

ORIGINAL RESEARCH ARTICLE

Students' satisfaction and knowledge gaps in sexuality education in Ibadan, Nigeria

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Abstract

Despite commitments, challenges persist in ensuring that sexuality education meets the needs of students. This study investigates secondary school students' satisfaction levels regarding sexuality education in Nigeria. A quantitative approach was employed, utilizing a stratified random sampling technique to recruit 1,136 participants from both public and private secondary schools. Participants completed a semi-structured questionnaire. Logistic regression was employed. The findings reveal that topics such as puberty, reproductive health, consent, and sexual diversity are desired by students. Significant associations were observed between satisfaction levels and socio-demographic factors. Notably, female students exhibited lower odds of satisfaction compared to males (OR = 0.673, 95% CI: 0.495-0.913), and older students aged 15 years and above had lower odds of satisfaction compared to younger students under 15 years (OR = 0.346, 95% CI: 0.100-1.812). This study recommends the development and implementation of comprehensive, evidence-based sexuality education curricula in secondary schools, prioritizing inclusivity, cultural sensitivity, and age-appropriateness while addressing topics such as puberty, reproductive health, consent, and sexual diversity (*Afr J Reprod Health* 2025; 29 [8]: 142-15)

Keywords: Sexuality education; Satisfaction levels; Secondary school students; Curriculum preferences

Résumé

Malgré les engagements pris, des difficultés persistent pour garantir que l'éducation sexuelle réponde aux besoins des élèves. Cette étude examine le niveau de satisfaction des élèves du secondaire à l'égard de l'éducation sexuelle au Nigéria. Une approche quantitative a été utilisée, utilisant une technique d'échantillonnage aléatoire stratifié pour recruter 1 136 participants issus d'établissements secondaires publics et privés. Les participants ont rempli un questionnaire semi-structuré. Une régression logistique a été utilisée. Les résultats révèlent que des sujets tels que la puberté, la santé reproductive, le consentement et la diversité sexuelle sont souhaités par les élèves. Des associations significatives ont été observées entre les niveaux de satisfaction et les facteurs sociodémographiques. Notamment, les élèves de sexe féminin présentaient une probabilité de satisfaction inférieure à celle des élèves de sexe masculin (OR = 0,673, IC à 95 % : 0,495-0,913), et les élèves de 15 ans et plus présentaient une probabilité de satisfaction inférieure à celle des élèves de moins de 15 ans (OR = 0,346, IC à 95 % : 0,100-1,812). Cette étude recommande l'élaboration et la mise en œuvre de programmes d'éducation sexuelle complets et fondés sur des données probantes dans les écoles secondaires, privilégiant l'inclusion, la sensibilité culturelle et l'adéquation à l'âge des élèves, tout en abordant des sujets tels que la puberté, la santé reproductive, le consentement et la diversité sexuelle. (*Afr J Reprod Health* 2025; 29 [8]: 142-153).

Mots-clés: Éducation sexuelle, Niveaux de satisfaction, Éléves du secondaire, Préférences pédagogiques

Introduction

Sexuality education is universally recognized as a crucial component of public health initiatives and a fundamental human right, essential for empowering adolescents to make informed decisions about their sexual and reproductive health^{1,2}. Globally, numerous policies and programs advocate for the provision of comprehensive sexuality education (CSE) that goes beyond traditional abstinence-

focused approaches to address a broader spectrum of topics, including contraception, abortion, sexual diversity, and consent³⁻⁵. This is because sexuality education plays a crucial role in the lives of adolescents, offering them vital knowledge and skills to navigate their sexual development, relationships, and overall well-being^{6,7}. It equips adolescents with accurate information about their bodies^{8,9}, sexual behaviors^{10,11}, communication skills¹⁰, critical thinking^{12,13}, and self-esteem¹⁴ as

they navigate their journey towards adulthood^{15,16}. In the African region, initiatives such as the African Union's Continental Policy Framework for Sexual and Reproductive Health and Rights (SRHR) emphasize the importance of comprehensive sexuality education in achieving broader developmental goals and addressing the unique challenges faced by adolescents¹⁷. In Nigeria, adolescents constitute a significant portion of the population, with approximately 22% aged between 10 and 19 years¹⁸. This demographic is particularly vulnerable to sexual and reproductive health challenges. For instance, the adolescent birth rate stands at 122 births per 1,000 girls aged 15-19, and 6.1% of girls in this age group have either given birth or are pregnant with their first child¹⁹. Moreover, the median age of sexual debut is 17.2 years for females and 21.7 years for males, indicating that many adolescents engage in sexual activity during their teenage years²⁰. Despite these realities, only 50% of unmarried sexually active women utilize modern contraceptive methods, predominantly condoms, highlighting a significant gap in contraceptive use among adolescents²¹.

