Barriers to Use of Condoms among Nigerian Men: Attitude, Cost, and Physical Access

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Abstract
This study sought to identify barriers to male condom use in Nigeria. Three categories of barrier were examined, attitude, cost, and physical access. Male data from the 2003 Nigeria Demographic and Health Survey (NDHS) and service availability data from the 1999 NDHS were analyzed using a logistic regression model. The hypothesis that cost might determine condom use was not supported. Instead, the main barrier in Nigeria appears to be male attitude towards contraception and several widespread misconceptions about condoms. Lack of proximity to pharmacies that offer family planning, the outlet that is by far the most popular among men, also constitutes a barrier to the use of condoms. Ensuring that pharmacies stock condoms could advance the government's goal of increasing condom use to stem HIV infections. Additionally, social marketing could be further honed to address specific gaps in knowledge and barriers of attitude.

Introduction

This paper explores barriers to condom use among Nigerian men. Condom ise has two important health benefits. Male and female condoms offer dual protection against pregnancy and some sexually transmitted infections (STIs) (Holmes et al. 2004).

The Nigerian government has established an action plan coordinated through the National Action Committee on AIDS (NACA) that includes the promotion of condom use for dual protection (Federal Ministry of Health, Nigeria 2002). As recently as 1988, the Nigerian government was encouraging families to have at least four children through its National Population Policy. Since then, the government changed its policy in part due to alarm over the country's rapid population growth rate. The government's new eagerness to ensure condom availability is also motivated by Nigeria's burgeoning HIV/AIDS epidemic.

Documented reductions in HIV/AIDS prevalence in Uganda have been hailed as evidence that a concerted effort on the part of policymakers and health workers can change the trajectory of the epidemic (Green 2002). The Ugandan strategy mnemonic, "ABC," signifies Abstinence, Being faithful, and Condom use. However, it is yet unclear whether the success of Uganda can be replicated in other sub-Saharan nations like Nigeria (Cohen 2003).

As the Nigerian government attempts to scale up HIV/AIDS prevention efforts, it is necessary to identify determinants of condom use that are specific to the Nigerian context. In 1999, male condom use was only 8.6 % (Federal Ministry of Health, Nigeria 2003). According to the 2003 Nigeria Demographic Health Survey (NDHS), 13.2 % of men reported using condoms as their current contraceptive method (National Population Commission (NPC) [Nigeria] and ORC Macro, 2004). This represents a 53.5 % increase over four years.

Further increases in condom use resulting from government intervention require the identification of policy-amenable determinants of condom use. In addition, resource and capacity constraints require a strategic and efficient use of funds. An analysis of the barriers that prevent men from protecting themselves from HIV/AIDS could inform the efforts of policymakers and program officers to identify action plans that are both cost-effective and health improving. Barriers that may present major obstacles include attitude, cost, and physical access.

Disagreement and confusion exist as to whether the integration of preexisting family planning programs with STI prevention services is the best strategy for increasing condom use to stem the spread of HIV (Lush 2002; Caldwell and Caldwell 2002). Some researchers are concerned that successful family planning services will be made less effective with the addition of a new mandate for STI prevention. It has also been observed that the contraceptive and STI prevention functions address different populations, making integration unlikely to succeed.

Recent research among women indicates that counseling on dual protection at family planning clinics in Nigeria can increase uptake of barrier methods (Adeokun et al. 2002). It seems reasonable that a similar strategy would work for men. However, this is not necessarily the case.

Condoms are widely available for purchase in pharmacies, hospitals, grocery stores and most markets in urban centers, but the large majority of Nigerian male condom users visit pharmacies and shops to obtain condoms. Hospitals and clinics are barely utilized by men,

whether public or private. In descending order of popularity, sources most used by men to obtain condoms are pharmacies; shops; government hospitals or health centers; family planning clinics; private hospitals, clinics, or field workers; churches; and mobile clinics (NPC [Nigeria] and ORC Macro 2004). Government, nongovernmental organizations, and faith-based organizations may need to do more than integrate services if they hope to fill a role as condom providers.

The Nigerian government has voiced a deep commitment to providing contraceptives to its citizenry. The national health policy states the government's responsibility to provide health care. This commitment includes a strategic plan to ensure the availability of contraceptives (Federal Ministry of Health, Nigeria 2003).

Preventing contraceptive stockouts through logistic management is necessary but not sufficient to maintain or increase current use levels. Barriers such as attitude, cost, and physical access that prevent men from using condoms could have the same effect as stockouts, namely nonuse of condoms. In order to determine whether the government's obligation to ensure availability of contraceptives is met, it is necessary to characterize these barriers.

HIV prevalence in Nigeria is currently 5.4 %. This prevalence is low in comparison to the hardest hit areas of sub-Saharan Africa, where as much as 38.8 % of the general population is infected with the virus, as in Swaziland (UNAIDS 2004). Although Nigeria's HIV prevalence is low in absolute terms, the number of people infected with HIV, about 3.6 million, is second in the region only to South Africa. Therefore, efforts that hold Nigeria's HIV prevalence to single digits stand to save millions of lives, given the size of Nigeria's population, the largest in Africa.

In Nigeria, as in many parts of the world, sexual intercourse is a major route of HIV transmission (UNAIDS 2004). Other than complete abstinence, the use of condoms is recognized as an important component of preventing the sexual transmission of HIV. The use of condoms has therefore been promoted as a major strategy for combating the rising rates of infection.

Most condom promotion activities for preventing HIV infection are often targeted at high risk groups however since infections are already spilling over from the highest risk groups into the general population there is a need to refocus prevention strategies to curb the spread of infection among the general population. According to the Central Intelligence Agency, Nigeria is on track to joining the worst afflicted nations of the world. By 2010, 10 to 15 million people, or 18 % to 26 % of adults, could be infected with HIV (Gordon 2002).

