

## Original Article

# Predictors of Male Condom Utilization in Plateau State, Nigeria

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### ABSTRACT

**Background:** Nigerian men play major roles in the reproductive decision-making process, including issues concerning fertility. Despite efforts made by the government to reduce the incidence of HIV by using condom as a means of dual protection, the utilization of male condom is still relatively low in Nigeria. This study aimed to assess the condom utilization and predictors of condom use among male respondents in Plateau State. **Methodology:** An analysis of secondary data of the 2013 Nigeria Demographic Health Survey dataset was done. Data were collected through a cross-sectional study using multistage cluster sampling technique from 393 consenting males aged 15–49 years in Plateau State using a semistructured, closed-ended questionnaire. Survey data quality was ascertained using field check tables during data entry. The dataset was analyzed using SPSS version 21.0 software (SPSS, IBM Corp, Armonk, NY, USA). Condom utilization prevalence rate was calculated for the 393 males, while predictors were determined by logistic regression.  $P \leq 0.05$  was considered statistically significant.

**Results:** Mean age of the respondents was  $31.05 \pm 9.395$  years. Most (90.3%) of the respondents were aware of at least one of the various family planning methods. The prevalence of condom use among them was 15.5% with the 20–29 years' age group having the highest proportion (28.8%). Significant associations were found between condom use and age, level of wealth, level of education, marital status, knowledge of contraception, occupation, and religion. Predictors of condom use include level of wealth (middle class), not being married, and primary level education. **Conclusions:** The prevalence of male condom use is low in Plateau State. The predictors of condom use are level of wealth, being unmarried, and primary level of education. Having only a primary level of education and been in the middle class reduces the likelihood of using condoms while being unmarried increases it.

**KEYWORDS:** Male condom utilization, male respondents, Plateau State, predictors

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## INTRODUCTION

The new Joint United Nations Programme on HIV/AIDS (UNAIDS) 2016–2021 strategy set a global target to increase the availability of condoms to 20 billion/year by 2020 in low- and middle-income countries and to achieve 90% condom use during the most recent sexual activity with a nonregular partner.<sup>[1]</sup> In the 2014–2015 National HIV/AIDS Prevention Plan, the Federal Government of Nigeria aimed to reduce the national human immunodeficiency virus (HIV) incidence rate through various measures including condom programming and the promotion of the dual protective

benefits of condoms, i.e., prevention of inadvertent pregnancies and sexually transmitted infections (STIs) including HIV<sup>[2,3]</sup> as evidence shows that male latex condoms have an 85% or greater protective effect against HIV and other STIs.<sup>[4]</sup> Increasing the contraceptive prevalence rate, including the male condom utilization rate, is also a part of the government's effort, since the

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late 1980s, to address the high level of maternal and child morbidity and mortality rates.<sup>[5]</sup>

HIV remains a major global public health issue, having claimed >35 million lives since it first emerged. In 2015, 1.1 (940,000–1.3 million) million people died from HIV-related causes globally. There were about 36.7 (34.0–39.8) million people living with HIV (PLHIV) at the end of 2015 with 2.1 (1.8–2.4) million people becoming newly infected with HIV in 2015 globally. Currently, Sub-Saharan Africa is the most affected region, with 25.6 (23.1–28.5) million PLHIV in 2015. In addition, Sub-Saharan Africa accounts for two-thirds of the global total of new HIV infections.<sup>[4]</sup> In Nigeria, the 2010 Antenatal Clinic survey reported a national HIV prevalence of 4.1% and the states' prevalence ranged from 1% in Kebbi State to 12.7% in Benue State.<sup>[3]</sup>

The risk of HIV infection can be reduced by limiting exposure to risk factors through various approaches including testing and counseling for HIV and STIs, linkages to tuberculosis care, voluntary medical male circumcision, antiretroviral (ARV) drug use for prevention, harm reduction for injecting drug users, elimination of mother-to-child transmission of HIV, and correct and consistent use of male and female condoms during vaginal or anal penetrative sex.<sup>[4]</sup>