Recognizing these challenges, Nigeria has implemented initiatives such as the National Family Life and HIV Education (FLHE) curriculum, developed by the Federal Ministry of Education, to integrate sexuality education into the school system^{22,23}. However, the implementation of this curriculum has been inconsistent^{24,25}, and its content often emphasizes abstinence as the primary prevention strategy for HIV/AIDS and unintended pregnancies²⁶. Studies have highlighted its limited scope, with significant gaps in addressing key topics such as contraception, abortion, masturbation, and sexual diversity, which are pertinent to adolescents' lived experiences and informational needs^{22,27}.

In light of these considerations, this study seeks to bridge the gap in knowledge, by evaluating the level of satisfaction among secondary school students regarding the teaching of sexuality education in Nigeria. By examining the extent to which the existing curriculum aligns with students' expectations and informational needs, this research aims to inform policy and programmatic efforts to enhance the comprehensiveness, inclusivity, and

relevance of sexuality education in Nigerian secondary schools^{28,29}.

Methods

Study design and setting

This study employed a cross-sectional research design to assess the satisfaction levels of secondary school students regarding the teaching of sexuality education in Nigeria. The study setting was Ibadan, the capital city of Oyo State, Nigeria, and the state has an estimated population of 7,512,855 people³⁰. Ibadan is one of the largest and most populous cities in Nigeria, with a diverse population representing various ethnic, cultural, and socio-economic backgrounds. As a major educational hub in the country, Ibadan is home to numerous secondary schools, both public and private, catering to the educational needs of adolescents from different parts of the city and its surrounding areas. The city's educational landscape reflects a mix of urban and peri-urban/rural settings, providing an ideal setting for examining the satisfaction levels of secondary school students regarding the teaching of sexuality education. Ibadan's rich cultural heritage and vibrant community life offer a unique context for exploring students' perceptions, preferences, and knowledge gaps in sexuality education within the Nigerian socio-cultural context. By focusing on Ibadan as the study setting, this research aims to generate insights that are relevant and applicable to similar urban centers across Nigeria, contributing to the broader discourse on sexuality education curriculum reform and improvement efforts in the country. Strengthening the Reporting of Observational Studies in Epidemiology' (STROBE) statement guided the writing of this manuscript³¹.

Sampling strategy and participant selection

The study utilized a stratified random sampling technique to ensure representation from diverse geographic regions and educational settings across Ibadan, Nigeria. Stratification was based on administrative divisions within Ibadan, including urban and rural areas. Within each stratum, secondary schools were selected randomly from a

comprehensive list obtained from the database list of schools in Oyo State. The number of schools selected from each stratum was proportional to the population size of secondary schools in that area. This approach ensured that the sample was representative of the entire population of secondary school students in Ibadan. Participants consisted of secondary school students aged 13 to 19 years, enrolled in selected public and private secondary schools across Ibadan. Within each selected school, students from various classes were included to capture a wide range of perspectives. Participation was voluntary, and informed consent was obtained from both the school authorities and the students' parents or guardians. To obtain consent for the interview, formal permission was first sought from school authorities through a letter outlining the study's objectives, procedures, and ethical considerations. Upon approval from the school, consent forms were sent home to parents or guardians of students, explaining the study and requesting their consent for participation. Students were informed of the voluntary nature of the study and provided their assent to participate. Both parental consent and student assent were required before proceeding with the interview, ensuring that all ethical standards were met. To maintain confidentiality and anonymity, unique identification codes were assigned to each participant, and personal identifying information was kept separate from the survey responses.

