

Sexual behaviours, contraceptives knowledge, prevalence and determinants among undergraduate students in a private University in Southwest Nigeria

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Abstract

Background: Safe sex practice is crucial in preventing unwanted/unplanned pregnancies and sexually transmitted diseases (STDs), especially among youths and adolescents. Yet, contraceptive use remains rudimentary among youths in many developing countries like Nigeria. It is thus vitally important to contextually understand factors which could be associated with safe sex practices among undergraduates who are mostly youths and adolescents.

Study Objectives: This study assessed sexual practices, contraceptive knowledge, uptake of contraception, as well as predictors of contraceptive use among undergraduate students at Bowen University in Iwo, Osun State.

Materials and Methods: We conducted a descriptive cross-sectional study among 370 undergraduate students of Bowen University, Iwo, who were recruited using a multistage sampling technique. A semi-structured self-administered questionnaire was used for data collection. Bivariate analysis was performed using the Chi-square test, and binary logistic regression was employed to identify predictors of contraceptive practice at a 5% level of statistical significance.

Results: the mean age of respondents was 19.8 ± 1.9 years. Awareness about contraception was 98.9%. Fifty-one percent of the respondents have had sex before the survey. Barely half (54.9%) of the respondents had good contraceptive knowledge while only 19.5% of the sexually active respondents used contraceptives during their last sexual encounters. Practice of contraception was significantly determined by respondents' gender (AOR= 0.43 CI=0.239 – 0.756), mothers' level of education (AOR=2.76; CI= 1.046 – 7.268), mothers' marital status (AOR= 3.38 CI=1.060 – 10.798), contraceptive knowledge (AOR=0.54; CI=0.316 – 0.930) and sexual behavior (AOR=0.06; CI= 0.029 – 0.121).

Conclusion: the study highlights poor contraceptive practices despite high prevalence of sexual activities. Hence, targeted health promotional activities should be designed and implemented by reproductive health experts, to promote safe sex practices among undergraduate students in mission-owned Nigerian private universities.

Key words: Contraception, knowledge, safe sex, sexual activities, unwanted pregnancies, utilization

Background

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Unsafe sex practice is currently one of the key sexual and reproductive health (SRH) challenges of youths and adolescents who constitute a critical mass of the world's population. World Health Organization (WHO) defines adolescents as individuals in the age group of 10 – 19 and youths as individuals in the age group of 15 – 24 years (World Health Organization, 2001). Most of the persons in these age categories are found in universities and colleges.

Sexuality is a vital component of human life. Procreation and pleasure are two aspects of sexuality. Sexual behaviour and inclinations vary and may be related to mental health. Sexual variations are impacted by the possibility that some sexual orientations will face prejudice or censorship due to political or religious convictions. Sexuality forms a core part of an individual's identity and affects both sexual behaviour and totality of human functioning and is influenced by social attitudes (Kalra et al., 2015). Individuals who engage in risky sexual behaviours are at risk of Sexually Transmitted Infections (STIs) like Human Immunodeficiency Virus (HIV), Hepatitis B, and C, gonorrhoea, chlamydia, syphilis, Human Papilloma Virus (HPV), genital warts and genital herpes. Effects of these STIs can be immediate or delayed based on individuals and actions taken after contact. A study by Utoo et al., revealed that one out of five undergraduate Nigerian students had sexually transmitted infections (Utoo et al., 2020). Another study by Thairu et al., revealed that 70% of undergraduates in tertiary educational institutions in Abuja had symptom of STIs prior to the survey (Thairu et al., 2015). It is also estimated that 40% of all new cases of HIV are being reported among adolescents and youths in Nigeria.

Asides the risk of contracting STDs which is daunting, Unsafe sexual practices expose Nigerian adolescents and youths to the problems of unwanted/unplanned pregnancies with diverse socio-economic implications on them, their families and the nation (Johnson & Bassey, 2019). Nigeria is home to most of the global adolescent mothers. According to the 2018 Nigeria Demographic and Health Survey (NDHS) report, not less than 19% of teenage women age 15- 19 years have commenced childbearing; 14% have given birth, and 4% were pregnant with their first children. Unwanted/unplanned pregnancies make Nigerian adolescents and youths to clandestinely seek an unsafe abortion service which is one of the main causes of maternal death since medical abortion is largely prohibited by law except when the pregnancy is posing a danger to the mother's life. In 2020, Bell et al., estimated the incidence rate of abortion to be as high as 29.0 per 1,000 Nigerian women; 86.3% of these abortions were unsafe occurring among adolescent aged 15-19 years of age (Bell et al., 2020).

Contraception is the act of preventing pregnancy and this entails the use of a device, a medication, a procedure or a behaviour (Hubacher & Trussell, 2015). Contraception is a critical aspect of reproductive health and is essential for enabling individuals to control their fertility and make informed choices about their sexual and reproductive health (World Health Organization, 2018). Nigerians have historically viewed topics relating to sexuality and contraception with a great deal of reluctance despite rise in students' experimentation and sexual expression (Ahmed et al., 2017). Adolescents and young adults constitute a significant proportion of the world's population, over one-quarter of the world's population is between the ages of 10 and 24 and close to 90% of the world's young people live in developing countries (Sawyer et al., 2012). Nigeria is described as having a young population characterized by high percentages of adolescents and youths. Studies have shown that Nigerian adolescents and youths are mostly sexually active with many engaging risky sexual practices such as having multiple sexual partners, engaging in sexual activities before the age of 15 years, having sex under the influence of drugs and having sex without contraception. Olaoye and Agbede reported that 19.2% of adolescents in Ogun State Southwest Nigeria engage in risky sexual activities (Olaoye & Agbede, 2019). In another study conducted in Rivers state by Ogbonna et al., 46.6% of adolescents were sexually active of which 43.3% of them had multiple sexual partners (Ogbonna et al., 2023).

Moreover, a study in south west Nigeria revealed that less than half (45.3%) of sexually active adolescents were modern contraceptive users (Crawford et al., 2021). In the 2018 NDHS, only 28% of sexually active unmarried adolescents were using contraceptives but unmet need for family planning amongst them was as high as 48% (National Population Commission (NPC) [Nigeria] and ICF, 2019). Students in the universities mostly live independently from their parents or guardians for the first time. This may give them freedom and opportunity for high risk behavior such as unplanned and unprotected sex and this might be detrimental to their health (Ahmed et al., 2017).

