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Influence of Independent and Proximate Variables on Condom Use in Selected States in Nigeria

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Abstract

The study examined the influence of individual and proximate factors in determining condom use. Current use of condom and condom use during last sex were used as proxies for consistent condom use. Data on 3,797 sexually active respondents of reproductive age was analyzed from the 2007 USAID-COMPASS midline evaluation on basic family planning and reproductive health outcomes in five Nigerian states. About 9% of respondents were current users, while 11% used a condom during last sex. Younger and more educated respondents were more likely to report condom use. Of the 23 variables, four were statistically significant ($p<0.05$) in predicting current use for females, and five for males; six were statistically significant in predicting condom use during last sex for females and seven for males. The paper concluded that understanding the determinants and predictors of condom use is critical to improving family planning and reproductive health indicators in Nigeria (*Afr J Reprod Health 2010; 14[4]: 53-62*).

Résumé

Influence des variables proximaux et indépendants sur l'emploi des préservatifs dans les états choisis au Nigéria. L'étude a examiné l'influence des facteurs proximaux et individuels dans la détermination de l'emploi des préservatifs. Pour déterminer l'emploi consistant des préservatifs, l'on s'est servi de l'emploi actuel des préservatifs et son emploi au cours du dernier rapport comme des procurations. Nous avons fait l'analyse des données sur 3, 797 répondants sexuellement actifs et en âge de procréer, à partir de l'évaluation faite en 2007 par USAID-COMPASS sur la planification familiale fondamentale et les conséquences de santé de reproduction dans cinq états nigérians. Environ 9% des répondants étaient des utilisateurs actuels alors que 11% ont utilisé un préservatif au cours du dernier rapport sexuel. Les répondants les plus jeunes et les plus instruits avaient plus la possibilité de déclarer avoir utilisé les préservatifs. Parmi les 23 variables, cinq étaient statistiquement plus significatifs ($p<0,05$) dans leur manière de prédire l'utilisation actuelle pour les femelles et neuf pour les mâles ; neuf ont été statistiquement significatifs dans la prédiction de l'utilisation des préservatifs au cours du dernier rapport sexuel pour les femelles et huit pour les mâles. Comme conclusion, l'article affirme que la compréhension des déterminants et des indices de l'utilisation des préservatifs est cruciale pour l'amélioration des indices de la planification et la santé de reproduction au Nigéria (*Afr J Reprod Health 2010; 14[4]: 53-62*).

Keywords: Condom use, Determinants, Sex, Nigeria

Introduction

Family planning and reproductive health indicators in Nigeria are generally poor. In particular, child and maternal health outcomes constitute major areas of health and developmental challenges in the country. The child mortality rate (over 197 per 1,000 live births) and maternal mortality rate (over 800 deaths per 100,000 live births[1-3]) are among the highest in the world. Evidence has confirmed that sex-related issues and unguided or unprotected sexuality have contributed significantly to these high rates. The onset of fertility in most cases commenced at a tender age for adolescent girls, particularly in the rural areas[4,5]. Spacing and timing of pregnancy occurred at unintended times among nearly one-third of reproductive-age women[5,6]. Although most of the women preferred smaller family sizes, the total fertility rate was estimated at 5.7 (4.6 urban, 6.4 rural), signaling a high unmet need for contraception.

Coupled with these factors is the high prevalence of HIV/AIDS and other sexually transmitted diseases in Nigeria. HIV/AIDS issues constitute a major public health concern. The number of HIV-infected individuals has multiplied greatly since the virus's discovery in the 1980s, to a figure of 3.6 million infected Nigerians and at a

current prevalence rate of over 5%. The projected annual deaths resulting from HIV/AIDS have increased from over 50,000 in 1999 to over 350,000 in 2004[4]. The major mode of transmission is through heterosexual intercourse. The estimated number of unwanted pregnancies and unsafe abortions in the country presents a dismal picture as well. The contribution of unwanted pregnancies and unsafe abortion to maternal morbidity and mortality in the country is very high[7].