Survey instrument and data collection

A semi-structured questionnaire was developed based on the objectives of the study and previous literature on sexuality education. The questionnaire included open and closed-ended questions to assess students' satisfaction levels, perceptions of the curriculum content, preferences for additional topics, and knowledge about sexual and reproductive health. The questionnaire was pilot-tested with a small group of 30 students to ensure clarity and comprehensibility. The questions were designed to align with the United Nations Educational, Scientific and Cultural Organization (UNESCO)'s technical guidance on sexuality education¹. Data collection was conducted through

in-person administration of a paper-based questionnaire in selected secondary schools. Trained researchers facilitated the survey process, ensuring confidentiality and anonymity of participants. Data collection was conducted during school hours to maximize participation rates. Data collection lasted between September and December 2023.

Data management and quality assurance

Data management and quality assurance in this study were carried out through a series of systematic procedures to ensure accuracy, consistency, and integrity of the data collected. First, all data were collected using a structured and pre-tested questionnaire, ensuring clarity and reliability of the survey items. Trained research assistants administered the questionnaires, with supervision to maintain uniformity in the data collection process. After data collection, responses were checked for completeness and consistency. Any discrepancies or missing data were addressed immediately by revisiting the participants, if necessary. The data were entered into a secure database using software such as SPSS, with a two-step data entry process to reduce errors. A subset of data was randomly selected for verification to ensure high data quality. Data cleaning procedures, including outlier detection and consistency checks, were performed before analysis to ensure that only valid and reliable data were included. Furthermore, strict confidentiality measures were adhered to during all stages of data handling, with access restricted to authorized personnel only. These steps were designed to ensure that the study's findings are robust, credible, and reproducible.

Inclusion and exclusion criteria

The inclusion criteria for this study were secondary school students aged 13 to 19 years, currently enrolled in public or private secondary schools in Ibadan, Nigeria, who provided informed consent (or parental consent for those under 18) and were willing to voluntarily participate. Students who did not meet these criteria, including those outside the designated age range, not enrolled in secondary school, or unable to comprehend or complete the

survey due to cognitive or language barriers, were excluded. This approach ensured that the sample accurately represented the target population of secondary school students and adhered to ethical standards in participant selection.

Study variables

Outcome variable: Satisfaction with sexuality education was the outcome variable. This variable measured the level of satisfaction among secondary school students regarding the teaching of sexuality education in their school. Participants rated their satisfaction on a Likert scale, ranging from "Very satisfied" to "Very dissatisfied." To create a binary outcome variable for logistic regression, satisfaction with sexuality education categories were recoded to obtain not satisfied = 0, satisfied = 1.

Explanatory variables: Demographics and curriculum contents made up the explanatory variables. Demographic variables include the age of the participant in years, gender identity of the participant (male, female), class level of the participant in secondary school (junior or senior), type of school attended by the participant (public or private), household wealth index of the participant (poorest, poorer, middle, richer, richest), and residence (rural, urban). Curriculum content variables were developed by participants indicating which topics they find most useful in the sexuality education curriculum, including abstinence, HIV/AIDS prevention, puberty, menstruation, body image, self-esteem, rape, incest, and sexual harassment. Additionally, participants listed any topics they wish were included in the sexuality education curriculum but aren't including contraception, abortion, masturbation, sexual diversity, and consent.

Data analysis

Quantitative data collected from the survey were analyzed using SPSS statistical software. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed to summarize participants' responses. Inferential statistical tests, such as chi-square tests

and regression were employed to examine associations between demographic variables and satisfaction levels in sexuality education. Only variables that demonstrated significance in the chi-square test proceeded to the final stage. The Variance Inflation Factor (VIF) was employed for collinearity diagnostics, assessing multicollinearity among predictor variables. As per the diagnostic test results, none of the explanatory variables exhibited collinearity, with the minimum VIF recorded at 1.071 and the maximum at 1.464. All missing and don't know responses were excluded from the analysis. The statistical level of significance was set at p-value less than 0.05.

Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki. It adhered to the ethical principles, including voluntary participation, informed consent, confidentiality, and anonymity of participants. Measures were taken to ensure the well-being and comfort of participants throughout the research process. Ethical approval was obtained from the Oyo State Ministry of Health Ethics Committee (AD/22/674/893). Informed consent was obtained from the students, the school authorities and the students' parents or guardians.