Contraceptive usage is generally low in most African countries and among African adolescents in particular, despite of the high rate of sexual activities occurring among them. In a study conducted by (Kantorová et al. in 2019, the proportion of married women aged 15–19 who were using contraception was estimated to be as low as 17.9%. A lower figure of 9.4% was also recorded as the rate of contraceptive use among adolescents in the same region by the authors (Kantorová et al., 2021). Another study conducted in some sub-Sahara African countries reveals a low contraceptive prevalence rate among adolescent girls (Michael et al., 2024).

There are cultural, religious and socio-cultural factors that studies have identified to have influenced contraceptives usage. In a study by Ononokpono et al. there was a higher likelihood of contraceptive use among women living in communities with predominant educated women as well as women living in communities with lesser ethnic diversities (homogeneous communities) compared with those living heterogeneous areas (Ononokpono et al., 2020). Ethnicity and religion were also found to affect contraceptives use in a study conducted in 2015 in which Hausa/Fulani/Kanuri/Seriberi tribes and Muslims respondents had low contraceptives usage rates (Obasohan, 2015). Additionally, contraceptive use in Northern Nigeria was found to be particularly poor among those in the lower socio-economic class when compared to those with higher social status (Unumeri et al., 2015).

Similarly, economic factors were also found to influence contraceptive use among adolescents in some sub-Sahara Africa countries like Burkina Faso, Ethiopia and Nigeria. Poorest regions/ States and Islamic communities were discovered to have low contraceptives usage rates compared to other communities (Hounton et al., 2015). Studies carried out in Africa also reflect effects of socio-cultural beliefs on contraceptives use among adolescents (Atuhaire et al., 2021). In a typical African home, discussions relating to sex between parents and their adolescent children are regarded as taboo, an act believed to have the tendency to corrupt the morals of young innocent people. Thus, most adolescents shy away from discussions relating to contraception at the home front in order not to be tagged as being promiscuous. A study carried out in Ethiopia also reiterate socio-cultural factor limiting contraceptive uptake in Africa (Nsubuga et al., 2016). A study conducted in Low and Middle Income Countries reveals that the high priority placed on fertility as a social norm is a strong cultural barrier to contraceptive usage especially among married adolescents (Coll et al., 2019).

Although copious studies have been published on sexual practices and reproductive health behaviour of the Nigerian youths and adolescents, only a few of such articles have been carried out in mission-based private universities. Majority of students in such university are from families with strong religious views on adolescents' sexuality and contraception. The universities often enforce very stringent rules which prohibit sexual activities among the students. Hence, there is currently a gap in knowledge regarding sexual behavior of adolescents and youths in privately owned mission-based institutions in Nigeria. The current study aimed at bridging this research gap and to promote healthy sexual lives of Nigerian undergraduate students. The specific objectives were to assess sexual activity pattern, contraceptive knowledge and to estimate contraceptive prevalence rate among undergraduate students of Bowen University, Iwo Osun State. We believe that information from this study can help policy and programme implementers to make rational decisions to improve

contraceptive uptakes among Nigerian undergraduate students and facilitate the actualization of the sustainable development goal (SDG) 3.1

Materials and methods

Study location

The study was carried out in Bowen University Iwo, Osun State Nigeria. It is one of private Christian University located in Southwest Nigeria. Bowen University Iwo (BUI) was established in July 2001 by the Nigerian Baptist Convention for learning and research. The school's mission is "Excellence and Godliness". Being owned by a Christian mission, most students are Christians by faith and some others Muslims [University registrar's records]. The school has a total of about 5000 undergraduate students. Even though most Bowen University students are of Yoruba extraction, the school's population is composed of students from various states of the federation. The university has seven (7) Colleges, which comprises 43 departments or programmes. There is a university clinic where students can have access to medical attention and other health services.

Study design and population

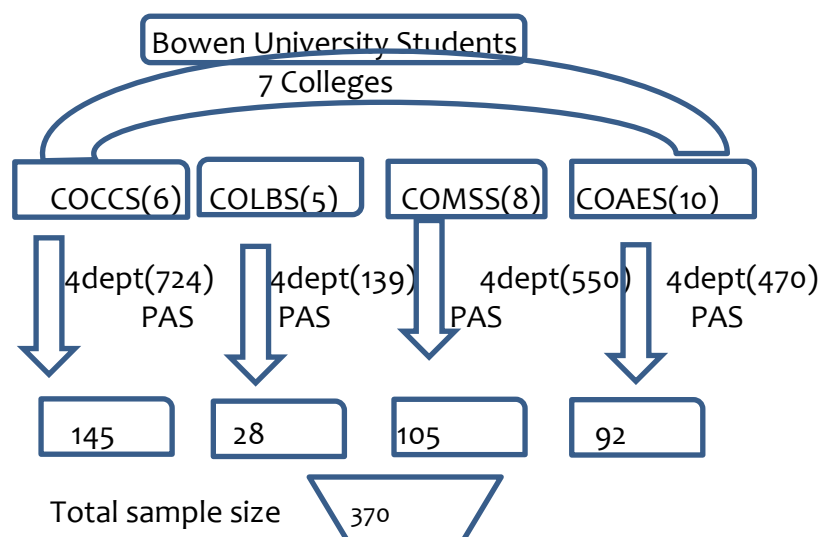
This study was a descriptive cross-sectional study carried out in Bowen University, Iwo Nigeria between May and July 2022. The study population included male and female undergraduate students in year 2 to 5. Inclusion criteria for this study were enrolled students that had spent at least academic one session in the university. Study from College of health sciences were excluded from this study because they were expected to have better knowledge on the topic of research.

Sample Size and Sampling Technique

The minimum sample size was estimated using the sample size formula for estimating a single proportion. Based on the previous study on contraceptives use in Nigeria, a prevalence of 31.2% (Aigbiremolen et al., 2014) was used and the margin of error was set at 5%. A non-response rate of 10% was envisaged among study respondents and correction for this was made to arrive at a minimum sample size of 363 using Kish and Leslie formula. However, 370 respondents participated in the research.

Sampling Technique: multistage sampling technique was used to select study respondents.