Despite these poor health outcomes, the contraceptive prevalence rate (CPR) remains very low in Nigeria, with less than 15% of married females using any family planning methods[6]. Condom use is one of the major forms of family planning that reduces the likelihood of contracting sexually transmitted infections, including HIV/AIDS. It also reduces the risk of unwanted pregnancies and unsafe abortions, and enhances adequate child spacing. Condom use is particularly important for women in the protection of HIV/AIDS as other methods of pregnancy prevention may be available to them. For men, condom use served the purpose of preventing both pregnancy and sexually transmitted infections (STIs) (including HIV). Although more than half of the Nigerian adult population expressed their awareness of condom as a preventive measure for HIV/AIDS and unwanted pregnancies[4,5,6], its use was still very low. According to the NDHS estimates, the proportion of those using condom slightly increased from 0.4 percent in 1990, to 2.4 percent in 1999, to 1.9 percent in 2003, and 2.4 percent in 2008.[5, 6] These rates are quite low, compared to those of other countries, particularly developed ones. About 33 percent of women and 53 percent of men in high-risk sexual relationships reported that they used condom during last sex in a study conducted in a Nigerian tertiary educational institution.[8]

The Revised National Policy on Population for Sustainable Development (2004) [9] clearly identified fertility rate and contraceptive use as key targets for programme planning and implementation. The policy document was set to achieve a reduction in the total fertility rate of at least 0.6 children every five years and also to increase the modern contraceptive prevalence rate by at least 2 percentage points per year. The policy recognized the high level of unmet need for family planning in the country and advocated comprehensive family planning services delivery. To achieve this, family planning services were to be integrated into other health services. A major concern is the poor patronage of some of these services and how best to design the integration. According to the NDHS[6], only about 33 percent of respondents reported a public health facility as their source for contraceptive methods.

Evidence from empirical surveys in Nigeria documented some issues around condom use. For instance, in a study in Ile Ife it was reported that the determinants of condom use among in-school adolescents include age, multiple sexual partners, and ability to refuse sex.[8] Also, in a study of sexual debut among young people, Fatusi and Blum confirmed the relationship between perceived efficacy of condom/family planning and sexual debut in Nigeria.[2] The determinants of condom use among youths on compulsory paramilitary national service in Nigeria were documented to include influence of sexual partner, availability of condom, and self-efficacy of condom.[10] The effect of awareness of HIV/AIDS as a major determinant of condom use in Nigeria has also been reported[11], as has the fact that the major motivating factor for condom use among monogamous married males was prevention of pregnancy and not prevention of STIs.[11] Most of the studies identified focused on young people. Except for the study by Fatusi and Blum[2], the data reported were not nationally representative.

The use of measures or concepts such as "*consistent condom use"* may pose some challenges, particularly in a cross-sectional survey to measure such variables. In order to avoid some of the challenges and inherent weaknesses, we have used spontaneous evidence on "*current use of condom"* to mean those who have been using condom with sexual partners continuously over a specified period of around a year preceding the survey. "*Condom use during last sex"* relates to those who used condom during their last sexual episode.

The issue to examine, therefore, is the factors associated with the use of condom. Arising from this, the major questions for this study are: What are the independent and proximate determinants of current use and use of condom during last sex? Are individuals who are involved in high-risk sexual behaviour utilizing condoms? The main objective of this article is to examine the influence of independent variables and proximate variables on condom use. The paper specifically examined the influence of independent variables on current use and use of condom during last sex; both proximate and independent variables on current use and use of condom during last sex; and variables that are statistically significant in predicting current use and use of condom during last sex.

Methods

The paper utilized secondary data from the USAID-COMPASS midline evaluation survey of 2007 on basic family planning, reproductive health, and child health outcome in five states in Nigeria, implemented by CRERD and Measure Evaluation, Tulane University, USA [12]. A multistage stratified

sampling strategy was used for the survey. The study was conducted in 52 enumeration areas (EAs) in Kano and Lagos and in 26 EAs in three other states—Bauchi, Nassarawa, and Federal Capital Territory (FCT)—for a total of 182 EAs. Within each state, EAs were selected proportionate to the population size of the respective local government areas (LGAs). Within each LGA, the required number of enumeration areas was selected using a table of random numbers. Within each selected EA, 25 households were selected using systematic random sampling. Individual respondents were selected through a simple random process from each of the selected households. Only one individual was selected in a household. The eligibility criteria were that respondents be within reproductive age (15-49 years for females and, 15-59 years for males) and available during the survey period. The current article was focused on reanalysis of 3,797 respondents of reproductive age who were already sexually active. The sexually active individuals were those who reported having ever experienced sexual intercourse before the survey. These include 571 individuals from Bauchi, 544 from FCT, 1,011 from Kano, 1,144 from Lagos, and 527 from Nassarawa.

We examined the influence of the independent and proximate variables through both bivariate (cross tabulation and chi-square) and multivariate analysis (logistic regression models). Two outcome variables were considered (current use of condom and condom use during last sex) and eight logistic regression models were simulated to examine (1) the influence of selected independent variables on each of the dependent variables and (2) the influence of both the independent and proximate variables on the dependent variables across sex.

