

## ORIGINAL RESEARCH ARTICLE

# Socio-demographic and economic determinants of awareness and use of contraceptives among adolescents in Ebonyi State, South-east, Nigeria

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## Abstract

Understanding factors that explain levels of awareness and use of contraceptives among adolescents is a critical entry point for improving their sexual and reproductive health. This study assessed the demographic and socioeconomic determinants of awareness and use of contraceptives among adolescents in rural and urban communities in Ebonyi State, Nigeria. A cross-sectional household survey was conducted in three rural and urban communities in August, 2018. Modified cluster sampling technique was used to select eligible households. A total of 1045 adolescents (598 females and 447 males) were randomly selected from the households and interviewed using a pre-tested structured questionnaire. The mean age is 15.4years (15.3 – 15.5) and the median age is 15.5years. Univariate, bivariate and multivariate analysis were undertaken. Statistical significance was set at p-value of <0.05. Majority of respondents, 723 (68.9%), were aware of male condom. Place of residence predicts awareness of contraceptive pills (AOR 0.66, CI 0.48-0.91); schooling predicts awareness of male condoms (AOR 0.57; CI 0.32-0.99). Predictors of awareness of female condoms are place of residence (AOR 0.66, CI 0.47-0.93), gender (AOR 0.57, CI 0.32-0.99) and wealth index (AOR 1.16, CI 1.03-1.30). Demographic and socioeconomic characteristics of respondents did not predict contraceptive use in the last sex. Although awareness of contraceptives is high, utilization is low among sexually active adolescents. Hence, the need to promote access to and utilization of contraceptives through comprehensive contraceptive education to improve adolescents sexual and reproductive health. (*Afr J Reprod Health* 2021; 25[3]: 21-29).

**Keywords:** Adolescent, awareness of contraceptives, determinants, demographic and socio-economics status, Nigeria

## Résumé

Comprendre les facteurs qui expliquent les niveaux de sensibilisation et d'utilisation des contraceptifs chez les adolescents est un point d'entrée essentiel pour améliorer leur santé sexuelle et reproductive. Cette étude a évalué les déterminants démographiques et socio-économiques de la sensibilisation et de l'utilisation des contraceptifs chez les adolescents des communautés rurales et urbaines de l'État d'Ebonyi, au Nigéria. Une enquête transversale auprès des ménages a été menée en 2019 dans trois communautés rurales et urbaines en août 2018. Une technique d'échantillonnage en grappes modifiée a été utilisée pour sélectionner les ménages éligibles. Un total de 1045 adolescents (598 femmes et 447 hommes) ont été sélectionnés au hasard dans les ménages et interrogés à l'aide d'un questionnaire structuré prétesté. L'âge moyen est de 15,4 ans (15,3 - 15,5 ans) et l'âge médian est de 15,5 ans. Une analyse univariée, bivariée et multivariée a été entreprise. La signification statistique a été fixée à une valeur p <0,05. La majorité des répondants, 723 (68,9%), connaissaient le préservatif masculin. Le lieu de résidence prédit la connaissance des pilules contraceptives (AOR 0,66, IC 0,48-0,91); la scolarité prédit la connaissance des préservatifs masculins (AOR 0,57; IC 0,32-0,99). Les prédicteurs de la connaissance des préservatifs féminins sont le lieu de résidence (AOR 0,66, IC 0,47-0,93), le sexe (AOR 0,57, IC 0,32-0,99) et l'indice de richesse (AOR 1,16, IC 1,03-1,30). Les caractéristiques démographiques et socio-économiques des répondants ne prédisaient pas l'utilisation de la contraception lors du dernier rapport sexuel. Bien que la connaissance des contraceptifs soit élevée, leur utilisation est faible chez les adolescents sexuellement actifs. D'où la nécessité de promouvoir l'accès aux contraceptifs et leur utilisation grâce à une éducation complète à la contraception pour améliorer la santé sexuelle et reproductive des adolescents. (*Afr J Reprod Health* 2021; 25[3]: 21-29).