Despite generally increasing trends in condom use over the past two decades, the prevalence of use of male-based family planning methods remains low with substantial regional variations and gaps.<sup>[2,6]</sup> In 2015, 63.6% of married or in-union women of reproductive age (15–49 years) worldwide used some form of contraception, 7.7% of them relied on male condoms, while 5.7% used traditional methods such as rhythm or withdrawal. In 2015, in Africa, 33.4% of married or in-union women of reproductive age used contraception of any type, 2.1% of them relied on male condoms, while 2% used traditional methods such as rhythm or withdrawal.<sup>[6]</sup> According to the 2013 Nigeria Demographic and Health Survey (NDHS), 15.1% of married women of reproductive age used contraception of any type while about 84.9% did not use any method. Out of those using any type of contraceptives, 9.8% relied on modern methods (with 2.1% using male condoms) while 5.4% used traditional methods. In 2013, in Plateau State, 15.2% of married women of reproductive age used any contraceptive method while about 84.8% did not use any method. Out of those using any type of contraceptives, 14.4% relied on modern methods (with 1.4% used male condoms) while 0.7% used traditional methods.<sup>[7]</sup>

Traditional barriers to condom use include personal and socio-environmental barriers. Lack of perceived threat, absence of motivation, inadequate knowledge, perceived lack of control, fear by PLHIV that partners would be cautious of them if they suggested the use of condoms during intercourse, feeling shy to buy condoms, consumption of alcohol or use of drugs prior to sexual intercourse, anxiety and depression, reduced pleasure during sex, negative attitudes toward condom, and misperception, are the major personal barriers. However, condom cost, gender inequality, lack of a dialogue among partners with regard to condom use, unsupportive environments, stigma attached to the condom, and cultural norms are the common socio-environmental barriers to condom use.<sup>[8-11]</sup> Emerging barriers to condom utilization include perceptions due to the knowledge that transmission risks lower with various biomedical interventions – voluntary medical male circumcision, postexposure prophylaxis, and ARV therapy. Factors that enhance condom use practices include having knowledge of various benefits associated with condom use, like preventing mother-to-child transmission of HIV.<sup>[8]</sup>

Consequences of low condom uptake include increased risk of transmission of STIs including HIV and unintended pregnancies with increased chances of maternal and infant mortality.<sup>[12]</sup> This ultimately has adverse effects on the community and nations economy and well-being. Other predictors of male condom utilization may exist; therefore, investigations into the prevalence and determinants of male condom utilization in Plateau State are needed. The determinants are dynamic depending on the community and the time of assessment. Therefore, a reassessment of the burden and predictors of uptake of condom utilization will assist in policy-making that could assist in appropriate interventions. The aim of the study, therefore, was to assess prevalence and predictors of male condom utilization in Plateau State.

## METHODOLOGY

### Study area

The study was done in Plateau State. The state is located in the North Central region of Nigeria. It has seventeen local government areas and an estimated population of 3,206,531 (1,598,998 males and 1,607,533 females). It has a total of 964 health facilities consisting of 736 publicly owned primary health facilities and 148 registered private health facilities. English is the official language in the state and most people are civil servants or farmers, others are petty traders, students, and housewives. There are over forty ethnolinguistic

groups in the state including people from other parts of country who came to settle, e.g., the Hausa, Fulani, Igbo, Yoruba, Ijaw, and Bini.<sup>[13,14]</sup>

### Sample size and study population

Three hundred and ninety-three male respondents were interviewed for the NDHS 2013 survey in Plateau State. The respondents were those aged 15–49 years who consented and were either permanent residents of households sampled or visitors who were present on the night before the survey.<sup>[7]</sup>

### Study design

This was a cross-sectional study of male respondents, through the secondary analysis of 2013 NDHS data. The uptake of male condoms and the predictors were assessed.

### Sampling technique

A multistaged sampling technique was used to select the 2013 NDHS samples. In the first stage, Plateau State was selected and subdivided into enumeration areas (EAs) based on the 2006 census. In the second stage of the sampling, clusters were formed from the EAs; this represented the primary sampling units. More than one EA was selected in some localities. A household listing exercise was done in all the EAs that were selected. Each selected EA that had <80 households was made up to 80 households by picking a neighboring EA from the selected locality and adding to the cluster. This list of households in each cluster served as the sampling frame for the third stage. The listing of households was carried out for each cluster from December 2012 to January 2013.