The independent variables were state (Bauchi, FCT, Kano, Lagos, and Nassarawa) and area (rural, urban) of residence, age group (<19 years, 20-29 years, 30-39 years, 40-45 years, and 46+ years), education (no formal, primary, secondary, tertiary), and religion (Catholic, other Christian, Islam, other). The proximate variables were the respondent's report of desiring more children, agreeing that pregnancy constitutes a big problem, partner insistence on condom use, availability of condoms, having adequate knowledge of HIV, having ever been tested for HIV, having ever exchanged sex for gifts, and having multiple sexual partners. The proximate variables were coded dichotomously (yes/no).

Results

Background Information of Respondents

Table 1 presents the background information of respondents. The analysis was focused on 3,797 sexually active respondents, 2,068 male and 1,729 females. More than half were from Lagos and Kano states. More than half of the male respondents (55 percent) were from rural areas, while about 54 percent of females were sampled in urban areas. About 37 percent of males and 52 percent of females were aged less than 30 years. More than two-fifths of the respondents were aged 30-49 years. About 54 percent of males compared with 60 percent of females were married at the time of the survey. About 37 percent of the respondents either desired no more children or did not want a child soon. Over two-fifths of the respondents had no formal education, about 12 percent completed primary education, over 30 percent had secondary education, and about 15 percent had tertiary education. More than half of the respondents were practicing Islam, less than 10 percent were Catholics, and about one-third belonged to other Christian denominations.

Patterns of Condom Use by Selected Variables

Table 2 presents condom use patterns by selected variables. Across the states, the proportion of respondents who reported *current use of condom* and *condom use during last sex* was relatively higher in FCT and Lagos than in the other states. In both Lagos and FCT, one-fifth of males reported current use of condoms, but more males reported use of condom during last sex in Lagos State (27 percent) than in the FCT (22 percent). Proportions of women who reported both current use and use of condom during last sex were higher in Lagos State than in other states. Results show that current use and use of condom during last sex in all three northern states were quite low. In all cases, the proportion of those in urban areas utilizing condom tripled those in rural areas for each of the patterns across sex. The proportion of unmarried males and females with any of the patterns of condom use tripled or more than tripled their married counterparts. The proportion of those who desire "no more child/want no child soon" who reported current use or use of condom during last sex is slightly more than those who desired more children.

Reported use of condom shows a positive progression across all levels of education and in all cases. Christians were more likely to report use of condom than others. There is a generally consistent pattern of distribution across condom use by the selected proximate variables. The proportion of women with adequate knowledge of HIV/AIDS who reported both current use and use of condom during last sex was lower than that of their male counterparts (10 percent females versus 13 percent males for current use; 13 percent females versus 18 percent males for use during last sex). Among

Table 1: Percentage distribution of respondents by background information across gender[a]

Variables	Male (n=2068)		*Female (n=1729)*			
	N	%	N	%	X^2	p-value
State						
Bauchi	279	13.5	292	16.9	87.22	0.00
FCT	278	13.4	266	15.4		
Kano	573	27.7	438	25.3		
Lagos	561	27.1	583	33.7		
Nassarawa	377	18.2	150	8.7		
Location						
Urban	924	44.7	939	54.3	34.92	0.00
Rural	1144	55.3	790	45.7		
Age						
less than 20 years	145	7.0	209	12.1	165.41	0.00
20-29 years	619	29.9	688	39.8		
30-39 years	558	27.0	458	26.5		
40-49 years	373	18.0	271	15.7		
50 years +	373	18.0	103	6.0		
Marital Status						
Married	1115	53.9	1032	59.7	12.76	0.00
Others	953	46.1	697	40.3		
Education						
No formal/Arabic	841	40.7	749	43.3	6.11	0.11
Primary	251	12.1	219	12.7		
Secondary	648	31.3	531	30.7		
Tertiary	328	15.9	230	13.3		
Religion						
Catholic	175	8.5	136	7.9	3.70	0.29
Other Christian	635	30.7	548	31.7		
Islam	1174	56.8	993	57.4		
Others	84	4.1	52	3.0		
Desire More Children						
Yes	1300	62.9	1107	64.0	0.55	0.46
No	768	37.1	622	36.0		
Proximate Variables						
Believed that pregnancy constitute a problem	235	11.4	250	14.5	8.10	0.004
Use condom if partner insist	1874	90.6	1648	95.3	30.91	0.00
Believed condom is available	846	40.9	640	37.0	5.99	0.01
Those with adequate knowledge of HIV/AIDS	1305	63.1	1088	62.9	0.013	0.91
Those tested for HIV/AIDS	921	44.5	751	43.4	0.46	0.49
Ever exchanged gift for sex	60	2.9	40	2.3	1.27	0.26
Those with multiple sexual partners	96	4.6	40	2.3	14.79	0.0

[a]*This analysis excludes those who never had sex*

people who have been tested[1] for HIV/AIDS, the proportion of those using condom was relatively low across the pattern for both sexes. About 10 percent of males compared with 7 percent of females who had been involved in high-risk sex (engaged in any of three behaviors—exchanging sex for gifts, not tested for HIV, and having multiple sexual partners) reported current use of condom while about 13 percent of males and 9 percent of females in this group reported use of condom during last sex (Figure 1).