**Mots-clés:** Adolescent, connaissance des contraceptifs, déterminants, statut démographique et socio-économique, Nigéria

## Introduction

The sexual and reproductive behaviours of adolescents expose them to lifestyle risks and ill effects which could deter their ability to live healthy and meaningful lives<sup>1-4</sup>. In sub-Saharan Africa, it has been observed that a significant proportion of adolescents are sexually active by their mid-teens<sup>5-7</sup>. Although sex before marriage is not encouraged in most cultural settings in Nigeria<sup>8,9</sup>, several studies report early sexual initiation among Nigerian adolescents<sup>10,11</sup>. Nigeria has one of the largest population of adolescent girls in the world and some of them are exposed to unwanted pregnancy<sup>12</sup>. The most recent Demographic and Health Survey in Nigeria shows that 19% of women age 15-19 had already begun childbearing and 30% of adolescents aged 15-19 have had a live birth by age 19<sup>13</sup>. In addition to social exclusion from family and peers, adolescent girls are more likely to experience serious pregnancy-related complications or death during childbirth<sup>4</sup>.

In addition to teenage pregnancy and its complications, sexual risk taking among adolescents in developing countries such as Nigeria has the potential to fundamentally shape the burden and course of HIV epidemic and other STIs<sup>14</sup>. The high level of unprotected sexual intercourse among this sub-group constitutes important public health concern in developing countries<sup>15</sup>. Limited access to information and low utilization of contraceptive among sexually active adolescents were found to be the major factors contributing to high rates of unwanted pregnancies and unsafe abortions<sup>16-18</sup>. Many adolescent girls do not know that a woman could get pregnant the first time she has unprotected vaginal heterosexual intercourse<sup>7</sup>. The low utilization of contraception has also been attributed to limited capacity of the health care system and structure within which contraceptive services are provided<sup>19</sup>. Additionally, personal factors such as fear of side effects, opposition from male partners, and inadequate knowledge required to make informed choices have been reported as factors influencing utilization of contraceptives<sup>20</sup>. Effective contraceptive use by young people enables them to grow into mature and better adults, advance their lifelong career and become economically independent and financially stable before they start childbearing<sup>21</sup>. However, both male and female

adolescents face numerous challenges to accessing contraceptive services.

The sexual and reproductive behaviours of adolescents is underexplored in Nigeria, and few authors have published original articles on this topic. Some studies have found that there are variations in awareness and utilization of contraceptives among adolescents, and that these variations occur across demographic and socioeconomic profiles of adolescents as shown in Edo state, Ghana, Burkina Faso and Ethiopia<sup>2,4,9,22</sup>. However, there still exists gap in knowledge of the extent to which these variations can be described as predictive/determinant. Understanding the predictors of awareness and use of contraceptives among adolescents is particularly important for better designing and targeting of adolescent health interventions.

This study was undertaken to examine demographic and socioeconomic factors that predict awareness and use of contraceptives among adolescents in Ebonyi State Nigeria. This information will be useful to policymakers, program managers and service providers in designing, planning and implementing appropriate sexual and reproductive health programmes for adolescents.

## Methods

### *Study setting and study design*

The study was conducted in six communities in Ebonyi state, south-east, Nigeria in August, 2018. Ebonyi state is estimated to have a 2017 population of 6,268,003 inhabitants with a land area of about 5,935 km<sup>2</sup>. The state has thirteen (13) Local Government Areas (LGAs), out of which six (6) were purposively selected for the study based on the following criteria: (1) geographic (rural and urban communities) and geopolitical (three senatorial zones) context; (2) LGAs with highest unmet need for contraceptives as evidenced by unwanted teenage pregnancies and abortion; and (3) LGAs mapped by the state government for adolescent sexual and reproductive health (ASRH) intervention. A cross-sectional study approach was adopted to collect a baseline data prior to intervention. Eligible households and adolescents were surveyed using a pre-tested interviewer-administered questionnaire.

### ***Study population and characteristics of participant***

The study population comprised of adolescents aged 13 to 18 years who are unmarried and living in selected households at the time of the study. Visitors and those who had hearing, or mental impairment were ineligible to be interviewed. Adolescents in stable co-habiting relationships were also excluded.

### ***Sampling procedure and sample size***

Modified cluster sampling technique was used to select eligible households from which adolescents were interviewed. The starting point from which recruitment of households began was the closest public facility e.g. primary health center, village square or town hall from the main entrance to the community. Households were selected through a random walk from the starting point. The next succeeding household was then selected from the recruited ones until the desired sample size was reached. All eligible adolescents living in the households selected were invited to participate in the study. One re-visit was made to each household to recruit adolescents who were absent during the first visit. Data collection was conducted by 54 research assistants (48 interviewers and 6 supervisors) who were trained for five (5) days to enable proficiency in administering the survey instruments. In order to achieve a power of 80% with 95% confidence interval a minimum sample size of 900 was estimated to allow for urban-rural comparison.

