

Knowledge and Practice of Safe Sex Strategies among Senior Secondary School Students in Benin City, Nigeria: A Cross-Sectional Study

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Abstract

Background: Adolescence is an important period of physical, emotional and sexual development during which young people may become vulnerable to sexually transmitted infections and unintended pregnancy. Adequate knowledge of safe sex strategies is important; however, knowledge may not necessarily translate into appropriate sexual health practices. **Objective:** To assess the knowledge and practice of safe sex strategies and identify factors influencing sexual health practices among senior secondary school students at University of Benin Demonstration Secondary School, Benin City, Nigeria. **Methods:** This was a cross-sectional study involving 243 senior secondary school students. A stratified random sampling technique was used to select participants from SS1 to SS3. Data were collected using a structured, self-administered questionnaire assessing sociodemographic characteristics, knowledge of safe sex strategies, sexual practices and factors influencing safe sex practices. The instrument underwent face and content validation and had a Cronbach's alpha coefficient of 0.75 following pilot testing. Data were analysed using SPSS version 26 and summarised using descriptive statistics. **Results:** Of the 243 respondents, 139 (57.2%) were female and 126 (51.9%) were aged 14–16 years. Overall, 201 (82.9%) respondents had good knowledge of safe sex strategies, while 124 (51.0%) had good safe sex practices. One hundred and sixty (65.8%) had attended a class on safe sex education, while 159 (65.4%) had previously heard the term “safe sex.” Sixty-nine (28.4%) respondents reported having had sexual intercourse, 149 (61.3%) reported practising abstinence, and only 60 (24.7%) had ever undergone testing for a sexually transmitted infection. Only 112 (46.1%) had discussed sexual health with a parent, teacher or health professional. **Conclusion:** Knowledge of safe sex strategies was high among the students, but this was not matched by a similarly high level of safe sex practice. Strengthening comprehensive school-based sexuality education, improving parent-adolescent communication and increasing access to confidential youth-friendly sexual and reproductive health services may help bridge the gap between knowledge and practice. **Keywords:** Adolescents; safe sex; sexual behaviour; sexually transmitted infections; contraception; secondary school students; Nigeria.

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INTRODUCTION

Adolescence is a critical period of transition characterised by substantial physical, psychological, emotional and social development. It is also a period during which interest in relationships and sexuality increases. Without appropriate knowledge, communication and access to reproductive health information and services, adolescents may be exposed to unsafe sexual practices, sexually transmitted infections (STIs), unintended pregnancy and their associated consequences. [1-3]

Safe sex refers broadly to sexual behaviours and practices intended to reduce the risk of acquiring or

transmitting STIs and prevent unintended pregnancy. These strategies include sexual abstinence or delayed sexual debut, correct and consistent condom use, limiting exposure to multiple sexual partners, mutual monogamy and appropriate utilisation of sexual and reproductive health services. [4-6]

Previous studies among adolescents have demonstrated important gaps between awareness of sexual and reproductive health risks and adoption of appropriate preventive behaviours. Adolescents may have heard about HIV, STIs and contraception without possessing sufficient practical knowledge to make appropriate decisions. Peer pressure, cultural and

religious beliefs, poor communication with parents and teachers, inadequate sexuality education and reliance on informal sources of information may also influence sexual behaviour. [1-3,7]

In Nigeria, adolescent sexual and reproductive health remains an important public health issue. Although schools provide an important setting for sexual and reproductive health education, social discomfort surrounding discussions of sexuality may limit both the content and effectiveness of such education. Adolescents also increasingly obtain sexual health information from peers, social media, television and other sources whose accuracy may vary. [1,2,3,6]

Understanding both what adolescents know and what they actually practise is important when designing effective sexual and reproductive health interventions. School-based interventions have been shown to improve HIV/AIDS knowledge and some preventive behaviours among Nigerian secondary-school students, supporting the importance of assessing both knowledge and practice when planning adolescent sexual-health programmes. [6]

METHODS

Study Design and Setting

This was a cross-sectional study conducted among senior secondary school students at University of Benin Demonstration Secondary School, Benin City, Edo State, Nigeria. The school had a total senior secondary school population of 620 students at the time of the study.

Study Population

The study population comprised students in Senior Secondary School classes 1 to 3 (SS1–SS3). Eligible participants were registered senior secondary school students who were available during data collection, were able to understand and independently complete the questionnaire, and provided consent to participate, with parental or guardian consent obtained where required. Junior secondary school students, non-consenting students, students absent during data collection, and incomplete or inconsistent questionnaires were excluded.

Sample Size and Sampling

The sample size was determined using Yamane's formula for a finite population, $n = N/[1 + N(e^2)]$, where N was 620 and the margin of error was 5%. This gave a sample size of approximately 243 students. A stratified random sampling technique was used. Students were stratified according to class level (SS1, SS2 and SS3), after which participants were selected from the strata using simple random sampling.