[1] The study did not request confirmation of HIV/AIDS status.

Table 2: Current use and use of condom by respondents during last sex across socio-demographic variables

	Current use		Use during last sex	
	Male (%)	Female (%)	Male (%)	Female (%)
State				
Bauchi	1.8 (279)	0.3 (292)	3.9 (279)	2.1 (292)
FCT	21.2 (278)	11.7 (266)	22.3 (278)	15.8 (266)
Kano	1.8 (573)	1.6 (438)	2.3 (573)	2.5 (438)
Lagos	20.9 (561)	14.1(583)	26.9 (561)	16.0 (583)
Nassarawa	4.0 (377)	5.3 (150)	6.9 (377)	6.0 (150)
Location				
Urban	15.4 (924)	10.7 (936)	20.6 (924)	13.5 (936)
Rural	5.6 (1144)	3.7 (790)	6.4 (1144)	4.3 (790)
Age				
Less than 20 years	5.5 (145)	3.4 (209)	11.7 (145)	8.1(209)
20-29 years	13.9 (619)	9.7 (688)	21.0 (619)	12.5 (688)
30-39 years	10.4 (558)	8.3 (458)	11.5 (558)	7.4 (458)
40-45 years	9.1 (373)	4.1 (271)	8.9 (373)	7.0 (271)
46 years +	5.4 (373)	5.8 (103)	5.1 (373)	4.9 (103)
Marital Status				
Married	5.9 (1115)	3.9 (1032)	4.6 (1115)	3.6 (1032)
Others	14.7 (953)	12.8 (697)	22.3 (953)	17.8 (697)
Desire More Children				
Yes	8.4 (768)	6.8 (1107)	11.9 (768)	7.8 (1107)
No	12.6 (1300)	8.7 (622)	14.2 (1300)	12.1 (622)
Education				
No formal/Arabic	2.0 (841)	2.5 (749)	4.0 (841)	2.8 (749)
Primary	6.8(251)	4.1 (219)	8.8 (251)	5.5 (219)
Secondary	17.1 (648)	11.5 (531)	19.6 (648)	14.5 (531)
Tertiary	18.6 (328)	17.4 (230)	24.4 (328)	22.2 (230)
Religion				
Catholic	18.9 (175)	14.0 (136)	22.9 (175)	22.8 (136)
Other Christian	15.0 (635)	12.2 (548)	21.1(635)	15.2 (548)
Islam	6.1 (1174)	3.7 (993)	6.8 (1174)	4.0 (993)
Others	7.1 (84)	11.5 (52)	10.7 (84)	13.5 (52)
Proximate variables				
Believed that pregnancy constitute a big problem	4.7 (235)	1.6 (250)	8.9 (235)	10.4 (250)
Use condom if partner insist	8.4 (1874)	7.0 (1648)	9.7 (1874)	7.6 (1648)
Condom is easily available	19.6 (846)	15.9 (640)	27.9 (846)	21.4 (640)
Adequate knowledge of HIV/AIDS	13.1 (1305)	10.3 (1088)	17.5 (1305)	13.0 (1088)
Those tested for HIV/AIDS	14.3 (91)	10.9 (751)	18.7 (91)	14.1 (751)
Ever exchanged gift for sex	25.0 (60)	15.0 (40)	53.3 (60)	42.5 (40)
Those with multiple sexual partners	45.8 (96)	25.0 (40)	75.0 (96)	82.5 (40)
Total	**10.0 (2068)**	**7.5 (1729)**	**10.0 (2068)**	**12.7 (1729)**

Correlates of Independent and Proximate Factors on Patterns of Condom Use

Tables 3 and 4 present the correlates of the influence of independent and proximate determinants on current use of condom and condom use during last sex for females and males, respectively. The tables generated eight models (F1-4 for women and M1-4 for males). F1 examined the influence of independent variables alone on current use of condom among females. F2 examined the influence of both independent and proximate variables on current use of condom among females. F3 examined the influence of independent variables on condom use during last sex, and F4 considered the influence of both independent and proximate variables on condom use during last sex among females. M1 examined the influence of independent variables alone on current use of condom among males. M2 examined the influence of both independent and proximate variables on current use of condom among males. M3 examined the influence of independent variables on condom use during last sex, and M4 considered the influence of both independent and proximate