### ***Data collection***

Data was collected using a structured questionnaire that was adapted from the World Health Organization (WHO) illustrative questionnaire for interview-surveys with young people<sup>23</sup>. The questionnaire was pre-tested among 24 adolescents that were purposively selected to reflect place of residence (urban and rural), sex (male and female), and schooling (in-school and out-of-school). The questionnaire elicited information on demographic characteristics, socio-economic status, exposure to sexual intercourse, awareness of contraception, and contraceptive use during last sexual intercourse. Each respondent was surveyed by a pair of trained

research assistants consisting of an interviewer (who asked the questions and entered responses in the electronic questionnaire) and a recorder (who recorded responses on the paper questionnaire). Fifty-four research assistants were recruited and trained for (5) days to enable them administer the survey instruments properly. The training consisted of didactic and interactive plenary sessions, and parallel group work sessions. Role plays were introduced on the third day and research assistants worked in parallel groups, alternating roles as interviewers, recorders and respondents. Data was collected from Monday to Saturday by various teams between 8am and 6pm daily, lasting for a period of ten (10) days. In addition to rigorous training of research assistants and use of paper-back up questionnaire with electronic data collection, some other measures were taken to ensure that good quality of data was collected from respondents, and they include: (1) two layers of supervision of field work activity; (2) concurrent viewing of data as field work activity was going on; (3) individual matching of information on completed paper-questionnaire with corresponding electronic-questionnaire, before and after uploading data to the server. On-going analysis and sorting of electronic data was performed by the data consultant on a daily basis. Observed inconsistencies and errors were immediately flagged up and enumerators were notified. The last stage of data quality management was done at the end of data collection. The complete data set was first downloaded using Excel software, and correction of errors that were identified and rectified during concurrent data viewing was done. Individual matching of information on completed paper-questionnaire with respondent's data on the Excel spreadsheet questionnaire was repeated for all questionnaires and inconsistent or poorly matched questionnaires were deleted from the data set.

### ***Data analysis***

Univariate, bivariate and multivariate analysis were performed. In order to account for the clustered stratified design of the survey sample, weighted proportions are reported. Weighted proportions based on a denominator of less than 25 participants are not reported. Frequency and proportions were reported for all categorical variables while mean was reported for numeric variables.

**Wealth index estimation:** The total household consumption was calculated by adding food and non-food expenditure. Per capita household consumption was then calculated by dividing total household consumption by number of children in the household. The per capita household consumption was used to categorize households into socioeconomic quintiles Q1 to Q5, where Q1 refers to poorest households and Q5 refers to richest households.

**Bivariate analysis:** Adolescents' awareness and utilization of contraceptives were disaggregated by demographic and socioeconomic characteristics such as place of residence, sex, schooling, and wealth index to highlight distribution as well as to test for correlation. Chi-square and p-values were reported for the multi-way tables. Statistical significance was set at p-value of 0.05 and confidence level at 95%.

**Multivariate analysis:** Logistic regression analysis to explain the relationship between dependent variable and independent variables was undertaken.

## Results

### Background information of the study population

A total of twelve (12) questionnaires were excluded in the analysis because they could not be matched to households. The characteristics of 1045 adolescents included in the analysis are summarized in Table 1. Similar proportion of respondents were from urban 551 (50.7%) and rural 494 (49.3%) communities; 598 (57%) of the respondents were females and 447 (43%) were males. The mean age of the respondents was 15.4 (CI, 15.3 – 15.5) and the median age was 15.5, with fourteen (14) year olds constituting the largest number of respondents. Majority (92.4%) of the adolescents were currently in school at the time of the survey. In-school children are those that are enrolled in an education system, while out-of-school are those kids who are yet to be enrolled in any formal education excluding pre-primary education. Out of 372 adolescents who reported they had ever had a boyfriend or girlfriend, 68.5% were currently in a relationship and 19.4% reported they have ever had sexual intercourse with a boyfriend or girlfriend while 7% reported ever having sex with someone other than their boyfriend or girlfriend.