Study Instrument and Data Collection

Data were collected using a structured, self-administered questionnaire developed from the study objectives and relevant literature. It contained sections on sociodemographic characteristics, knowledge of safe sex strategies, practice of safe sex practices and factors influencing safe sex practices. The questionnaire underwent face and content validation by two experts in public health and adolescent reproductive health. It was pilot-tested among 20 students from another secondary school in Benin City who were not included in the main study, and Cronbach's alpha was 0.75. The researcher and two trained research assistants administered the questionnaire.

Data Analysis

Data were coded and analysed using Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies and percentages, were used to summarise the study variables. No inferential statistical analyses were reported in the source study.

Ethical Considerations

Ethical approval was obtained from the Research and Ethics Committee of the Faculty of Public Health, University of Benin. Permission was also obtained from the Principal of University of Benin Demonstration Secondary School. Participation was voluntary, confidentiality was maintained and participants could withdraw without penalty.

RESULTS

A total of 243 respondents were included in the analysis. Most respondents were aged 14–16 years (51.9%), 57.2% were female, and 39.1% were in SS3.

Characteristic	Frequency	Percentage (%)
Age in Years		
Age <14 years	16	6.6
Age 14–16 years	126	51.9
Age 17–20 years	101	41.6
Gender		
Male	104	42.8
Female	139	57.2
Class		
SS1	64	26.3
SS2	84	34.6
SS3	95	39.1

Characteristic	Frequency	Percentage (%)
Religion		
Christianity	175	72.0
Islam	13	5.3
Traditional religion	36	14.8
None	19	7.8

Overall, 201 (82.9%) respondents were classified as having good knowledge of safe sex strategies.

Knowledge variable	Frequency	Percentage (%)
Attended safe sex education class – Yes	160	65.8
Previously heard “safe sex” – Yes	159	65.4
Meaning: avoiding sex until marriage	70	28.8
Meaning: using condoms	118	48.6
Meaning: having one partner	9	3.7
Do not know meaning	46	18.9
Safe sex prevents disease/unwanted pregnancy – True	225	92.6
Sex without a condom is safe – No	196	80.7
Condoms can help prevent HIV and other STIs – Yes	186	76.5
Overall good knowledge	201	82.9
Overall poor knowledge	42	17.1

Sixty-nine (28.4%) respondents reported having had sexual intercourse. Regarding condom use during the last sexual encounter, 38 (15.6%) respondents reported using a condom, 44 (18.1%) reported not using a condom, while 161 (66.3%) reported that they had not had sex. One hundred and forty-nine (61.3%)

respondents reported practising abstinence, 60 (24.7%) had ever undergone STI testing, and 112 (46.1%) had discussed sexual health with a parent, teacher or health professional. Overall, 124 (51.0%) respondents had good safe sex practice, while 119 (49.0%) had poor practice.

Practice variable	Frequency	Percentage (%)
Ever been in a relationship – Yes	109	44.9
Ever asked for sex by boyfriend/girlfriend – Yes	89	36.6
Ever had sexual intercourse – Yes	69	28.4
Ever had sexual intercourse – No	174	71.6
Condom use during last sexual encounter – Yes	38	15.6
Condom use during last sexual encounter – No	44	18.1
Have not had sex	161	66.3
Practises abstinence – Yes	149	61.3
Ever undergone STI testing – Yes	60	24.7
Discusses sexual health with parent/teacher/health professional – Yes	112	46.1
Overall good safe sex practice	124	51.0
Overall poor safe sex practice	119	49.0

Religious beliefs and peer pressure were prominent reported influences on safe sex decisions. Most respondents believed safe sex should be included

in the school curriculum and expressed interest in learning more.

Influencing factor	Frequency	Percentage (%)
Peer pressure	62	25.5
Religious belief	65	26.7
Availability of contraceptives	44	18.1
Fear of unwanted pregnancy	49	20.2
Fear of STI	23	9.5
Safe sex should be included in school curriculum – Yes	214	88.1
Would like to learn more about safe sex – Yes	213	87.7

DISCUSSION

The principal finding of this study was the disparity between knowledge and practice. Although 82.9% of respondents were classified as having good knowledge of safe sex strategies, only 51.0% were classified as having good safe sex practice. This suggests that awareness alone may not be sufficient to ensure adoption of safer sexual behaviours. Similar gaps between sexuality education and behavioural outcomes have been reported among adolescents in sub-Saharan Africa, where school-based interventions generally improve knowledge and some condom-related outcomes but show less consistent effects on sexual risk behaviours and sexually transmitted infections. [2,3,8,9]

Approximately two-thirds of respondents had attended a safe sex education class and a similar proportion had previously heard the term safe sex. Furthermore, 92.6% recognised that safe sex could prevent disease and unintended pregnancy, while 76.5% recognised the protective role of condoms against HIV and other STIs. These findings indicate relatively high awareness of fundamental components of sexual health. A systematic review of school-based sexual-health interventions in sub-Saharan Africa found evidence that such programmes can improve condom use, while a later review of randomized trials also reported improvements in HIV-related knowledge, condom-use outcomes and attitudes toward HIV testing in several studies. [6,8,9]