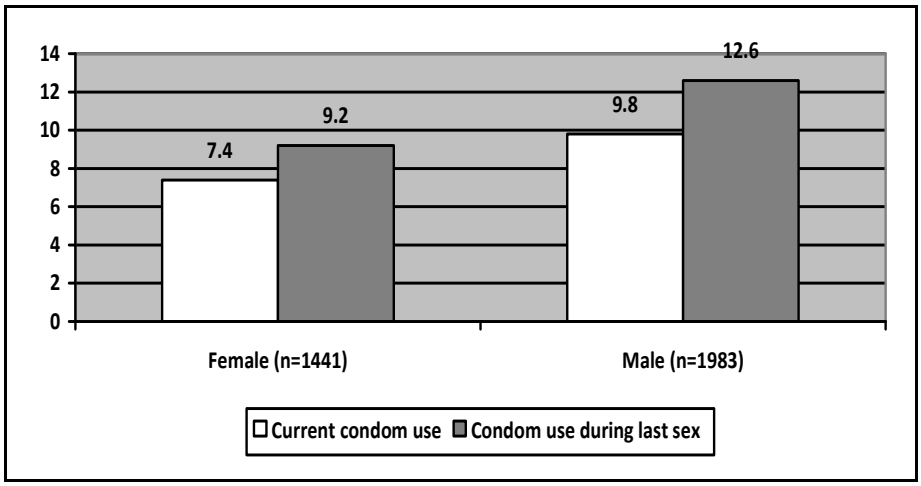

Figure 1: Percent of female and male respondents engaging in high risk sex who report current condom use and condom use at last sex.

Table 3: Logistic regression models of associations between independent and proximate variables with current use and use of condom during last sex by females

	Current use of condom				Condom use at last sex			
	F1	C.I	F2	C.I	F3	C.I	F4	C.I
State								
Bauchi	RC		RC		RC		RC	
FCT	21.98*	2.9-167.9	16.25*	2.1-125.1	4.26*	1.7-10.9	3.24*	1.2-8.9
Kano	4.42	0.5-36.3	3.82	0.5-31.8	1.20	0.4-3.3	1.12	0.4-3.4
Lagos	23.94*	3.1-182.0	17.85*	2.4-135.5	3.04*	1.2-7.6	2.30	0.9-6.1
Nassarawa	14.24*	1.7-118.3	12.95*	1.5-108.6	2.17	0.7-6.6	2.36	0.7-7.8
Residence								
Rural	RC		RC		RC		RC	
Urban	1.43	0.8-2.6	1.38	0.7-2.6	2.10*	1.2-3.6	2.09*	1.2-3.8
Age								
Less than 20 years	RC		RC		RC		RC	
20-29 years	1.88	0.8-4.3	1.78	0.7-4.2	0.92	0.5-1.7	0.90	0.5-1.8
30-39 years	1.39	0.6-3.3	1.41	0.6-3.5	0.44*	0.2-0.8	0.40*	0.2-0.8
40-45 years	0.81	0.3-2.2	0.73	0.3-2.1	0.56	0.3-1.2	0.44	0.2-1.0
46 years +	1.29	0.4-4.2	1.47	0.4-5.0	0.44	0.1-1.3	0.41	0.1-1.3
Education								
No formal	RC		RC		RC		RC	
Primary	0.75	0.3-1.7	0.66	0.3-1.6	1.10	0.5-2.4	0.98	0.4-2.2
Secondary	1.62	0.9-2.9	1.22	0.7-2.2	2.10*	1.2-3.6	1.28	0.7-2.3
Tertiary	2.50*	1.3-4.8	1.59	0.8-3.1	3.20*	1.7-5.9	1.91	0.9-3.7
Religion								
Catholic	RC		RC		RC		RC	
Other Christians	0.91	0.5-1.6	0.98	0.5-1.8	0.61*	0.4-0.9	0.53*	0.3-0.9
Islam	0.74	0.4-1.4	0.88	0.5-1.7	0.35*	0.2-0.6	0.44*	0.2-0.8
Others	1.12	0.4-3.3	1.46	0.5-4.3	0.77	0.3-2.0	0.90	0.3-2.7
Proximate variables								
Desire more children	n/a		0.89	0.6-1.3	n/a		0.67	0.5-1.0
Pregnancy constitute a big problem	n/a		6.56*	2.3-18.4	n/a		0.87	0.5-1.5
Partners' insistence on use	n/a		0.68	0.2-2.5	n/a		0.77	0.2-2.7
Availability of condom	n/a		3.99*	2.5-6.4	n/a		6.15*	3.8-10.0
Adequate knowledge of HIV	n/a		1.87*	1.1-3.3	n/a		1.61	0.9-2.8
Ever tested for HIV/AIDS	n/a		0.74	0.4-1.2	n/a		0.93	0.6-1.5
Ever exchanged gift for sex	n/a		0.59	0.2-1.7	n/a		1.58	0.6-4.2
Those with multiple sexual partners	n/a		1.22	0.3-5.6	n/a		18.76*	3.9-90.1

