knowledge and parents as the dominant source consulted for new questions. Notable gaps remain in specific STI knowledge and HPV vaccine awareness/uptake, and a meaningful minority of adolescents (15.4%) reported having no one to consult on sexual-health questions at all. Living arrangements were significantly associated with both knowledge and attitude outcomes, underscoring the centrality of the family unit to adolescent sexual-health literacy in this population.

Recommendations

Adolescents: Students should be encouraged and supported to feel comfortable asking questions of their teachers and parents about reproductive health, personal hygiene, and relationships, and to participate actively in school-based health awareness programs.

Parents and Religious Leaders: Parents should be supported and equipped to teach sexuality education at home and to create a safe, non-judgemental space for adolescents to ask questions about reproductive health, given the demonstrated centrality of the family unit to adolescent CSE outcomes in this study.

Teachers: Teachers should participate in CSE-focused training and awareness programmes to strengthen their capacity to deliver accurate, age-appropriate information on sex and reproductive health.

Community Structures: Community leaders and organizations should provide additional safe spaces

for adolescent discussion of sexual health and should participate in and support local health awareness programming.

Health Workers: Health workers should participate in CSE awareness programmes and provide training for teachers on delivering sensitive sexual-health information in a non-judgemental, informative manner, given the demonstrated role of comprehensive sexuality education in reducing teenage pregnancy and STI prevalence.

Local Government: Local government authorities should support implementation of an age-appropriate curriculum covering consent, relationships, reproductive health, and reproductive rights, and should organize adolescent-focused sexual and reproductive health awareness programmes.

State Government: State government should coordinate local-government-level sexual and reproductive health awareness campaigns and allocate dedicated funding toward sexual health education within the education and health sectors.

Federal Government: Federal government should provide sufficient, sustained funding to the education and health sectors to enable comprehensive, nationally coordinated adolescent health awareness programming, closing the gap between adolescents' demonstrated receptivity to CSE and the current inconsistency of its implementation.

DECLARATIONS

Ethical Considerations

Ethical clearance was obtained from the Bingham University Teaching Hospital Ethics Committee, the Plateau State Ministry of Education, and the State Universal Basic Education Board. Written informed consent (and assent from minors, alongside appropriate parental/guardian or school consent) was obtained from all respondents; identifying information was collected only on a separate consent form and was not linked to survey responses.

Conflict of Interest

The authors declare no conflict of interest.

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Author Contributions

All authors fully participated in every phase of this study, from conception to the final development of the manuscript.

Data Availability

The datasets analyzed during the current study are available from the corresponding author on reasonable request.

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