First stage: Four colleges (College of Computing and Communication Sciences (COCCS), College of Liberal Studies (COLBS), College of Management and Social Sciences (COMSS) and College of Agriculture and Engineering Sciences (COAES)) were selected from the remaining six colleges in Bowen University by simple random sampling using balloting. **Second stage:** The lists of all the departments in the selected 4 colleges were obtained from the University authority. Four departments were selected from each of the four colleges, making a total of sixteen (16) departments. **Third stage:** Proportional allocation was used to determine the number of students that were selected in each department. This was determined based on the total number of students in the department. The number of respondents chosen from each department was proportionally selected by dividing the number of students in the departments by the total number of students in the sixteen departments multiplied by the calculated sample size. **Fourth stage:** The lists of eligible students in each of the selected department were obtained. The desired sample size for that particular department was selected by simple random sampling technique using balloting technique. We administered questionnaires to selected eligible respondents until the sample size was met and when selected students declined, the next students were chosen to replace them.



PAS: Proportionally Allocated Samples

Research Instrument and Data Collection Methods

Data were collected with the use of a self-administered semi-structured questionnaire. The questionnaire consists of questions adapted from previous similar studies (Arogundade, 2022; Duru et al., 2015; Eniojukan et al., 2016). The questionnaire covered various sections including socio-demographic characteristics, knowledge of contraception, sexual activities and contraception practices. Four undergraduates from the department of Public health were recruited and trained for two days by the principal investigator on data collection. The training covered pertinent issues including study objectives, scope, how to obtain informed consent as well as practical training on techniques for questionnaire administration.

Validation and Pretesting of the Instrument

The validity and reliability of the questionnaire were done before the final collection of data. The questionnaire was reviewed for content and construct validity by two experts in the field of epidemiology. Thereafter, questionnaire was pretested among 37 undergraduate students in Adeleke University, Ede to ensure comprehensibility, clarity as well as identify other issues peculiar to the population which were not included in the questionnaire before using it for this study which aided the reduction of threats to reliability. Also, test-retest analysis was done on the research instrument to assess the study reliability.

Measurements of key variables

1. **Respondents' knowledge on contraception: ten questions were asked to estimate** the overall respondents' knowledge on contraception. Correct response was scored 1 and a wrong answer was scored 0. The composite scores for individual respondents were calculated and the mean of all the scores were calculated. The respondents who scored below the mean score of 1.45 ± 0.50 were considered as having poor knowledge, while those who scored up to or above the mean score of 1.45 ± 0.50 were classified as having good knowledge.

2. **Respondents' sexual behaviour:** Safe or Unsafe: Respondents who either had early sexual debut (before age 15), or those who had multiple sexual partners or had STI in the last 5 years or those who did not use any form of protection in their last sexual activities or those having a combination of these were classified as having unsafe sex practices.

3. **Respondents' contraceptive use:** this was determined by asking a question "have you ever used contraception" and the response was either yes or no. Those who stated that they used contraception in their last sexual encounters were categorized as current users.

Data Analysis

The questionnaires were collated and manually sorted out, entered into a computer and the obtained data were analyzed using IBM SPSS version 25. Descriptive analysis of all the variables measured was first done, and the categorical variables were reported as frequencies and proportions/percentages. Likewise, continuous variables presented using student-t test. Associations between respondents' sexual activities and contraceptives practices with other categorical variables were assessed using Chi square. For every cell with an expected value less than 5, Fisher's Exact Test was used to determine the statistical significance. A stepwise model of binary logistic regression analysis was used to obtain the determinants of contraceptives usage. All the significant variables during bivariate analysis were imputed into the logistic model. Adjusted odds ratio (AORs) and 95% confidence intervals (CIs) were obtained to identify the determinants of contraceptives usage. The level of statistical significance was set at $p < 0.05$.

Ethical Approval and Consent to Participate

Ethical approval for the study was obtained from the Ethical Review Committee of Bowen University Teaching Hospital, Ogbomoso (BUTH/REC -767) and permission to carry out the study was obtained from heads of selected departments. We informed all the respondents about the study protocols and adherence to confidentiality. Written informed consent was obtained from all the participants. Participation was entirely voluntary and participants were allowed to opt out at any stage they were no longer comfortable with the interview process. Anonymity was assured in that codes rather than names were used as personal identifiers. Confidentiality of the information obtained was guaranteed by making sure only persons in the research team had access to the computer used for data storage. Contraceptives counselling was given to respondents who had never used contraception but were sexually active. They were referred to the nearest health center where contraceptives services can be accessed.

Results

Table 1: Socio-demographic Characteristics of the Respondents

Variable	Frequency (N = 370)	Percentage (%)
Age group (in years)		
15 – 19	170	45.9
20 – 24	191	51.6
25 – 29	9	2.4
Mean Age $\pm$ SD	19.8 $\pm$ 1.9	
Academic level/years of stay in the university		
200/ 2	113	30.5
300/ 3	103	27.8
400/ 4	147	39.7
500/ 5	7	1.9
Gender		
Male	186	50.3

Female	184	49.7
Religion		
Christianity	336	90.8
Islam	33	8.9
Traditional	1	0.3
Ethnicity		
Yoruba	252	68.1
Hausa/Fulani	16	4.3
Igbo	55	14.9
Others*	47	12.7
Marital status		
Single	369	99.7
Married	1	0.3
Marital status of parents		
Married	335	90.5
Separated	16	4.3
Divorced	4	1.1
Widowed	15	4.1
Fathers' level of education		
No formal education	5	1.4
Primary	12	3.2
Secondary	13	3.5
Tertiary	110	29.7
Post graduate	230	62.2
Mothers' level of education		
No formal education	5	1.4
Primary	11	3.0
Secondary	25	6.8
Tertiary	125	33.8
Post graduate	204	55.1
Family structure		
Monogamous	348	94.1
Polygamous	22	5.9

* Edo (11), Urhobo(9), Ibibio(5), Ijaw(3), Delta(2), Igala(2), Itsekiri(2), Tiv(2), Akwa-Ibom(1), Delta(1), Estako(1), Idoma(1), Ikwere(1), Isoko(1), Jaba(1), Foreigner(1)

From table 1 above, three hundred and seventy questionnaires were administered; all were correctly filled and returned giving a response rate of 100%. The mean age ($\pm$ SD) of the respondents was 19.8 $\pm$ 1.9 years. More than half (51.6%) of the respondents were 20-24 years of age. Majority (90.8%) of respondents were Christians while 68.1% of them were of Yoruba ethnic group. The proportion of the respondents practicing Christianity were 336 (90.8%) and 252 (68.1%) were from Yoruba ethnic group. Almost, all the respondents were single 369 (99.7%). Parents' levels of education were predominantly post graduate; fathers 230 (62.2%) and mothers 204 (55.1%). Most of the respondents were from monogamous settings 348 (94.1%).