*p<.05

Table 4: Logistic regression models of associations between independent and proximate variables with current use and use of condom during last sex by males

	Current use of condom				Condom use at last sex			
	M1	C.I	M2	C.I	M3	C.I	M4	C.I
State								
Bauchi	RC		RC		RC		RC	
FCT	9.07*	3.4-23.6	7.51*	2.8-19.9	4.59*	2.3-9.3	3.49*	1.6-7.8
Kano	1.02	0.3-3.0	1.21	0.4-3.7	0.60	0.3-1.4	0.84	0.3-2.1
Lagos	7.77*	3.0-20.2	6.46*	2.5-17.0	4.04*	2.0-8.1	3.56*	1.6-7.7
Nassarawa	2.13	0.7-6.1	2.24	0.8-6.6	1.77	0.8-3.8	2.01	0.8-4.8
Residence								
Rural	RC		RC		RC		RC	
Urban	1.24	0.7-3.7	1.04	0.6-1.7	1.90*	1.2-2.9	1.50	0.9-2.4
Age								
Less than 20 years	RC		RC		RC		RC	
20-29 years	1.96	0.9-4.3	1.98	0.9-4.5	1.34	0.7-2.4	1.36	0.7-2.7
30-39 years	1.63	0.7-3.7	1.62	0.7-3.8	0.68	0.4-1.3	0.57	0.3-1.2
40-45 years	1.73	0.7-4.0	1.93	0.8-4.7	0.60	0.3-1.2	0.63	0.3-1.3
46 years +	1.14	0.5-2.8	1.13	0.4-2.9	0.38*	0.2-0.8	0.36*	0.2-0.8
Education								
No formal	RC		RC		RC		RC	
Primary	1.83	0.9-3.8	1.68	0.8-3.5	1.11	0.6-2.0	0.66	0.3-1.3
Secondary	3.80*	2.2-6.7	3.18*	1.8-5.7	1.75*	1.1-2.7	1.16	0.7-1.9
Tertiary	3.89*	2.1-7.2	2.83*	1.5-5.3	2.37*	1.5-3.9	1.37	0.8-2.4
Religion								
Catholic	RC		RC		RC		RC	
Other Christians	0.76	0.5-1.2	0.82	0.5-1.3	0.90	0.6-1.4	1.02	0.6-1.7
Islam	0.81	0.5-1.3	1.04	0.6-1.7	0.64	0.4-1.0	0.81	0.5-1.4
Others	0.61	0.2-1.6	0.59	0.2-1.6	0.65	0.3-1.5	0.71	0.3-1.9
Proximate variables								
Desire more children	n/a		0.71	0.5-1.0	n/a		0.98	0.7-1.4
Pregnancy constitute a big problem	n/a		2.72*	1.4-5.4	n/a		2.00*	1.1-3.6
Partners' insistence on use	n/a		1.65	0.6-4.3	n/a		1.01	0.5-2.2
Availability of condom	n/a		3.33*	2.3-4.9	n/a		8.17*	5.2-12.7
Adequate knowledge of HIV	n/a		1.44	0.9-2.2	n/a		2.08*	1.3-3.3
Ever tested for HIV/AIDS	n/a		0.87	0.4-1.7	n/a		1.05	0.5-2.0
Ever exchanged gift for sex	n/a		1.21	0.6-2.5	n/a		2.69*	1.3-5.5
Those with multiple sexual partners	n/a		5.56*	2.0-15.5	n/a		9.40*	3.8-23.1

*p<.05

variables on condom use during last sex among males.

According to F1 in Table 3 for the association between only the independent variables and current use of condom among females, the odds ratio of those in FCT and Lagos was more than 20 times greater than those in Bauchi (reference category). The odds ratio for women with tertiary education was about 3 times greater than those with no formal education to report current use of condom. Only two independent variables were statistically significant (p<.05) in predicting current use of condom among females. These include respondents in three states (FCT, Lagos, and Nassarawa) and those with tertiary education. The association between independent and proximate variables in predicting current use of condom as presented in F2 for females showed that the odds ratio of those in Lagos was 18 times (p<.05), those in FCT 16 times (p<.05), and those in Nassarawa 13 times (p<.05) greater than those in Bauchi. Those who considered that pregnancy constitutes a big problem were 7 times more likely than those who did not consider it a big problem to report current use of condom. Also, those who reported that condom is easily available were 4 times more likely than the reference group to report current use of condom. Four variables were statistically significant (p<.05) in F2: state (FCT, Lagos, and Nassarawa), those who reported that pregnancy constitutes a big problem, those who reported condom is available, and those who had adequate knowledge of HIV. Considering F1 and F2, only the state (FCT, Lagos, and Nassarawa) was significant in predicting current use of condom. Although tertiary education was significant in F1, it was not significant in F2.