**Table 1:** Background information of respondents

Variables (N=1045)	n	%
<b>Place of residence</b>		
Urban	551	50.7
Rural	494	49.3
<b>Sex</b>		
Female	598	57.2
Male	447	42.8
<b>Mean age (confidence interval)</b>	15.4 (15.3 – 15.5)	
<b>Age in single years</b>		
13	180	17.4
14	219	20.9
15	162	15.5
16	151	14.5
17	136	12.9
18	197	18.8
<b>Schooling status</b>		
In-school	966	92.4
Out-school	79	7.6
<b>Wealth index</b>		
Quintile 1 (poorest)	224	21.9
Quintile 2	211	20.6
Quintile 3	214	20.1
Quintile 4	198	18.8
Quintile 5 (richest)	197	18.6
<b>Relationship status</b>		
Ever had boyfriend/girlfriend	a 372	35.6
Currently has boyfriend/girlfriend	a 253	24.2

Wealth index distribution of respondents into quintiles (Q) 1 to 5 representing the poorest and richest quintile respectively is indicated.

### Awareness of contraceptives and contraceptive methods among adolescents

The findings on awareness of contraception and the demographic/socioeconomic determinants is presented in Table 2. The results show that 784 (74.8%) respondents had ever heard of contraceptives. Male condom was the most mentioned type of contraceptive they knew about, 723 (68.9%) followed by oral contraceptive pills, 231 (22.2%), and the female condom, 200 (19.2%). The results indicate that, there was statistical significant associations between ever heard of pills and place of residence ( $p = 0.00$ ) and schooling ( $p = 0.02$ ); gender ( $p = 0.002$ ) and ever heard of female condom; schooling ( $p = 0.02$ ) and ever heard of male condom.

**Table 2:** Determinants of awareness of contraceptives and contraceptive methods among respondents

Variables	N	Ever heard of contraceptives n (%)	+Contraceptive methods ever heard		
			Pills n (%)	Male condom n (%)	Female condom n (%)
<b>Place of residence</b>					
Urban	551	414(74.70)	104 (18.70)	386 (69.70)	94 (17.10)
Rural	494	370(74.90)	127 (25.70)	337 (68.20)	106 (21.50)
X <sup>2</sup> (p-value)		0.01(0.94)	<b>7.42 (0.00)*</b>	0.37 (0.54)	3.25 (0.07)
<b>Gender</b>					
Female	598	452(75.40)	139 (23.40)	409 (68.20)	128 (21.60)
Male	447	332(74.00)	92 (20.60)	20 (32.60)	72 (16.10)
X <sup>2</sup> (p-value)		0.26(0.60)	1.13 (0.29)	3.34 (0.07)	<b>4.86 (0.02)*</b>
<b>Schooling</b>					
In-school	966	718(74.10)	206 (21.30)	661 (68.20)	182(18.90)
Out-of-school	79	66(83.40)	25 (32.00)	62(78.50)	18 (22.90)
X <sup>2</sup> (p-value)		3.34 (0.06)	<b>4.78 (0.02)*</b>	<b>3.63 (0.05)*</b>	0.77 (0.38)
<b>Wealth index</b>					
Q1 (poorest)	224	169(75.10)	49 (21.90)	152 (67.50)	34 (15.30)
Q2	211	160(75.60)	56 (26.50)	143 (67.70)	40 (18.80)
Q3	214	161(74.90)	36 (17.10)	154 (71.80)	44 (20.80)
Q4	198	149(75.10)	47 (23.80)	134 (67.50)	38 (19.40)
Q5 (richest)	197	144(73.00)	43 (21.60)	139 (70.40)	43(22.10)
X <sup>2</sup> (p-value)		0.11(0.98)	1.45(0.22)	0.39 (0.81)	0.91(0.46)
Total	1045	784(74. 80)	231(22.20)	723(68.90)	200(19.20)

\*Multiple responses; \*p < 0.05

**Table 3:** Determinants of contraceptive use in the last sexual intercourse among respondents

Variables (N=126)	N	n (%)	X <sup>2</sup> (p-value)
<b>Place of residence</b>			
Urban	55	21(37.50)	0.13 (0.88)
Rural	71	29(40.90)	
<b>Gender</b>			
Female	65	28(42.80)	0.69 (0.51)
Male	61	22(35.90)	
<b>Schooling</b>			
In-school	101	39(38.40)	0.19 (0.82)
Out-of-school	25	11(43.60)	
<b>Employment</b>			
Employed	49	23(46.80)	1.16 (0.32)
Unemployed	35	13(36.40)	
<b>Wealth index</b>			
Q1 (poorest)	36	14(38.90)	0.26 (0.98)
Q2	25	9(36.30)	
Q3	31	12(38.40)	
Q4	20	8(39.30)	
Q5 (richest)	14	7(49.30)	
Total	126	50(39.40)	