Table 2: Respondents' Knowledge of Contraception

Variable	Frequency (N= 370)	Percentage (%)
Ever heard of contraception		
Yes	366	98.9
No	4	1.1
Known benefits of contraception **	(n = 366)	
Prevention of unwanted pregnancy	340	92.9
Child spacing	154	42.1
Limit family size	159	43.4
Prevent sexually transmitted infection	215	58.7
Allow sexual freedom	102	27.9
Others ⁺	3	0.8
Traditional methods of contraception known **	(n = 366)	
Armlet	42	11.5
Ring	54	14.8
Pad lock	43	11.7
Waist band	82	22.4
Natural methods of contraception known **	(n = 366)	
Periodic abstinence	259	70.8
Rhythm	77	21.0
Lactational amenorrhea	80	21.9
Coitus interruptus	123	33.6
Barrier methods of contraception known **	(n = 366)	
Male condom	349	95.4
Female condom	302	82.5
Diaphragm	118	32.2
Hormonal methods of contraception known **	(n = 366)	
IUCD	185	50.5
Injectable	234	63.9
Oral pill	307	83.9
Implants	206	56.3
Surgical methods of contraception known **	(n = 366)	
Vasectomy	223	60.9
Bilateral tubal ligation	142	38.8
Known side effect associated with contraceptives use **	(n = 366)	
None	70	19.1
Weight gain	168	45.9
Weight loss	93	25.4
Increased extra marital affairs	66	18.0
Amenorrhea	32	8.7
Secondary infertility	136	37.2
Heavy menses	74	20.2
Dislodgement	10	2.7
Irregular menses	160	43.7

Others ++	2	0.5
Category of contraceptives user **	(n = 366)	
Single female	286	78.1
Single male	224	61.2
Married male	206	56.3
Married female	271	74.0
Contraceptive is safe	(n = 366)	
Yes	261	71.3
No	105	28.7
Overall knowledge of respondents about contraception		
Good	203	54.9
Poor	167	45.1

+ Don't know, Family p, Locking ++ Death, Nausea ** Multiple responses allowed

Table 2 above shows that, three hundred and sixty-six (98.9%) of the respondents have heard about contraception. Three hundred and forty (92.9%) knew contraception as prevention of unwanted pregnancy, 82 (22.4%) knew waist band as a traditional method of contraception, 259 (70.8%) of the respondents knew periodic abstinence as a natural method of contraception, 349 (95.4%) of the respondents knew male condom as a barrier method of contraception, 307 (83.9%) knew oral pill as hormonal method of contraception and 223 (60.9%) of the respondents knew vasectomy as a surgical method of contraception. Weight gain was the major side effect of contraceptive use knew among 168 (45.9%) respondents. Two hundred and eighty-six (78.1%) of the respondents knew single female as the major category of contraceptives user and 261 (71.3%) of the respondents' said contraceptive is safe for use. Two hundred and three (54.9%) respondents had good knowledge about contraceptives.

Table 3: Respondents' sexual behaviour and contraceptive uptakes

Variables	Frequency (N = 370)	Percentage (%)
Ever engaged in sexual activity		
Yes	190	51.4
No	180	48.6
Age at sexual debut (in years)	(n = 190)	
≤ 9	5	2.6
10 – 14	37	19.5
15 – 19	122	64.2
≥ 20	26	13.7
Mean ± SD	16.5 ± 3.0	
Current number of sexual partner(s)	(n = 190)	
None	80	42.1
1	73	38.4
≥ 2	37	19.4
Sexual partners in the past five years had a sexually transmitted disease e.g. Gonorrhoea, Syphilis, Chlamydia, Genital warts or genital herpes	(n = 190)	
Yes	4	2.1
No	114	60.0
Don't know	72	37.9
Ever used contraceptives	(n = 190)	
Yes	89	46.8
No	101	53.2
Used contraceptives at sexual debut	(n = 89)	
Yes	58	65.2

No	31	34.8
Reason(s) for not using contraceptives at sexual debut **	(n = 31)	
Non availability	13	41.9
Don't feel like using it	7	22.6
Unsatisfying sexual experience	5	16.1
Others	3	9.7
Fear of side effects	2	6.5
Fear of my parent	1	3.2
Type of contraceptive used during sexual debut	(n = 58)	
Condoms	50	86.2
Oral pills	8	13.8
Type of contraceptive(s) ever used **	(n = 89)	
Condoms	83	93.3
Oral pills	28	31.5
Injectable	3	3.4
Contraceptive use in last sexual activity	(n = 89)	
Yes	51	57.3
No	38	42.7
Reason(s) for not using contraceptives **	(n = 101)	
No genuine reason	60	59.4
Sex was unplanned	18	17.8
Didn't know how to use	9	8.9
Partner didn't want me to use a method	7	6.9
Worried about the side effects	7	6.9
Thought condom was inconvenient to buy	6	5.9
Thought the occasional sex could not lead to pregnancy	6	5.9
Thought sexual delight would be affected by methods	4	4.0
Thought condom was too expensive to buy	1	1.0
Contraceptive service provider **	(n = 89)	
Pharmacy /chemist shop in town	82	92.0
Hospital	11	12.3
Family planning clinic	6	6.7

** Multiple responses allowed

Table 3 above shows that, one hundred and ninety (51.4%) of the respondents had sexual intercourse. The mean age at sexual debut was 16.5 ± 3.0 years and most of the respondents started sexual engagement within the age group of 15 – 19 years. One hundred and forty (60.0%) of the respondent's sexual partner in the past five years did not have sexually transmitted disease. Out of 190 respondents that once had sexual intercourse, only 89 (46.8%) had ever used contraceptives. Of this, fifty eight (65.2%) used contraceptives at sexual debut and condom was the major 50 (86.2%) type of contraceptive used. The major reason for non-usage of contraceptives reported by 13 (41.9%) of the respondents was non availability of contraceptives. Condom was the main contraceptive ever used 83 (93.3%) by the respondents and 27 (30.3%) often make use of it. The main source of contraceptives by 82 (92.1%) was from pharmacy / chemist shops. Sixty (59.4%) of the respondents who did not use contraceptives had no genuine reason for not using it.