In the third stage, simple random sampling technique was used to select EAs from urban and rural areas; these EAs were formed using baseline clusters from 2006 census. A total of 24 clusters were selected comprising of 7 in the urban and 17 in the rural areas of the state. Each cluster had a minimum of 80 households.<sup>[7]</sup>

The fourth stage involved the use of systematic sampling technique, in which 1080 households were selected - 315 from urban and 765 from rural areas.

In the last stage, all men who fulfilled the inclusion criteria in every other selected household were included in the study.<sup>[6]</sup>

### Study instrument

A semistructured, closed-ended questionnaire was used. Information on sociodemographic characteristics, knowledge on contraceptive devices, utilization of condom, and source of obtaining condoms were asked. The questionnaire was translated to Hausa, Igbo, and

Yoruba languages and pretested in 120 households in Benue State.

The data collection was done in phases. In Phase 1, the preparation for data collection was done. This involved the training of members of the technical team who also served as trainers/quality assurance personnel.

The second phase was for field work, which commenced on February 15, 2013, and it ended in May 2013. The technical team and trainers monitored data quality using field check tables which was developed concurrently with data processing operations. This process enabled the technical team and advisers to detect problems during data entry, alert and advice the field teams accordingly.<sup>[6]</sup>

### Data management

The variables measured included the proportion of men utilizing condoms, proportion of men with knowledge about the condom, and factors associated with utilization of condoms. The proportion of men utilizing condoms was defined as men who are currently using condoms as at the time of the survey. The factors that were associated with the use of condoms were age, level of wealth, place of residence, level of education, religion, occupation, and tribe.

### Statistical analysis

Secondary data analysis was done from the generated database from NDHS, 2013, using the Statistical Package for the Social Sciences (SPSS) version 21.0 (SPSS, IBM Corp, Armonk, NY, USA).

Chi-square test was used to test for association between condom utilization and knowledge of condoms, age, occupation, marital status, religion, level of wealth, and level of education. However, because Chi-square cannot determine specific predictors or their effect size, univariate (binary) logistic regression was then used to determine that including the individual relationship between condom utilization and age, knowledge of family planning, occupation, marital status, religion, level of wealth, and level of education. Finally, multivariate (multiple) logistics regression was used to determine the predictors or determinants of condom use in the state, after adjusting or controlling for confounders among the selected variables.  $P \leq 0.05$  was considered statistically significant.

### Ethical consideration

Ethical clearance was obtained from the Institutional Health Research Ethical Committee of the Jos University Teaching Hospital, while the permission was obtained from the National Population Commission to use the 2013 NDHS database.

## RESULTS

The 2013 NDHS household response rate and eligible men response rate in the North central region where Plateau State is located was 98% and 93.9%, respectively.<sup>[7]</sup>

### Sociodemographic characteristics

Table 1 shows the baseline characteristics of the 393 men were interviewed in Plateau State for the 2013 NDHS. The mean age of the respondents was 31.05 ± 11.4 years, with a mode of 35 years.

**Table 1: Background characteristics of respondents (n=393)**

Variables	Frequencies (%)
Condom utilization	
Uses condom	61 (15.5)
Does not use condom	332 (84.5)
Age (years)	
15-19	57 (28.2)
20-29	111 (34.6)
30-39	136 (22.6)
Mean (age in years)±SD	31.05±9.395
Range	15-49
Single	180 (45.8)
Married	213 (54.2)
Number of living children	
0-2	260 (66.2)
3-5	86 (21.9)
≥6	47 (12.0)
Occupation	
Unemployed	19 (4.8)
Professional/technical/managerial	47 (12.0)
Sales	33 (8.4)
Agricultural workers	168 (42.7)
Service sector workers	102 (26.0)
Others	24 (6.1)
Religion	
Christianity	328 (83.5)
Islam	40 (10.2)
Other religions	25 (6.4)
Educational status	
No education	43 (10.9)
Primary	82 (20.9)
Secondary	194 (49.4)
Higher	74 (18.8)
Level of wealth	
Poorest	73 (18.6)
Poorer	111 (28.2)
Middle	93 (23.7)
Richer	56 (14.2)
Richest	60 (15.3)
Knowledge about family planning methods	
No knowledge	38 (9.7)
Has knowledge	355 (90.3)