The influence of independent variables on condom use during last sex among females, as presented in F3 of Table 3, showed that the odds ratio of condom use during last sex was higher in FCT (4.3), followed by Lagos (3.0) and Nassarawa (2.2) compared with Bauchi (reference category). Also, those in urban areas were twice as likely as those in rural areas to report condom use during last sex. Those with tertiary education were three times as likely—and those with secondary education twice as likely—as those without education to report condom use during last sex. F4 in Table 3 presented the influence of both the independent and proximate variables in predicting the likelihood of condom use during last sex among females. The odds ratio showed that those in FCT were 3 times ($p<.05$) more likely—and those in Lagos and Nassarawa 2 times more likely—than those in Bauchi to report condom use during last sex. Those in urban areas were twice as likely ($p<.05$) as those in rural areas to report condom use during last sex. Those who considered that condom was available were 6 times more likely than those who found unavailability of condom to report condom use during last sex. Those with multiple sexual partners were 19 times more likely to report condom use during last sex.

Table 4 presents the results of the logistic regression for males. The odds ratio for M1 predicting the influence of only independent variables on current use of condom shows that males from FCT were 9 times ($p<.05$), those from Lagos were 8 times ($p<.05$), and those from Nassarawa were 2 times more likely than those from Bauchi (reference category) to report current use of condom. Those with secondary and tertiary education were 4 times more likely ($p<.05$) to report current use of condom compared with those who had no formal education. M2 in Table 4 shows the influence on current condom use when both the independent and proximate variables are in the model. The results were similar to those in M1: males from FCT were 7.5 times ($p<.05$), those in Lagos were 6.5 times ($p<.05$), and those in Nassarawa were 2 times more likely than those in Bauchi (reference category) to report current use of condom. Also, those with secondary and tertiary education were 3 times ($p<.05$) more likely to report current use of condom than those with no education. Those with multiple sexual partners were almost 6 times ($p<.05$) more likely to report condom use than those with one faithful partner. Those who reported availability of condom and those who considered that pregnancy constitutes a big problem were 3 times ($p<.05$) more likely to report current use of condom compared to those reporting otherwise.

M3 in Table 4 showed the results of the influence of independent variables on condom use during last sex among males. The odds ratio showed that those in FCT were 5 times ($p<.05$) and those in Lagos 4 times ($p<.05$) more likely to report condom use during last sex compared with those in Bauchi. Those in the urban areas were twice ($p<.05$) as likely to report condom use during last sex compared with those in the rural areas. Those in relatively older age groups (30 years and above) were less likely to report condom use compared with their younger counterparts. Those with secondary and tertiary education were 2 times ($p<.05$) more likely to report condom use during last sex compared with those without any formal education. M4 in Table 4 presented the influence of both the independent and proximate variables in predicting condom use during last sex. The odds ratio showed that those in FCT and Lagos were about 4 times ($p<.05$) more likely compared with those in Bauchi to report condom use during last sex. The odds ratio across age categories showed that those in older age groups (30 years and above) were less likely to report condom use during last sex compared with those in younger ages. The odds of condom use at last sex were highly in favour of those with multiple sexual partners ($p<.05$), those who reported availability of condom ($p<.05$), those who reported exchange of gifts for sex ($p<.05$), those who expressed that pregnancy constitutes a big problem ($p<.05$), and those with adequate knowledge of HIV/AIDS ($p<.05$).

Table 5 presents the consistencies in reporting of the two outcome variables—condom use during last sex and current use of condom. Less than half (45 percent) of females and about three out of five males who reported currently using the condom also reported using it during their last sexual episode. Overall, slightly above half (54 percent) of those who reported being current users of condoms used them during their last sexual encounter.

Table 5: A two by two table comparing consistency in the outcome variables on current use of condom

Condom used during last sex	Yes (%, N)	No (%, N)	Total
Female			
Yes	45.0 (58)	6.4 (103)	9.3(161)
No	55.0 (71)	93.6 (1497)	90.7(1568)
Male			
Yes	60.2 (124)	7.5 (139)	12.7 (263)
No	39.8 (82)	92.5 (1723)	87.3 (1805)
Both			
Yes	54.3 (182)	7.0 (242)	11.2 (424)
No	45.7 (153)	93.0 (3220)	88.8 (3373)

Discussion

The main thrust of this article is to examine the association of selected independent and proximate variables regarding condom use in selected states in Nigeria, for the purpose of strengthening program and policy drives to promote condom use. The study confirmed that condom use in the selected states is still at very low levels, particularly in the northern part of the country. Condom use may, however, be underreported because of the religious and cultural issues that promote covert use among many women in the northern states.