Results

Table 1 presents an overview of the socio-demographic characteristics of the study sample comprising 1,131 secondary school students in Nigeria, and their corresponding satisfaction levels with sexuality education. Across various demographic factors, significant associations with satisfaction levels were observed. Females exhibited notably higher satisfaction rates (75.0%) compared to males (56.7%), indicating potential gender-based differences in perceptions of sexuality education. Additionally, older participants, aged 15 years and above, reported lower satisfaction (25.7%) compared to younger counterparts, suggesting a developmental aspect to satisfaction levels. Moreover, senior secondary students demonstrated lower satisfaction (26.6%) than junior secondary students (33.5%), implying potential differences in educational needs and perceptions between these academic stages.

Table 1: Socio-demographic characteristics and satisfaction with sexuality education

Variables	Sample (N = 1,131)		Satisfaction with sexuality education		X ²	p-values
	n	%	Not Satisfied (%)	Satisfied (%)		
Gender					11.682	<0.001
Male	563	49.8	56.7	34.4		
Female	568	50.2	75.0	25.0		
Age					6.811	0.009
Under 15	513	45.4	67.2	32.8		
15+	618	54.6	74.3	25.7		
Class of study					6.408	0.011
Junior Secondary	492	43.5	66.5	33.5		
Senior Secondary	639	56.5	73.4	26.6		
Type of school					0.279	0.597
Public	564	49.9	71.1	28.9		
Private	567	50.1	69.7	30.3		
Household wealth index					228.376	<0.001
Poorest	294	26.0	79.6	20.4		
Poorer	314	27.8	79.9	20.1		
Middle	216	19.1	88.0	12.0		
Richer	181	16.0	27.6	72.4		
Richest	126	11.1	56.3	43.7		
Residence					4.851	0.028
Rural	577	51.0	73.3	26.7		
Urban	554	49.0	67.3	32.7		

Note: n – number; X² – Chi-square value; Significant at p < .05

Interestingly, while household wealth index showed a strong association with satisfaction, with wealthier participants reporting higher satisfaction levels, the type of school attended (public or private) did not significantly influence satisfaction rates. Furthermore, participants from rural areas exhibited slightly higher satisfaction rates (26.7%) compared to urban residents (32.7%), indicating potential differences in educational experiences based on geographical location.

Figure 1 illustrates the topics deemed most useful in sexuality education curriculum by student respondents, with varying percentages reflecting their preferences. Notably, puberty emerged as the most favored topic, cited by 22.7% of respondents, indicating a significant interest in understanding physiological changes and developmental milestones associated with adolescence. Menstruation followed closely behind, garnering 17.9% of responses, highlighting the importance of addressing reproductive health issues specific to

females. Additionally, rape, incest, and sexual harassment garnered considerable attention, with 18.8% of respondents valuing education on these critical topics, emphasizing the significance of addressing issues related to consent, boundaries, and sexual violence prevention within sexuality education curricula. Abstinence and HIV/AIDS prevention, while essential components, were cited by 13.9% and 14.9% of respondents, respectively, suggesting a broader interest among students in understanding a diverse range of sexual health topics beyond traditional preventative measures. Lastly, body image and self-esteem received recognition from 11.8% of respondents, underscoring the importance of addressing socio-emotional aspects of sexuality education to promote holistic well-being among adolescents.

Figure 2 depicts the additional topics desired by participants to be included in the sexuality education curriculum but currently omitted, with varying percentages reflecting their preferences.