SD=Standard deviation

More than half (54.2%) of them were married and 42.7% were employed in the agricultural sector. Christians constitute 83.5% of the respondents, while Muslims were 10.2%. About half (49.4%) of the men interviewed had secondary level education and 46.8% of the respondents were in the poorer and poorest wealth categories. Almost two-thirds (66.2%) of respondents had between 0 and 2 living children, 86 (21.9%) had 3 and 5 living children, while 47 (12%) had 6 or more.

### Knowledge and condom utilization

Most (90.3%) of the respondents were aware of at least one of the various family planning methods. Approximately 15.5% of respondents who had knowledge of any family planning method used condoms. None of those without knowledge was using condoms at the time of this study. There was a statistically significant association between knowledge of family planning methods and condom use [Tables 1 and 2].

### Age and condom utilization

The age group of 20–29 years had the highest proportion of condom use of 28.8%, followed by the 30–39-year age group (14.7%). The 15–19-year age group was the least with only 3.5%. There was a statistically significant association between age and condom utilization [Table 2].

### Level of wealth and condom utilization

The study respondents at the richer and richest level of wealth had 68.5% condom utilization rate, although they made up 29.5% of the respondents, while the poorer and poorest who were almost half (46.8%) of the respondents had a rate of 12.2%. Of those in the middle level of wealth index, only 9.7% of them used condoms. There was a statistically significant association between level of wealth and condom use [Tables 1 and 2].

### Level of education and condom utilization

Almost half (49.4%) of respondents had secondary level education, with 16.5% of condom utilization, while 35.1% of those with higher level education had used condoms. Among those without any formal education, only 2.3% use condoms. Level of education and condom use had a statistically significant association [Tables 1 and 2].

### Marital status and condom utilization

Among the unmarried study respondents, 25% had used condoms compared to 7.5% of the married respondents. There was a statistically significant association between marital status and condom utilization [Table 2].

**Table 2: Association between demographic characteristics and condom utilization (n=393)**

	Uses condom	Does not use condom	Statistic ( $\chi^2$ )	P
Age (years)				
15-19	2 (3.5)	55 (96.5)	25.31	<0.001
20-29	32 (28.8)	79 (71.2)		
30-39	20 (14.7)	116 (85.3)		
40-49	7 (7.9)	82 (92.1)		
Level of wealth				
Poorest	3 (4.1)	70 (95.9)	51.02	<0.001
Poorer	9 (8.1)	102 (91.9)		
Middle	9 (9.7)	84 (90.3)		
Richer	15 (26.8)	41 (73.2)		
Richest	25 (41.7)	35 (58.3)		
Education level				
No education	1 (2.3)	42 (97.7)	38.26	<0.001
Primary	2 (2.4)	80 (97.6)		
Secondary	32 (16.5)	162 (83.5)		
Higher	26 (35.1)	48 (64.9)		
Marital status				
No married	45 (25.0)	135 (75.0)	22.76	<0.001
Married	16 (7.5)	197 (92.5)		
Knowledge of family planning				
Knows no method	0	38 (100)	7.73	0.005
Knows any method	61 (15.5)	332 (84.5)		
Occupation				
Unemployed	3 (15.8)	16 (84.2)	24.791	<0.001
Professional/technical/managerial	13 (27.7)	34 (72.3)		
Sales	8 (24.2)	25 (75.8)		
Agricultural workers	9 (5.4)	159 (94.6)		
Service sector workers	23 (22.5)	79 (77.5)		
Others	5 (20.8)	19 (79.2)		
Religion				
Christianity	60 (18.3)	268 (81.7)	11.801	0.003
Islam	0	40 (100.0)		
Other religions	1 (4.0)	24 (96.0)		

**Predictors of condom utilization**

This was assessed using univariate (binary) and multivariate (multiple) logistics regression.