It is important to note some of the limitations of the current analysis. Comparing the results from this analysis with those presented in the NDHS (2008) for these five states shows variations in the numbers reported by both surveys. For instance, the current use of condom among females was estimated at 0.3 percent in Bauchi, 11.7 percent in FCT, 1.6 percent in Kano, 14.1 percent in Lagos, and 5.3 percent in Nassarawa for the current analysis; the estimates in the NDHS (2008) were 0.0 in Bauchi, 7.6 percent in FCT, 0.0 in Kano, 8.3 percent in Lagos, and 0.1 percent in Nassarawa. The NDHS computation was based on the proportion of currently married women within reproductive age, 15-49 years, who were using condom. The current focus was on females who were already sexually active, either married or unmarried. The sampled communities within each state were different, as were the sample sizes, which may affect the variation. The study design here, like that of other studies, is also subject to other limitations.

The noticeable variations in condom use in favour of Lagos State and FCT (more than one-fifth of males and one-tenth of females) over the three northern states may be explained by many reasons. First, with Lagos being a former federal capital and the FCT the current federal capital, these states have people of diverse socio-cultural orientations and social status. Although the levels of condom use are still very low in the northern states, especially in Kano and Bauchi, the situation shows an appreciable gain in the levels of condom use compared with previous evidence.[4, 5] Second, social values are changing and becoming more tolerant to family planning. For instance, condoms are stocked and openly displayed in many health facilities in the states. More evidence will be required, in addition to quantitative data, to understand the level of acceptance of condom in these places. Also, the rate of condom use in rural areas is relatively low compared with that in urban areas. Health indicators in the rural areas of Nigeria are generally worse than in the urban. Although evidence also suggests that the level of knowledge of condom is quite high, there is still a huge gap between knowledge and use.

The proportion of youth who reported condom use is relatively higher than that of other age groups, yet it remains very low. Evidence from DHS suggests that the age of sexual initiation in many developing countries including Nigeria is decreasing, while the age at marriage is gradually increasing, thus broadening the period of sexual exposure before marriage. The awareness of HIV and other sexually transmitted infections, as well as the desire to avoid unwanted pregnancy, may serve as motivation for youths to use condom. There are also national efforts and policy drives toward promoting family planning services by increasing awareness of youth-friendly centres. The rate of condom use among married people is quite low. The NDHS reported a CPR of 15 percent among married women. It is also of serious concern that only a small proportion of those who reported that they do not desire another child soon were using condoms. Only about 8 percent of females in this group reported that they used condom during last sex, and only 7 percent are current users of condom. Such factors may continue to support the high rate of unwanted pregnancy/undesired fertility as well as STIs and HIV/AIDS infection.

Respondents in high-risk groups were not optimally utilizing condom. For instance, only 53 percent of males and 42 percent of females who exchanged gifts for sex used condom during last sex. About 42 percent of males and 80 percent of females with multiple sexual partners used condom during last sex. Also more than 60 percent of males who had experienced STIs in the past were not using condom, and about 88 percent of those whose sexual partners had been infected did not use condom during last sex. These individuals constitute a high-risk factor and are one of the sustaining factors for HIV transmission. The data also showed that the rate of condom use is lower among married people. Unmet needs for family planning exist in marriages. Also, married people engage in extramarital activities, particularly married males. Many cases of STIs and HIV are transmitted through unfaithful partners in marital unions. Education and religion have also been found to be important variables affecting condom use in this study. Evidence shows that respondents of both sexes with higher education are more likely than those with no formal education to use condom.

Conclusion

The findings of this study show that the proportion of people in Nigeria using condom, as calculated by the two indicators of *current use of condom* and *condom use during last sex,* is still very low. Efforts

at designing interventions to improve the level of use may find helpful the many entry points identified in this study.

Interventions should be directed to improving condom acceptability and use, particularly in the northern states of Nigeria. Youth, who are highly susceptible, should have easy access to family planning and reproductive health services. Efforts toward raising awareness of the benefits of condom use among married couples should be intensified. The study also suggests that programmes aimed at targeting the uneducated, who are the majority, especially in the rural areas and northern part of the country should be instituted. In the same vein, religious leaders need to be encouraged to participate in family planning programmes. Religion plays a role in condom use, and the religious leaders may be able to influence their congregations.

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