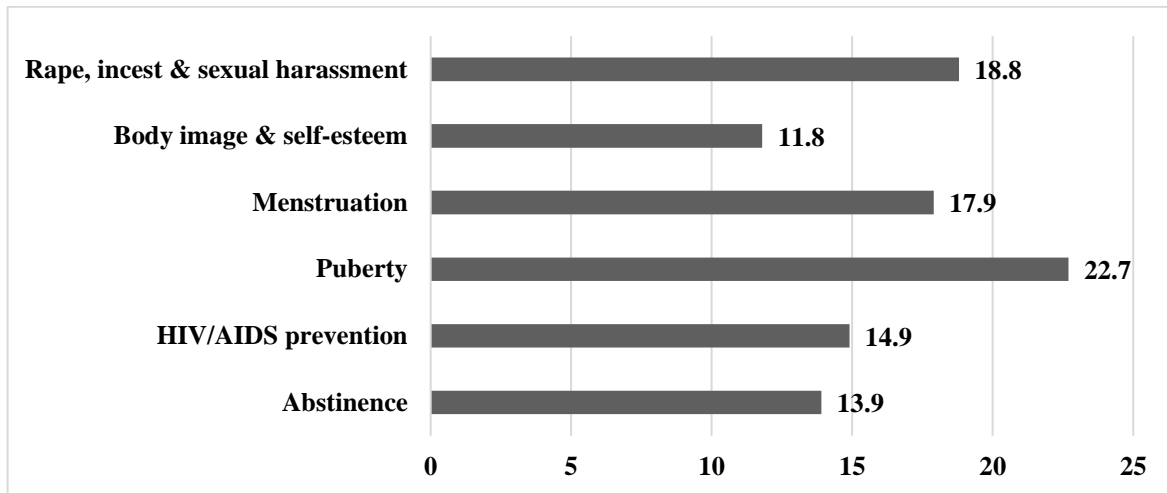


Figure 1: Topics found most useful in sexuality education curriculum by student respondents

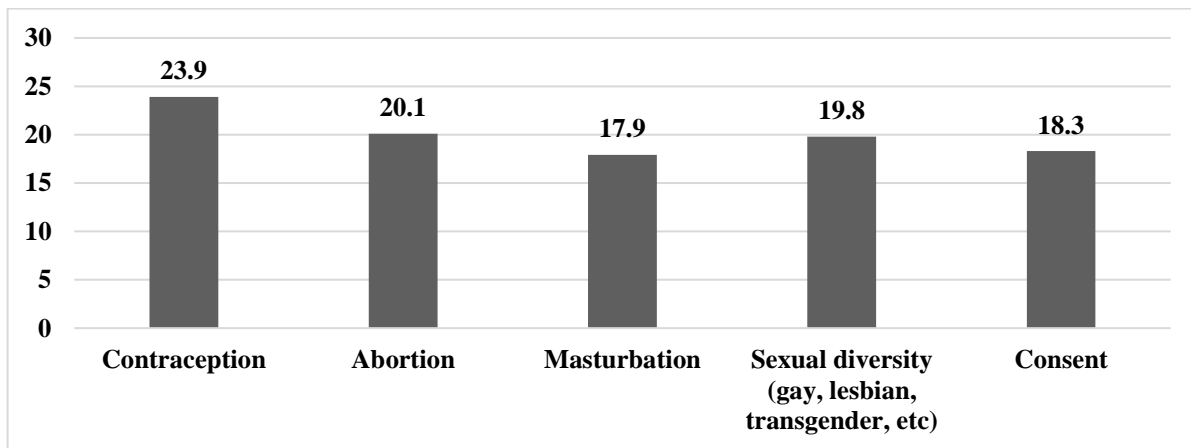


Figure 2: Additional topics desired by participants and wish were included in the sexuality education curriculum but are not.

Notably, contraception emerged as the most sought-after topic, cited by 23.9% of participants, indicating a strong desire for comprehensive education on contraceptive methods and family planning. Following closely behind, abortion garnered interest from 20.1% of participants, highlighting the perceived importance of understanding reproductive rights and harmful effects of induced abortion. Masturbation and sexual diversity, encompassing aspects of sexual orientation and gender identity, were desired by 17.9% and 19.8% of participants, respectively, underscoring the need for inclusive education that addresses diverse sexual experiences and identities. Consent, crucial for understanding boundaries and

respectful relationships, was desired by 18.3% of participants, reflecting a growing recognition of the importance of affirmative consent in sexual encounters.

Table 2 presents the results of logistic regression analysis examining the association between socio-demographic variables and student satisfaction with sexuality education in Nigeria. The findings reveal several significant predictors of satisfaction levels among secondary school students. Firstly, gender demonstrates a significant association, with female students exhibiting lower odds of satisfaction compared to males (OR = 0.673, p = 0.011), indicating that male students are more likely to report satisfaction with sexuality education.