**Univariate (binary) logistics regression**

At univariate level [Table 3], each individual factor was analyzed singly; consequently, age, i.e., the 20–29-year age group (odds ratio [OR] = 4.475, *P* < 0.001, 95% confidence interval [CI] = 1.980–11.374), primary level education (OR = 0.046, *P* < 0.001, 95% CI = 0.010–0.203), level of wealth, marital status, i.e., been single (OR = 4.104, *P* < 0.001, 95% CI = 2.228–7.562), and occupation, i.e., been an agricultural worker (OR = 0.215, *P* = 0.012, 95% CI = 0.065–0.709) were found to be significantly associated with condom use.

**Multivariate (multiple) logistics regression**

All the variables found to be significantly associated with univariate level were included in the

multivariate analysis [Table 4] to adjust or control for confounding variables and to obtain adjusted OR or effect sizes. Marital status, primary level education, and level of wealth remained significantly associated with condom use after controlling for age group and occupation.

Marital status was significantly associated with condom utilization (OR = 4.962, *P* < 0.001, 95% CI = 2.078–11.848). The unmarried respondents were about 5 times more likely to use condoms compared to the married ones.

Primary level education was significantly associated with condom use (OR = 0.132, *P* = 0.020, 95% CI = 0.024–0.727). This means that those with primary level education are about 87% less likely to use condoms compared to those with secondary or tertiary level education.

**Table 3: Binary logistic regression of factors associated with condom utilization**

	Uses condom	Does not use condom	P	OR	95% CI	
					Lower	Upper
Age (years)						
15-19	2 (3.5)	55 (96.5)	0.298	0.426	0.085	2.127
20-29	32 (28.8)	79 (71.2)	<0.001	4.745	1.980	11.374
30-39	20 (14.7)	11 (85.3)	0.128	2.020	0.816	4.998
40-49	7 (7.9)	82 (92.1)	Reference			
Education level						
No education	1 (2.3)	42 (97.7)	0.003	0.044	0.006	0.338
Primary	2 (2.4)	80 (97.6)	<0.001	0.046	0.010	0.203
Secondary	32 (16.5)	162 (83.5)	0.001	0.365	0.198	0.671
Higher	26 (35.1)	48 (64.9)	Reference			
Level of wealth						
Poorest	3 (4.1)	70. (95.9)	<0.001	0.060	0.017	0.212
Poorer	9 (8.1)	102 (91.9)	<0.001	0.124	0.053	0.290
Middle	9 (8.7)	84 (90.3)	<0.001	0.150	0.064	0.354
Richer	15 (26.8)	41 (73.2)	0.094	0.512	0.234	1.121
Richest	25 (41.7)	35 (58.3)	Reference			
Marital status						
Not married	45 (25.0)	135 (75.0)	<0.001	4.104	2.228	7.562
Knowledge of family planning						
Knows no method	0	38 (100)	0.998	0.000	0.000	
Knows any method	61 (15.5)	332 (84.5)	Reference			
Occupation						
Unemployed	3 (15.8)	16 (84.2)	0.674	0.713	0.147	3.453
Professional/technical/ managerial	13 (27.7)	34 (72.3)	0.533	1.453	0.449	4.701
Sales	8 (24.2)	25 (75.8)	0.762	1.216	0.343	4.315
Agricultural workers	9 (5.4)	159 (94.6)	0.012	0.215	0.065	0.709
Service sector workers	23 (22.5)	79 (77.5)	0.856	1.106	0.372	3.288
Others	5 (20.8)	19 (79.2)	Reference			
Religion						
Christianity	60 (18.3)	268 (81.7)	0.103	5.373	0.713	40.499
Islam	0	40 (100.0)	0.998	0.000	0.000	
Other religions	1 (4.0)	24 (96.0)	Reference			