\*p < 0.05

### **Contraceptive use and its determinants among sexually exposed/active adolescents**

Table 3 shows that out of 126 respondents who responded to the question on contraceptive, only 50

(39.4%) reported using contraceptives in the last sexual intercourse. Few of the respondents, 21 (28.5%) and 9 (28.8%) reported the use of contraceptives in the last sex with someone else other than boy/girlfriend and with much older partner respectively. The major contraceptive method used was male condom, 46 (91.9%). Other contraceptive methods were pills, 2 (4.2%), and injection, 1 (1.8%). Thirty-six (52.6%) of adolescents who did not use contraceptive in the last sex said they would have used contraceptive if it was provided for them. There was no statistical significant relationship between demographic or socioeconomic status of the respondents and contraceptive use in the last sexual intercourse. It was classified that any one making money from any means is employed, so both part time and temporary workers are inclusive.

Results of logistic regression analysis for predictors of awareness and use of contraceptive among adolescents are shown in Table 4. Knowledge of male condoms was predicted by schooling (AOR 0.57, CI 0.32-0.99). Place of residence predicts knowledge of pills (AOR 0.66, CI 0.48-0.91) and knowledge of female condoms (AOR 0.66, CI 0.47-0.93).

**Table 4:** Logistic regression analysis of demographic and socioeconomic determinants of awareness and use of contraceptives

Variables	Adjusted Odds ratio	Std. Error	T	P-value P> t	95% Conf. Interval
<b>Ever heard of male condom</b>					
Place of residence	1.09	0.15	0.59	0.56	0.82-1.44
Gender	1.10	0.15	0.71	0.48	0.84-1.44
Schooling	0.57	0.16	-1.99	<b>0.04*</b>	0.32-0.99
Wealth index	1.02	0.05	0.42	0.67	0.93-1.13
<b>Ever heard of pills</b>					
Place of residence	0.66	0.11	-2.58	<b>0.01*</b>	0.48-0.91
Gender	0.86	0.13	-1.01	0.31	0.63-1.16
Schooling	0.63	0.16	-1.81	0.07	0.37-1.04
Wealth index	1.04	0.59	0.66	0.51	0.93-1.16
<b>Ever heard of female condom</b>					
Place of residence	0.66	0.11	-2.37	<b>0.02*</b>	0.47-0.93
Gender	0.69	0.11	-2.20	<b>0.03*</b>	0.51-0.96
Schooling	0.84	0.24	-0.61	0.54	0.48-1.47
Wealth index	1.16	0.07	2.49	<b>0.01*</b>	1.03-1.30
<b>Use of contraceptive in last sexual intercourse</b>					
Place of residence	0.57	0.28	-1.13	0.26	0.21-1.54
Gender	0.77	0.36	0.55	0.58	0.31-1.95
Schooling	0.69	0.42	0.61	0.54	0.20-2.34
Currently work	1.25	0.62	0.44	0.66	0.46-3.37
Wealth index	1.21	0.21	1.07	0.29	0.85-1.72

\*p &lt; 0.05

Other predictors of female condom are gender (AOR 0.57, CI 0.32-0.99) and wealth index (AOR 1.16, CI 1.03-1.30). Use of contraceptives at first sexual intercourse among adolescents in the survey was not predicted by place of residence, gender, schooling or wealth index.

## Discussion

The study observed high awareness of contraceptives among adolescents in Ebonyi state, and male condom was the commonest contraceptive method they had ever heard about. This could be explained by the fact that male condoms are the most advertised contraceptives and it has both contraceptive and non-contraceptive benefits like prevention of STI and HIV. Further analysis shows that the predictive effects of demographic and socioeconomic characteristics on awareness of contraceptives varied depending on the method. The level of awareness of contraceptives among adolescents could be attributed to exposure on sexual related matters amongst them as contraception information are readily available in both social and mass media and from peer groups<sup>20</sup>. Our findings are similar to what was reported by

Magreat *et al*, who noted high knowledge of contraceptive among adolescents in Tanzania<sup>24</sup>. Similarly, other studies in Nigeria reported high contraceptive awareness among adolescents<sup>25,26</sup>. This however is not in agreement with the study by Babatunde *et al*<sup>18</sup>, who reported that only 27.8% of adolescent studies had good knowledge of emergency contraception in Ilorin, Nigeria. Predictors of awareness of types of contraceptives were place of residence, gender, schooling and wealth index.