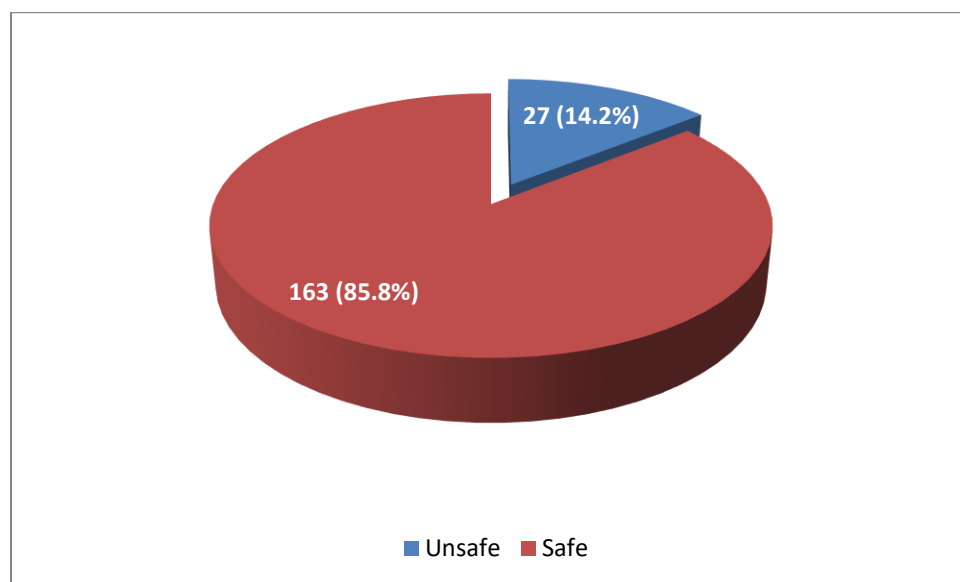


Figure 1: Overall rating of respondents' sexual behaviour

Figure 1 above shows overall grading of sexual behaviours of respondents. Twenty seven (14.2%) had unsafe sexual behaviours.

Table 4: Factors Associated with contraceptive usage among the respondents

Variable	Practice of Contraceptive Usage		Total n=190 (100%)	Statistics
	Yes n= 89 (46.8%)	No n= 101 (53.2%)		
Age group (in years)				
15 – 19	23 (25.8)	36 (35.6)	59 (31.1)	$\chi^2 = 2.138$ p = 0.343
20 – 24	62 (69.7)	61 (60.4)	123 (64.7)	
25 – 29	4 (4.5)	4 (4.0)	8 (4.2)	
Academic level / Years of stay in the university				
200 / 2	20 (22.5)	28 (27.7)	48 (25.3)	$\chi^2 = 1.141$ p = 0.767
300 / 3	22 (24.7)	20 (19.8)	42 (22.1)	
400 / 4	45 (50.6)	50 (49.5)	95 (50.0)	
500 / 5	2 (2.2)	3 (3.0)	5 (2.6)	
Gender				
Male	62 (69.7)	56 (55.4)	118 (62.1)	$\chi^2 = 4.063$ p = 0.044*
Female	27 (30.3)	45 (44.6)	72 (37.9)	
Religion				
Christianity	77 (86.5)	91 (90.1)	168 (88.4)	$\chi^2 = 0.593$ p = 0.441
Islam	12 (13.5)	10 (9.9)	22 (11.6)	
Ethnicity				
Yoruba	60 (67.4)	66 (65.3)	126 (66.3)	$\chi^2 = 0.230$ p = 0.973
Hausa/Fulani	5 (5.6)	5 (5.0)	10 (5.3)	
Igbo	15 (16.9)	18 (17.8)	33 (17.4)	
Others*	9 (10.1)	12 (11.9)	21 (11.1)	
Marital status				
Single	88 (98.9)	101 (100.0)	189 (99.5)	$\chi^2 = 1.523$ p = 0.217
Married	1 (1.1)	0 (0.0)	1 (0.5)	
Marital status of parents				

Married	75 (84.3)	92 (91.1)	167 (87.9)	$+\chi^2 = 4.348$ p = 0.226
Separated	5 (5.6)	6 (5.9)	11 (5.8)	
Divorced	2 (2.2)	1 (1.0)	3 (1.6)	
Widowed	7 (7.9)	2 (2.0)	9 (4.7)	
Father Level of Education				
No formal education	2 (2.2)	1 (1.0)	3 (1.6)	$+\chi^2 = 3.086$ p = 0.544
Primary	3 (3.4)	4 (4.0)	7 (3.7)	
Secondary	1 (1.1)	5 (5.0)	6 (3.2)	
Tertiary	30 (33.7)	31 (30.7)	61 (32.1)	
Post graduate	53 (59.6)	60 (59.4)	113 (59.5)	
Mother Level of Education				
No formal education	3 (3.4)	0 (0.0)	3 (1.6)	$+\chi^2 = 7.353$ p = 0.118
Primary	4 (4.5)	2 (2.0)	6 (3.2)	
Secondary	11 (12.4)	8 (7.9)	19 (10.0)	
Tertiary	25 (28.1)	36 (35.6)	61 (32.1)	
Post graduate	46 (51.7)	55 (54.5)	101 (53.2)	
Family structure				
Monogamous	81 (91.0)	93 (92.1)	174 (91.6)	$\chi^2 = 0.070$ p = 0.791
Polygamous	8 (9.0)	8 (7.9)	16 (8.4)	
Current number of sexual partner(s)				
None	21 (23.6)	59 (58.4)	80 (42.1)	$\chi^2 = 23.656$ p < 0.001*
1	46 (51.7)	27 (26.7)	73 (38.4)	
≥ 2	22 (24.7)	15 (14.9)	37 (19.5)	
Overall Knowledge Score about Contraception				
Good	61 (68.5)	51 (50.5)	112 (58.9)	$\chi^2 = 6.365$ p = 0.012*
Poor	28 (31.5)	50 (49.5)	78 (41.1)	
Overall rating of respondents' sexual behaviour				
Safe	66 (74.2)	4 (4.0)	163 (85.8)	$\chi^2 = 18.582$ p < 0.001*
Unsafe	23 (25.8)	97 (96.0)		

* Statistically significant + Likelihood Ratio

Table 4 above shows factors associated with contraceptive usage. Those factors were respondents' Gender (p = 0.044), Current number of sexual partner(s) (p < 0.001), overall knowledge score about contraception (p = 0.012) and overall rating of respondents' sexual behaviour (p < 0.001).