OR=Odds ratio; CI=Confidence interval

**Table 4: Multiple logistics regression of factors associated with condom utilization**

	Uses condom	Does not use condom	P	OR	95% CI	
					Lower	Upper
Age (years)						
15-19	2 (3.5)	55 (3.5)	0.069	0.173	0.026	1.145
20-29	32 (28.8)	79 (71.2)	0.797	1.172	0.350	3.929
30-39	20 (14.7)	11 (85.3)	0.972	0.981	0.339	2.838
40-49	7 (7.9)	82 (92.1)	Reference			
Education level						
No education	1 (2.3)	42 (97.7)	0.099	0.142	0.014	1.444
Primary	2 (2.4)	80 (97.6)	0.020	0.132	0.024	0.727
Secondary	32 (16.5)	162 (83.5)	0.128	0.503	0.208	1.218
Higher	26 (35.1)	48 (64.9)	Reference			
Level of wealth						
Poorest	3 (4.1)	70. (95.9)	0.240	0.383	0.078	1.895
Poorer	9 (8.1)	102 (91.9)	0.142	0.439	0.146	1.317
Middle	9 (8.7)	84 (90.3)	0.010	0.269	0.099	0.728

*contd...*

**Table 4: Contd...**

Richer	15 (26.8)	41 (73.2)	0.678	0.823	0.329	2.060
Richest	25 (41.7)	35 (58.3)	Reference			
Marital status						
Single	45 (25.0)	135 (75.0)	<0.001	4.962	2.078	11.848
Occupation						
Unemployed	3 (15.8)	16 (84.2)	0.893	1.127	0.197	6.453
Professional/technical/managerial	13 (27.7)	34 (72.3)	0.268	2.188	0.547	8.759
Sales	8 (24.2)	25 (75.8)	0.223	2.521	0.570	11.156
Agricultural workers	9 (5.4)	159 (94.6)	0.692	1.336	0.319	5.603
Service sector workers	23 (22.5)	79 (77.5)	0.079	3.168	0.876	11.461
Others	5 (20.8)	19 (79.2)	Reference			

OR=Odds ratio; CI=Confidence interval

Being in the middle class was found to be significantly associated with condom use (OR = 0.269,  $P$  = 0.010, 95% CI = 0.099–0.728). The implication is that those in the middle class were 73% less likely to use condoms compared to the richest males.

## DISCUSSION

There was a very significant gap between the percentage of male respondents in this study who had knowledge of modern family planning methods (89.8%) and those using condoms (15.5%). This finding is similar to that of other studies conducted in Nigeria<sup>[15,16]</sup> and Ethiopia.<sup>[17]</sup> This suggests that knowledge of family planning alone will not influence the utilization of condoms and other family planning methods among men. Usually, knowledge-practice gaps exist, but the magnitude depends on diverse determinants and varies from place to place. In a study done in India,<sup>[18]</sup> the participants level of knowledge and practices toward condom use was 43.75% and 23.12%, respectively, showing a low level of knowledge and practice with a moderate gap. Another study in Pakistan also revealed a low knowledge and practice level.<sup>[19]</sup> The high level of male condom awareness implies that interventions to disseminate contraceptive information have succeeded to a large extent. Nevertheless, it can also be inferred that diverse barriers have hindered condom acceptability and utilization among the aware; for example, alcohol use before sex has disinhibitory effects and reduces the likelihood of condom use. Furthermore, cultural myths and religious beliefs may contribute. Health education and promotion interventions that make use of religious and traditional institutions including folk media need to be increasingly used to bridge this gap. This knowledge-practice gap also necessitates further research, to find out the indigenous reasons responsible.

The percentage of men who utilized condoms (15.5%) was higher than the national average of 4.5%.<sup>[16]</sup> In studies done in Nigeria<sup>[16]</sup> and Ethiopia,<sup>[17]</sup> the condom

prevalence rates were 4.7% and 0.2%, respectively. These values are closer to that of the 2013 NDHS than that of this study. Meanwhile, Maharaj and Cleland in KwaZulu-Natal, South Africa, found a condom prevalence rate of 15% which mirrors that of this study.<sup>[20]</sup> A male condom prevalence rate of 15.5% shows that programs to improve contraceptive prevalence rate in the state have enjoyed a measure of success, i.e., when compared to the national value, but it is still a far cry from UNAIDS goal of 90% condom use during the most recent sexual activity with a nonregular partner. This has grave implications for HIV, STI, and population control in the state and country at large.