Despite high level of contraceptive awareness among adolescents in the present study, utilization in the last sexual intercourse was very poor. Our findings are consistent with other studies in Nigeria that reported low contraceptive use amongst adolescents<sup>24-26</sup>. This implies that a considerable number of adolescents may still lack knowledge of the consequences of unprotected sexual intercourse, thus the high rate of unwanted pregnancy amongst adolescents in Nigeria<sup>18</sup>. The findings confirm that awareness of contraceptive and contraceptive methods does not translate to practice. There is a definite gap between awareness and use of contraceptives during sexual intercourse, and this calls for comprehensive sexuality education

and promotion of contraception amongst adolescents<sup>27,28</sup>.

Similar to previous reports, male condom was the commonest method of contraceptive used by sexually active adolescents in our study population. Male condoms are readily available and accessible to adolescents, and has been reported as the commonest contraceptive method used by unmarried young people. It also plays a dual role of protection against STIs which makes it more appealing to people in non-committed sexual relationships. This is also similar to the findings of another study in Nigeria which revealed that approximately 92% of those who used contraceptives reported using male condom<sup>29</sup>.

Non-use of contraceptives amongst sexually active adolescents has been attributed to cultural and societal norms, awareness of contraceptive and use, lack of money, and perceived sexual displeasure associated with contraceptives such as male and female condom. Other documented reasons for non-use of contraceptives are long travel time to health facilities, fear of side effects, religious beliefs, judgmental attitude of health workers and restricted choice<sup>29,30</sup>. Some authors have also reported gender and other demographic variations in access to and utilization of contraceptives among adolescents<sup>31,32</sup>. However, our study did not find any demographic or socioeconomic predictors of contraceptive use among sexually active adolescents, probably because of lesser number of sexually active adolescent in our study than other studies.

A considerable proportion of sexually active adolescents in this study intended to use contraceptives in their last sexual intercourse. The result signifies high unmet need for contraceptives among adolescents and corresponds with global and regional estimates<sup>33,34</sup>. The unmet need for contraceptive use in the last sexual intercourse may probably be due to numerous barriers such as lack of money, stigma, gendered culture norm especially against girls, and lack of in-depth knowledge of various methods of contraceptives associated with adolescents' access to and utilization of contraceptive. For instance, the results from a study conducted in Ghana revealed that the society would perceived an adolescent female purchasing condom as a spoilt child<sup>35</sup>. The implication is that adolescent

females, are unexpected or rather not empowered to access contraceptive and are likely to die in silence and are therefore, predisposed to risky sexual behaviors. More so, misconceptions of contraceptives may negatively influence utilization of contraceptive<sup>11</sup>.

## Conclusion

Despite the high level of awareness of contraceptive among adolescents, the rate of contraceptives use is very low. Awareness of contraceptive methods are associated with place of residence, schooling, and gender. Adolescents are among those at a high risk of contracting sexually transmitted diseases (STDs), yet they do not adopt protective measures, thus poor usage of contraceptive. Hence, the need to promote access to safe and acceptable methods of contraceptives in the study settings through comprehensive contraceptive education to reduce the menace of unwanted teenage pregnancy and other health consequences of unprotected sexual intercourse at school and in the community. Additional study is needed to understand the reason for unmet needs for contraceptive among adolescents in our study area or similar setting

## Ethical approval

Ethical approval was obtained from the Ethics and Research Committee of University of Nigeria Teaching Hospital (UNTH) Enugu and the Ethics Committee of Ebonyi State Ministry of Health, Abakaliki. During data collection and analysis, the principles of ethical conduct of research involving humans; respect for autonomy through voluntary informed consent, beneficence through favourable balance of benefits and risks, justice through fair inclusion, and privacy of information by anonymised collection and use of data were duly observed. Both verbal and written informed consent were obtained from both the household heads and from study participants (adolescents) before administering the questionnaire.

We declare that permission for publication was obtained for this study.

## Competing interests

The authors declare they have no conflict of interest nor competing interests.

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## Authors' contributions

CM, OO and NE conceived the idea of the study. UE, CM, OO, NE, IA and CO participated in the design of the study and data collection. CM, UE performed the statistical analysis and interpretation of result, UE drafted the first version of the manuscript. All the authors contributed in revising the first draft of the paper and approved the final version.

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