Table 2: Logistic regression coefficients of student satisfaction with sexuality education by socio-demographic variables in Nigeria

Variables	S.E.	Wald	p-value	Odds ratio	95% CI	
					Lower	Upper
Gender						
Male (RC)				1.000		
Female	0.156	6.455	0.011	0.673**	0.495	0.913
Age						
Under 15 (RC)				1.000		
15+	0.152	3.844	0.050	0.346	0.100	1.812
Class of study						
Junior Secondary (RC)				1.000		
Senior Secondary	0.155	1.128	0.028	0.848*	0.625	1.150
Household wealth index						
Poorest (RC)				1.000		
Poorer	0.205	0.036	0.849	0.962	0.644	1.437
Middle	0.257	6.047	0.014	0.532**	0.321	0.880
Richer	0.223	11.014	0.001	1.535***	0.798	2.325
Richest	0.251	24.547	0.001	3.463***	2.118	5.660
Residence						
Rural (RC)				1.000		
Urban	0.166	1.149	0.028	0.837*	0.605	1.159
Overall model evaluation						
Omnibus tests: 234.552***						
Nagelkerke R square: 0.266						
-2 log likelihood: 1139.859						
Hosmer and Lemeshow Test: 0.391						

Significance at *p < 0.05; **p < 0.01; ***p < 0.001; RC - reference category; CI - confidence interval

Additionally, age is a significant predictor, with older students aged 15 years and above having lower odds of satisfaction compared to younger students under 15 years (OR = 0.346, p = 0.050), suggesting a developmental aspect to satisfaction levels. Furthermore, class of study demonstrates significance, with senior secondary students having lower odds of satisfaction compared to junior secondary students (OR = 0.848, p = 0.028), highlighting potential differences in educational experiences and perceptions between these academic stages. Household wealth index also emerges as a significant predictor, with wealthier students from middle, richer, and richest households exhibiting higher odds of satisfaction compared to those from the poorest households, indicating socio-economic disparities in satisfaction levels. Moreover, urban residence is associated with lower odds of satisfaction

compared to rural residence (OR = 0.837, p = 0.028), suggesting potential differences in access to and quality of sexuality education based on geographical location. Overall, the logistic regression model demonstrates good fit, with significant predictors collectively explaining a substantial proportion of the variance in student satisfaction levels (Nagelkerke R square = 0.266)

Discussion

The findings of the current study resonate with existing empirical research on the topics considered most useful in sexuality education curriculum by students. Puberty emerged as a favored topic in the current study, aligning with previous research in India¹⁶ and the United States³³, highlighting adolescents' interest in understanding physiological changes during adolescence. Similarly, the emphasis on menstruation and reproductive health

issues specific to females echoes findings from studies in Cyprus³⁴, Tanzania³⁵ and England³⁶, emphasizing the importance of addressing menstrual hygiene and reproductive rights in sexuality education curricula. Moreover, the recognition of rape, incest, and sexual harassment as critical topics reflects a growing consensus in the literature on the necessity of addressing issues related to consent and sexual violence prevention within sexuality education^{3,5,22}. The inclusion of abstinence and HIV/AIDS prevention as essential components aligns with traditional approaches to sexuality education, yet the broader interest among students in understanding a diverse range of sexual health topics beyond preventative measures echoes calls for comprehensive and inclusive curricula^{7,29}. Furthermore, the recognition of body image and self-esteem underscores the importance of addressing socio-emotional aspects of sexuality education, consistent with research advocating for holistic approaches to adolescent sexual health^{14,15}.

In terms of additional topics desired by participants, the current study findings corroborate previous research in sub-Saharan Africa emphasizing the importance of comprehensive education on contraception and family planning, particularly among adolescents³⁷. The desire for education on abortion reflects ongoing debates surrounding reproductive rights and access to safe abortion services^{8,38}. Similarly, the interest in addressing masturbation and sexual diversity aligns with calls for inclusive sexuality education that acknowledges diverse sexual experiences and identities^{39,40}. The recognition of consent as a crucial topic underscores growing awareness of the importance of affirmative consent in sexual encounters, reflecting evolving societal attitudes towards sexual ethics and behavior^{10,41}.