Table 5: Predictors of contraceptive practice among the respondents

Age group (in years)	AOR	95% CI	p-value
Gender			
Male (Reference Category)			
Female	0.50	0.250 – 1.001	0.050*
Current number of sexual partner(s)			
1 (Reference Category)			
≥ 2	0.37	0.139 – 1.002	0.051
None	0.21	0.103 – 0.439	< 0.001*
Overall Knowledge Score about Contraception			
Good (Reference Category)			
Poor	0.44	0.220 – 0.864	0.017*
Overall rating of respondents' sexual behaviour			
Safe (Reference Category)			
Unsafe	7.84	2.212 – 27.753	0.001*

*Significant at $p < 0.05$ AOR=Adjusted Odds Ratio CI=Confidence Interval

Table 5 above shows that at the multivariate level, respondent's gender remained a predictor of contraceptive usage. Female were 50% less likely to have good usage of contraceptive compared to their male counterparts (aOR 0.50, 95% C.I = 0.250 – 1.001, $p = 0.050$). Respondents currently without sexual partner were 79% less likely to have good usage of contraceptives compared to those with one sexual partner. (aOR 0.21, 95% C.I = 0.103 – 0.439, $p < 0.001$). Respondents with poor knowledge of contraception were 56% less likely to have good usage of contraceptive compared to those with good knowledge of contraception. (aOR 0.44, 95% C.I = 0.220 – 0.864, $p = 0.017$). Respondents with unsafe sexual behaviour were about 8 times more likely to have good usage of contraception compared to those classified as having safe sexual behaviour. (aOR 7.84, 95% C.I = 2.212 – 27.753, $p = 0.001$).

Discussion

This study examined sexual behaviours and contraceptive utilization among undergraduate students in a privately owned university. Almost all the respondents were aware of contraception. More than nine out of ten respondents knew contraceptives as a means of preventing unwanted pregnancies. This aligns with the findings of a similar study conducted in 2017, where the majority of respondents also identified pregnancy prevention as the purpose of contraception (Ahmed et al., 2017).

Most of the respondents knew condoms (male and female) as a barrier method of contraception. These findings were similar to a study conducted in Tanzania, in which the widely known contraceptive method was condom (Somba et al., 2014). Another study in Cape Coast Metropolis by Gyasi – Duku (2017) revealed that the most known contraceptive was male condoms, followed by female condoms. Just above half of the respondents in this study possessed good knowledge of contraception, despite the high awareness rate of contraception in this study. Likely reason for this might be the fact that most of respondents are from families with strong religious views and contraceptive discussions with the parents are viewed as a taboo. Also, the fact that the institution where the current study was conducted has stringent rules abhorring sexual activities and discussions on sexuality could have accounted for lack of interest of students acquiring knowledge on

contraception. This is comparatively low in relation to the outcome of a similar study conducted at Bayero University Kano, Nigeria in which 87.7% of undergraduate students' possessed good contraceptive knowledge (Ahmed et al., 2017). This later study is from a public institution and not a mission institution and that might be the reason why respondent knowledge on contraceptive was high compared to our study.

Slightly above half of the respondents, had ever engaged in sexual intercourse, this is similar to a study conducted in Kano, Nigeria, where the percentage of sexually active respondents was 59.3% (Ahmed et al., 2017). Similar finding of more than half of respondents' involvement is also present in other private university like Adeleke University Ede in which 56.8% of students had at any point been engaged in sexual activities (Arogundade, 2022). Another study conducted in Tanzania revealed a high rate of sexually active undergraduates at 70.4% (Somba et al., 2014). Our finding was however not in tandem with another study by Duru et.al in which 71.2% of respondent had sexual intercourse. The likely reason for this might be because the students are autonomous in making sexuality decisions compared to our respondents (Duru et al., 2015). Whereas in a private school such as the one used for the current study, students are fully residential under close supervisions and guidance using religious doctrines which prohibit sexual activities among students.

The mean age at sexual debut among the respondents was 16.5 ± 3.0 years, with the majority falling within the age group of 10-19 years and this suggests that by far most adolescents want to experiment sex due to peer pressure (Arogundade, 2022). This was lower compared to a similar study conducted in another university some years back, which revealed an average age of sexual debut of 20 ± 2.4 years (Somba et al., 2014). However, similarities can be found in a recent study conducted by Sanni et al., where it was found that the mean age of sexual debut in the studied private university was 16.9 ± 3.3 (Sanni et al., 2022). This is not a surprise because most students in Nigerian private university often get into university in early adolescent period and might be sexually exposed just before gaining admission.

Only three out of five of sexually active respondents made use of contraceptives at their sexual debut in the current study. The main reason for lack of contraceptive use was due to its non-availability. Similar finding of contraceptives unavailability was also reported in a study conducted by Duru et.al (Duru et al., 2015). Condom was the main contraceptives used by more than nine out of ten respondents that had ever used contraceptives. These findings were different from a similar study conducted at tertiary institution in Imo state, in which only 52.1% of the respondents generally use condoms (Duru et al., 2015).

Out of respondents that once had sexual engagement, less than half of them had made use of contraceptives indicating that most of the sexually active respondents in the current study had engaged in unprotected sex at one time or another. This is in tandem with a study in Bayelsa state in which contraceptives utilization was 39.3% (Aigbiremolen et al., 2014). Contrariwise, a previous study conducted in Benue State by Utoo et al. (2020), revealed that 85.0% of sexually active respondents had ever used contraceptives (Utoo et al., 2020). Although the contraceptive prevalence rate (CPR) in the current study was higher than the national figure of 17%, there is still room for improvement. Our finding of relatively low contraceptive prevalence rate in spite of high contraceptive awareness rate might be due to the low contraceptive knowledge amongst our respondents.

The low contraceptive usage in the current study despite high awareness rate could have been due to low-risk perception among the respondents since they are in a campus environment which is highly regimented with stringent religious rules. However, lack of contraceptive use by sexually active respondents could be considered as risky sexual behaviour. Lack of contraceptive usage may predispose adolescents and young adults to social problems including early and unwanted pregnancies (with its associated social and biologic complications) as well as sexually transmitted

infections (Keto et al., 2020). Early and unplanned pregnancy may lead to school dropout, mental health issues, poverty and low self-esteem among other complications. Efforts should be made by reproductive health experts to further enlighten undergraduate students on the benefits of contraception. In order to achieve this objective, there is a need to positively engage social all the available social media platforms for dissemination of age-appropriate sexuality and contraceptive messages. Message can be sent through WhatsApp, Tweeter (X), Tiktok, Instagram or face book which are used by most adolescents and undergraduate students. Text messages could also be sent on relevant contraceptive topics. Beside this intervention, efforts should be made at including contraceptive information in the Nigerian university curricular. Lecturers should be adequately trained on how to safely discuss contraceptive issues with their students. Furthermore, non-discriminatory contraceptive counseling and services should be made available in the university clinics at affordable costs to the students. This is should be done with the full involvement and participation of university managements and stakeholders for sustainability.