The relationship between being unmarried and an increased likelihood of condom use has been highlighted by Hendriksen *et al.*<sup>[21]</sup> and Chandran *et al.*<sup>[22]</sup> Reasons for this may include the fact that unmarried individuals report they use condoms more frequently than married individuals do with their spouse,<sup>[23]</sup> which can be due to fear of STIs, unwanted pregnancies, and associated societal disapproval. A piece of evidence that supports this comes from literature which shows that married men from most countries report using condoms with extramarital partners about as frequently as unmarried men.<sup>[23,24]</sup> An Egyptian study<sup>[25]</sup> revealed a contrary finding showing that the highest level of condom use was among married men. This can be explained by the fact that the religious and cultural structure of the Egyptian society openly, strongly, and even with some measure of hostility disapproves of sex among singles and so proving to be a major deterrent for condom purchase by an unmarried. Another major reason why condom is used especially among married couples is the presence of actual or perceived health-related problems associated with a woman's use of hormonal contraception. In fact, the most frequently cited circumstance to condom use arises when a woman cannot use oral contraceptives. In this case, condom is seen as a second-choice method with no physiological side effects. Most men, it is

believed, use condom as an act of “sacrifice” to prevent pregnancy when no other solution is available.<sup>[26]</sup> The low condom utilization rate among married respondents implies a low male involvement in family planning. This has implications for maternal morbidity and mortality, population control, and the economy at large.

The study respondents who had only primary level education were almost 87% less likely to use condoms compared to those with higher education. The predictive association between education and condom use has been a consistent finding from many studies including those done in Iraq,<sup>[23]</sup> Kenya,<sup>[27]</sup> Nigeria,<sup>[28,29]</sup> and South Africa.<sup>[20]</sup> This may be due to the fact that sex education is not routinely or compulsorily taught in primary schools.

Another finding in this study was that men in the middle class were 76% less likely to use condoms compared to the richest males. This implies that poverty or financial constraints limit contraceptive access and choices. This is in keeping with other studies found that men who belonged to the middle, richer, and richest wealth quintile had a higher likelihood of using condoms.<sup>[30,31]</sup> Kamal and Huda in India,<sup>[32]</sup> using the 2006 Indian DHS, found that condom utilization gradually increases among poor (2.1%), middle, and richer groups and significantly high among richest group (33.25%). A conflicting finding as revealed by a Cameroonian study showed that, compared to poor men, the wealthiest men were less likely to use a condom in the last sex with a nonspousal noncohabiting partner.<sup>[33]</sup>

On the strength of the findings of this study, it is recommended that family planning programs should consciously incorporate the responsibility and role of males in the uptake of family planning services. With respect to this, there should be public enlightenment drives aimed at men. Furthermore, primordial interventions should be directed toward school-age children, before they imbibe risky behaviors and lifestyles. This should be of utmost priority to policy makers as the cost benefits, effects, and sustainability of such early interventions are very high. Indeed, the public health sector should be engaged in advocacy in this regard. Finally, if the reproductive health and economic goals of the government is to be met, there will be a need to provide subsidized condoms of high quality to the populace. This will help widen the coverage of male-based contraceptives.

A major limitation of the study is the use of secondary data. The data were not specifically collected to meet the study objectives. Furthermore, some of the respondents who utilized the male condom might not want to

disclose their status because of shame as they were unmarried young men who are not expected to engage in sexual intercourse.

## CONCLUSIONS

This study revealed a knowledge-practice gap for condom use among men in Plateau State. The percentage of men who utilized condoms was higher in the state than the mean national value. Other significant findings were that unmarried were more likely to use condoms, while primary level education and being in the wealth middle class were associated with less likelihood of using condoms. Consequently, fertility and family planning research and programs in Nigeria should increasingly target males, with emphasis on the predictors. This will have positive and major implications for male involvement in family planning, population stabilization, and control of STIs.

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## Conflicts of interest

There are no conflicts of interest.

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