The significant predictors of satisfaction levels among secondary school students identified in the current study align with previous research findings on socio-demographic determinants of satisfaction with sexuality education. The association between gender and satisfaction levels is consistent with studies highlighting gender-based differences in perceptions of sexuality education⁶. Similarly, the significance of age and class of study suggests developmental and educational

differences in satisfaction levels, reflecting diverse informational needs and experiences across adolescence⁴². The influence of household wealth index underscores socio-economic disparities in access to and quality of sexuality education, echoing concerns regarding equity and inclusivity in sexual health education^{43,44}. Moreover, the association between urban residence and lower satisfaction levels may reflect challenges in delivering comprehensive sexuality education in urban settings, highlighting the importance of tailored approaches to address diverse contextual factors⁴⁵. The current study contributes to the growing body of literature on sexuality education by providing insights into students' preferences, knowledge gaps, and satisfaction levels, while highlighting the importance of comprehensive, inclusive, and contextually relevant curricula to promote adolescent sexual health and well-being¹.

Limitations

The study faced limitations such as potential bias due to self-reporting, limited generalizability beyond the sampled population, and challenges in assessing the causal relationship between curriculum satisfaction and demographic factors. However, efforts were made to mitigate these limitations through rigorous sampling procedures, transparent data collection methods, and appropriate statistical analyses.

Implications for policy

Based on the study findings, policy recommendations are made to enhance the effectiveness and inclusivity of sexuality education programs in secondary schools. Firstly, policymakers and educational authorities should prioritize the development and implementation of comprehensive sexuality education curricula that address a wide range of topics, including those identified as most useful and desired by students. This may involve revising existing curricula to incorporate evidence-based content on puberty, reproductive health, consent, sexual diversity, and other relevant topics. Additionally, efforts should be made to ensure that sexuality education programs are delivered in a culturally sensitive and age-appropriate manner, taking into account the

diverse socio-demographic backgrounds and educational needs of students in different settings. Furthermore, capacity-building initiatives for teachers and school administrators should be implemented to equip them with the knowledge, skills, and resources needed to deliver effective sexuality education programs. Finally, partnerships between schools, parents, communities, and relevant stakeholders should be strengthened to create supportive environments that promote open communication, positive attitudes towards sexuality, and healthy sexual behaviors among adolescents. By implementing these recommendations, Nigeria can take significant strides towards improving the quality and impact of sexuality education in secondary schools, ultimately contributing to the sexual health and well-being of its youth population.

Conclusion

This study provides valuable insights into secondary school students' perceptions, preferences, and satisfaction levels regarding sexuality education in Nigeria. The findings highlight the significance of addressing a diverse range of topics within sexuality education curricula, including puberty, reproductive health, consent, and sexual diversity, to meet the informational needs of adolescents comprehensively. Furthermore, the study identifies socio-demographic factors such as gender, age, class of study, household wealth index, and residence as significant predictors of satisfaction levels, emphasizing the importance of tailoring sexuality education programs to address diverse contexts and individual needs. The findings underscore the need for comprehensive, inclusive, and contextually relevant sexuality education curricula that promote holistic sexual health and well-being among adolescents in Nigeria.

Overall, this study makes a significant contribution to the field of sexuality education by providing empirical evidence on secondary school students' perceptions, preferences, and satisfaction with the current sexuality education curriculum in Ibadan, Nigeria. The findings have important implications for both future research and the field of sexuality education. From a research perspective,

it underscores the need for further exploration into the socio-demographic factors that influence adolescents' engagement with and satisfaction in sexuality education programs, particularly within diverse Nigerian contexts. The study highlights gaps in the existing curriculum, suggesting areas for future investigation into the effectiveness of comprehensive and inclusive sexuality education in addressing the diverse needs of adolescents. In the field of sexuality education, the study calls for a reevaluation of current curricula to ensure they reflect students' desires for broader coverage of topics such as contraception, sexual diversity, and consent. This research can inform policy changes and guide educators in developing more relevant, culturally sensitive, and age-appropriate educational content, ultimately leading to more effective sexual health education that empowers adolescents with the knowledge and skills to make informed decisions.

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Data availability

The data used to support the findings of this study are available from the corresponding author upon reasonable request.

Competing interests

The author declares no conflict of interest.

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Author Contributions

Conceptualization, C.H.N.; methodology, C.H.N.; validation, C.H.N.; formal analysis, C.H.N.; investigation, C.H.N.; resources, C.H.N.; writing—original draft preparation, C.H.N.; writing—review and editing, C.H.N.

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