Likely reason for male preponderance among contraceptive users in the current study could be that male adolescents who are contraceptive users are less stigmatized in Nigerian societies compared to their female counterparts who are seeing as being promiscuous whenever they demand for contraception. Again, the fact that the only contraceptive method available for males (condom) is cheaper, easier to use and with lesser complications compared to most female contraceptive methods could be strong reason for the observed higher contraceptive prevalence rate among male students in the current study. Hence, male undergraduate Nigerians can be used as champions for contraceptive programming in the Nigerian universities. As contraceptive champions, male students can encourage sexually active female students to use appropriate contraception.

As depicted in the current study, many undergraduate students in mission -owned schools are sexually active in spite of the stringent rules and the fact that they are completely accommodated on campus. Painfully, most of the sexually active respondents engaged in sexual activities without using any protective measure mainly due to poor contraceptive knowledge. Authors recommend that sexuality education which has already been incorporated into primary and secondary school curricular should also be introduced as a core course in all Nigerian universities. In reinforcing the religious views of a given mission-school which is mainly promoting sexual abstinence, introduction of age-appropriate sexuality education will lower the rate of unprotected sex thereby lowering the risks of STDs and unwanted pregnancies among sexually active undergraduate students.

Predictors of good contraceptives usage in the current study were gender, possession of at least one sexual partner, knowledge about contraceptives and sexual behaviours of respondents. Poor knowledge of contraceptives has been found to be a determinant of contraceptive use among undergraduate students (Aigbiremolen et al., 2014). Good knowledge of contraception and male gender were good predictor of contraception usage. Hence, efforts should be made by adolescents/youth experts to promote good contraceptive knowledge and practice among undergraduate students in mission-schools. Besides, non-stigmatising/non-discriminatory contraceptive information and services should be made available, affordable and accessible to all undergraduate students in Nigeria including those in mission owned tertiary institutions. This will involve lots of advocacy and dialogues with proprietors of the mission schools as well as religious leaders in Nigeria.

The current study reveals high contraceptive awareness rate but average contraceptive knowledge and usage rate. Also, many of the respondents engaged in unsafe sexual practices. There is an urgent need for public health experts to design cost-effective sexual and reproductive health package for adolescents/youths studying in private mission-based Nigerian tertiary institutions. This will fast track the pace of Nigeria to realize SDG 3.1 by 2030.

In view of the low contraceptive use despite high awareness rate in the current study, authors recommend that contraception should be included in the Nigerian university curricular. Policy makers and development partners should invest more in contraception so that contraceptive counseling and services can be provided to university students at affordable prices. One stop contraceptive shop can be established in strategic place within and outside university campuses. Lastly, there is need to enhance the capacities of healthcare workers to render non-stigmatizing contraceptive services to adolescents in Nigeria.

Areas for further study: There is need to further explore the socio-cultural determinants of contraceptive use among undergraduate Nigerian students.

Study limitation: This study may have been affected by responders' bias in which sexually active students may not have participated in the study for fear of punishment from the university authority if they are discovered to be sexually active. However, the study participants were encouraged to be honest in their responses since confidentiality of information obtained from them was assured.

References

- Ahmed, Z. D., Sule, I. B., Abolaji, M. L., Mohammed, Y., & Nguku, P. (2017). Knowledge and utilization of contraceptive devices among unmarried undergraduate students of a tertiary institution in Kano State, Nigeria 2016. *Pan African Medical Journal*, 26, 103. <https://doi.org/10.11604/pamj.2017.26.103.11436>
- Aigbiremolen, A., Duru, C., Abah, S., Abejegah, C., Asalu, O., & Oriaifo, B. (2014). Contraception among tertiary students: Knowledge, use, and behaviour of female undergraduates in Edo State, Nigeria. *Global Journal of Medical Research (K)*, 14(2).
- Arogundade, A. O. (2022). Factors Influencing the Sexual Behaviour of Undergraduate Students in Adeleke University, Osun State, Nigeria. *International Journal of Health Sciences and Research*, 12(10), 9–18. <https://doi.org/10.52403/ijhsr.20221002>
- Atuhaire, S., Ngendakumana, J., Galadima, A., Adam, A., & Muderhwa, R. B. (2021). Knowledge and attitude towards contraceptive use among adolescents in Africa: a systematic review. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 10(11), 4292–4303. <https://doi.org/10.18203/2320-1770.ijrcog20214349>
- Bell, S. O., Omoluabi, E., Olaolorun, F., Shankar, M., & Moreau, C. (2020). Inequities in the incidence and safety of abortion in Nigeria. *BMJ Global Health*, 5(1), 1–11. <https://doi.org/10.1136/bmjgh-2019-001814>
- Coll, C. D. V. N., Ewerling, F., Hellwig, F., & De Barros, A. J. D. (2019). Contraception in adolescence: The influence of parity and marital status on contraceptive use in 73 low-and middle-income countries. *Reproductive Health*, 16(1), 1–12. <https://doi.org/10.1186/s12978-019-0686-9>
- Crawford, E. E., Atchison, C. J., Ajayi, Y. P., & Doyle, A. M. (2021). Modern contraceptive use among unmarried girls aged 15–19 years in South Western Nigeria: results from a cross-sectional baseline survey for the Adolescent 360 (A360) impact evaluation. *Reproductive Health*, 18(1), 1–13. <https://doi.org/10.1186/s12978-020-01056-w>
- Duru, C. B., Iwu, A. C., Diwe, K. C., Uwakwe, K., Diwe, K. C., Uwakwe, K. A., Merenu, I. A., Emerole, C. A., & Oluoha, U. R. (2015). Sexual Behaviour, Contraceptive Knowledge and Use among Female Undergraduates in Tertiary Institutions in Imo State, Nigeria. *American Journal of Medical Sciences and Medicine*, 3(5), 61–66. <https://doi.org/10.12691/ajmsm-3-5-1>
- Eniojukan, J. F., Ofulue, I., & Okinedo, P. O. (2016). Knowledge , Perception and Practice of Contraception among Staff and Students in a University Community in Delta State , Nigeria. *UK*