Despite this knowledge, 28.4% of respondents reported having experienced sexual intercourse. This is comparable to recent Nigerian evidence showing that a substantial minority of secondary-school adolescents are sexually experienced. Ipinnimo *et al.*, reported that 22.1% of public secondary-school adolescents in Ekiti State had engaged in sexual intercourse, with a considerable proportion initiating sex before 15 years of age. These findings reinforce the need for sexuality education to begin before or during early adolescence rather than after sexual debut. [2,15]

Abstinence was reported by 61.3% of respondents, while only 24.7% had ever undergone STI testing. The relatively low uptake of STI testing highlights a potential gap in utilisation of preventive sexual-health services. Although the reasons for non-testing were not directly assessed in the present study, evidence from adolescent reproductive-health research indicates that knowledge and access to appropriate services are both important components of effective risk reduction. [2,5,9]

Fewer than half of respondents reported discussing sexual health with a parent, teacher or health professional. This finding is consistent with Nigerian studies demonstrating persistent limitations in parent-adolescent communication about sexuality and reproductive health. Mbachu *et al.*, found that fewer than half of adolescents in Ebonyi State had discussed sex-

related matters with anyone and only a small proportion had discussed them with a parent, while a recent Port Harcourt study identified parental discomfort, judgement, inadequate knowledge, lack of trust, and cultural and religious factors as barriers to communication. [1,10,11]

The importance of parent-adolescent communication is further supported by studies from other parts of Nigeria. Asekun-Olarinmoye *et al.*, reported that parental sex education in a rural southwestern Nigerian setting commonly focused on HIV prevention, pregnancy avoidance and abstinence, and that poorer attitudes toward parental communication were associated with premarital sex. Similarly, Akinwale *et al.*, observed that in-school adolescents in Lagos obtained substantial sexuality information from friends and mass media and communicated more with friends than with their parents. [13,14]

Religious beliefs and peer pressure were the most frequently reported factors influencing safe sex decisions in this study. These findings are compatible with recent Nigerian evidence showing that sexual and reproductive health communication is shaped by cultural, religious, family and interpersonal factors. Bamidele *et al.*, studying parent-adolescent dyads in Osun State, demonstrated disparities in the level and pattern of sexual and reproductive health communication and emphasised the need to improve the depth, frequency and clarity of such discussions. [11,12]

Encouragingly, 88.1% of respondents believed that safe sex should be included in the school curriculum and 87.7% wanted to learn more about safe sex and self-protection. This high level of receptiveness provides an opportunity for structured, age-appropriate school-based sexuality education. Evidence from systematic reviews suggests that well-designed school-based interventions can improve important intermediate outcomes such as knowledge, condom-related beliefs and condom use, although effects on biological STI outcomes are less consistent. [6,8,9]

Overall, the findings demonstrate that high knowledge coexisted with important gaps in behavioural practice, STI testing and communication. Comprehensive adolescent sexual-health programmes should therefore combine accurate information with practical decision-making skills, parent-adolescent communication and accessible youth-friendly services. Recent Nigerian studies similarly emphasise the need for accurate, culturally sensitive sexuality education and stronger parental involvement to support safer adolescent sexual decision-making. [10-12,15]

STRENGTHS AND LIMITATIONS

A strength of this study was the use of stratified random sampling across the senior secondary school classes, ensuring representation from SS1 to SS3. The

questionnaire also underwent face and content validation and pilot testing, with a reported Cronbach's alpha coefficient of 0.75.

The study was conducted in a single secondary school, which limits generalisability to adolescents in other settings. Sexual behaviour was self-reported and concerned a sensitive subject, making social desirability, recall and response biases possible. The study was descriptive and did not report inferential or multivariable analyses.

CONCLUSION

Senior secondary school students in this study demonstrated a high level of knowledge of safe sex strategies, but this was not matched by an equally high level of safe sex practice. Although 82.9% had good knowledge, only 51.0% demonstrated good practice, while STI testing and communication about sexual health with parents, teachers or health professionals were relatively limited. Strengthening comprehensive school-based sexuality education, parent-adolescent communication and access to confidential youth-friendly sexual and reproductive health services may help bridge the gap between knowledge and practice.

RECOMMENDATIONS

Comprehensive and age-appropriate sexuality education should be strengthened within the secondary school curriculum, with emphasis on STI prevention, prevention of unintended pregnancy, responsible decision-making and practical risk-reduction skills. Parents and caregivers should be supported to communicate effectively with adolescents about sexual and reproductive health, while schools and health agencies should facilitate access to reliable information, counselling and adolescent-friendly services.

DECLARATIONS

Ethical Approval and Consent to Participate: Ethical approval was obtained from the Research and Ethics Committee of the University of Benin. Permission was obtained from the Principal of University of Benin Demonstration Secondary School. Participation was voluntary and consent was obtained as reported in the source study.

Availability of Data and Materials: The data may be made available by the corresponding author on reasonable request, subject to applicable ethical and institutional requirements.

Competing Interests: The authors declare no competing interests.

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Authors' Contributions

WK contributed to the conception and supervision of the study and manuscript development. AU contributed to manuscript development and critical review. ROI contributed to manuscript development, interpretation of the findings and critical revision of the manuscript. All authors reviewed and approved the final manuscript.

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