- Journal of Pharmaceutical and Biosciences*, 4(1), 71–81.
- Hounton, S., Barros, A. J. D., Amouzou, A., Shiferaw, S., Maïga, A., Akinyemi, A., Friedman, H., & Koroma, D. (2015). Patterns and trends of contraceptive use among sexually active adolescents in Burkina Faso, Ethiopia, and Nigeria: Evidence from cross-sectional studies. *Global Health Action*, 8(1). <https://doi.org/10.3402/gha.v8.29737>
- Hubacher, D., & Trussell, J. (2015). A definition of modern contraceptive methods. *Contraception*, 92(5), 420–421. <https://doi.org/10.1016/j.contraception.2015.08.008>
- Johnson, O. E., & Bassey, B. A. (2019). Sexual Practices among Senior Students in Private Secondary Schools in Uyo , Southern Nigeria. *African Journal of Reproductive Health*, 23(4), 46–53. <https://doi.org/10.29063/ajrh2019/v23i4.6>
- Kalra, G., Ventriglio, A., & Bhugra, D. (2015). Sexuality and mental health: Issues and what next? *International Review of Psychiatry*, 27(5), 463–469. <https://doi.org/10.3109/09540261.2015.1094032>
- Kantorová, V., Wheldon, M. C., Dasgupta, A. N. Z., Ueffing, P., & Castanheira, H. C. (2021). Contraceptive use and needs among adolescent women aged 15-19: Regional and global estimates and projections from 1990 to 2030 from a Bayesian hierarchical modelling study. *PLoS ONE*, 16(3), 1–28. <https://doi.org/10.1371/journal.pone.0247479>
- Keto, T., Tilahun, A., & Mamo, A. (2020). Knowledge, attitude and practice towards risky sexual behaviors among secondary and preparatory students of Metu town, south western Ethiopia. *BMC Public Health*, 20(1), 1–8. <https://doi.org/10.1186/s12889-020-09371-4>
- Michael, T. O., Ojo, T. F., Ijadeniyi, O. A., Ibikunle, M. A., Oni, J. O., & Agboola, A. A. (2024). Prevalence and factors associated with contraceptive use among sexually active adolescent girls in 25 sub-Saharan African countries. *PLoS ONE*, 19(2), 1–15. <https://doi.org/10.1371/journal.pone.0297411>
- National Population Commission (NPC) [Nigeria] and ICF. (2019). Nigeria Demographic and Health Survey 2018 Key Indicators Report. In *The Federal Republic of Nigeria Nigeria*. <https://dhsprogram.com/pubs/pdf/SR264/SR264.pdf>
- Nsubuga, H., Sekandi, J. N., Sempeera, H., & Makumbi, F. E. (2016). Contraceptive use, knowledge, attitude, perceptions and sexual behavior among female University students in Uganda: A cross-sectional survey. *BMC Women's Health*, 16(1), 1–11. <https://doi.org/10.1186/s12905-016-0286-6>
- Obasohan, P. E. (2015). Religion, Ethnicity and Contraceptive Use among Reproductive age Women in Nigeria. *International Journal of Maternal and Child Health and AIDS*, 3(1), 63–73.
- Ogbonna, V. I., Adeniji, F., & Iliyasu, Z. (2023). Risk and Protective Factors Influencing Multiple Sexual Partners among Adolescents in Rivers State. *Niger J Med* 2023;32:73-9., 32, 73–79. <https://doi.org/10.4103/NJM.NJM>
- Olaoye, T., & Agbede, C. (2019). Prevalence and personal predictors of risky sexual behaviour among in-school adolescents in the Ikenne Local Government Area, Ogun State, Nigeria. *International Journal of Adolescent Medicine and Health*, 34(3). <https://doi.org/10.1515/ijamh-2019-0135>
- Ononokpono, D. N., Odimegwu, C. O., & Usoro, N. A. (2020). Contraceptive use in Nigeria: Does social context matter? *African Journal of Reproductive Health*, 24(1), 133–142. <https://doi.org/10.29063/ajrh2020/v24i1.14>
- Sanni, T. A., Elegbede, O. E., Durowade, K. A., Adewoye, K., Ipinnimo, T. M., Alabi, A. K., Ibikunle, A., Olasehinde, O. K., Adeyanju, T. A., & Oni, O. B. (2022). Sexual Debut, Sexual Education, Abortion, Awareness and Prevalence of Contraceptive Among Female Undergraduates Students in Public and Private Universities in Ekiti State, Nigeria. *Cureus*, 14(8). <https://doi.org/10.7759/cureus.28237>
- Sawyer, S. M., Afifi, R. A., Bearinger, L. H., Blakemore, S. J., Dick, B., Ezech, A. C., & Patton, G. C. (2012).



- Adolescence: A foundation for future health. *The Lancet*, 379(9826), 1630–1640. [https://doi.org/10.1016/S0140-6736\(12\)60072-5](https://doi.org/10.1016/S0140-6736(12)60072-5)
- Somba, M. J., Mbonile, M., Obure, J., & Mahande, M. J. (2014). Sexual behaviour, contraceptive knowledge and use among female undergraduates' students of Muhimbili and Dar es Salaam Universities, Tanzania: A cross-sectional study. *BMC Women's Health*, 14(1), 1–8. <https://doi.org/10.1186/1472-6874-14-94>
- Thairu, Y., Shehu, H. A., & Egenti, N. (2015). Profile of Sexually transmitted infections (STIs) among students of tertiary educational institution in Abuja, Nigeria. *IOSR Journal of Dental and Medical Sciences*, 14(11), 71–74. <https://doi.org/10.9790/0853-141157174>
- Unumeri, G., Ishaku, S., Ahonsi, B., & Oginni, A. (2015). Contraceptive use and its socio-economic determinants among women in north-east and north-west regions of Nigeria: A comparative analysis. *Etude de La Population Africaine*, 29(2), 1851–1874. <https://doi.org/10.11564/29-2-757>
- Utoo, B., Eka, P., Utoo, P., Unazi, E., & Maanongun, M. (2020). Sexual Activity and Contraceptive use among University Female Undergraduates in Makurdi, North-Central Nigeria. *Western Journal of Medical and Biomedical Sciences*, 1(2), 132–138. <https://doi.org/10.46912/wjmbs.21>
- World Health Organization. (2001). *The Second decade : improving adolescent health and development*. 20.
- World Health Organization. (2018). *WHO recommendations on adolescent sexual and reproductive health and rights*.