Therefore, as the government seeks to increase use of condoms even further, policy-amenable barriers to use must be overcome. Barriers that could be positively influenced through policy instruments include attitude, cost, and physical access.

Attitude

Misconceptions regarding HIV remain widespread in Nigeria, even among high risk groups such as female sex workers, male truck drivers, and the military. For example, a recent study indicated that the majority of Nigerian naval officers believe that there is a cure for AIDS (Nwokoji and Ajuwon 2004). Knowledge of the most common HIV prevention methods, specifically the ABCs, is low among high risk groups (Family Health International 2000). Only

59.8 % of men know that HIV infection can be prevented by using condoms and limiting sex to one uninfected partner (NPC [Nigeria] and ORC Macro 2004).

Almost all men have heard of HIV. Smith (2003) proposes an answer to the question of why even those Nigerians with knowledge of HIV/AIDS do not engage in risk-avoidance behavior. He suggests that the values of individuals distort an accurate sense of personal risk. Because HIV is construed as a moral issue, individuals project risk onto "imaginary others." NACA Chairman, Professor Babatunde Osotimehin, has suggested what might be an alternative explanation that only 20 % of Nigerians believe HIV/AIDS is real (Lohor 2004).

A factor of social life that feeds the failure to adopt risk-avoidance behavior is pervasive stigma. Qualitative research portrays a high level of stigmatization and a low level of acceptance of people living with AIDS (Alubo et al. 2002). Attitude is not easily separable from misinformation in this case as there is widespread belief that HIV/AIDS can be contracted through any form of contact.

A prevailing attitude that affects spread of HIV is that males are sexually polygynous by nature. Orubuloye, Caldwell, and Caldwell (1997) also found that only half of the community members studied in southwest Nigeria believed that male sexuality can and should be confined to marriage. One-fifth of Nigerian men are in polygynous unions (NPC [Nigeria] and ORC Macro 2004).

In addition, condom use is constrained by gender inequalities. Many women fear repercussions from efforts to negotiate safer sex (Ezumah 2003). Gender, being a cultural construct, is largely determined by attitude and affected by misunderstanding.

Attitudes can be changed through communications interventions. In addition, communications can lead to increased condom use (Albarracin et al. 2003; Fawole et al. 1999). It seems plausible that attitude might affect receptivity to communications about condoms. Media may not have the same effect on everyone. Those with neutral or positive attitudes towards condoms may be more likely to consider messages about condoms than those who hold negative preconceptions about condoms.

Education could similarly affect knowledge and attitude. Those who are more educated may be more receptive to new ideas and have a broader factual basis upon which to formulate opinions about condoms than those who are less educated. If this is true, education might amplify the effect of attitude on condom use.

Cost

The cost of condoms is sometimes sensitive to price (Janowitz and Bratt 1996; Lewis 1986). Modeling and experimental approaches to answering the question of condom price elasticity have produced conflicting results. While the price elasticity of condoms in Nigeria is unknown, studies have shown a negative correlation between prices and contraceptive sales (Harvey, 1994).

Nevertheless, condom sales have increased recently in Nigeria. Nigerians purchased 150 million condom packets in the first quarter of 2004, an increase of twenty million over the same period the year before (Independent Online 2004).

Physical access
Lastly, some literature indicates that physical proximity or travel time to facilities that offer family planning services are determinants of modern contraceptive use (Agha 1998; Hammerslough 1992).

The 1999 NDHS showed that a greater percentage of women who lived near facilities that offer family planning use modern methods compared to women who lived further away from such facilities. Although 8.5 % of all women used a modern method, 12.4 % of women who lived less than a mile to services used modern methods. The percentages of women using modern methods decreased for those living 1-4, 5-14, and 15+ miles from facilities that offered family planning services to 6.7 %, 4.4 %, and 2.6 % respectively.

Special consideration should also be paid to regional variations in the characteristics of men. The characteristics of people tend to vary geographically. Moreover, the quality and density of services meant to meet the needs of people tend to vary and may not correspond to the geographic distribution of population density or characteristics. Therefore, policy makers and program developers can more efficiently target scarce resources by taking the spatial distribution of health service infrastructure and citizen characteristics into account.

Such analysis is useful to health intervention planners because physical barriers, where they exist, may have relatively simple solutions, such as the addition of specific services to existing facilities or the targeted construction of new facilities. With knowledge of the spatial distributions of people and health facilities, areas of weak coverage can be easily identified and may be strengthened.

This paper aims to identify determinants of condom use among Nigerian men that constitute barriers to use. There were three categories of independent variables of interest, those that were chosen to represent attitude, cost, and physical access to condoms. Based on this model, it will be possible to evaluate the relative importance of attitude, cost and physical access on condom use. Some barriers are amenable to policy and program intervention. Knowledge of policy amenable barriers can inform a larger process of policy and program development that utilizes criterion of cost-effectiveness and equity for prioritization in budget planning.

Data and Methods
The data for this study were drawn from the 1999 and 2003 NDHS. The 1999 service availability data and the male 2003 NDHS data were merged using SAS v8 on the common enumeration area (SAS Institute, Cary, NC, USA).

The 1999 survey included a module entitled Service Availability. The Service Availability module used key informants to gain data on community-level variables such as distance to the nearest doctor that offers family planning or whether the community is visited regularly by a mobile family planning clinic.

In 2003, five years later, 2,346 men were interviewed (NPC [Nigeria] and ORC Macro 2004). These men were selected through a sampling frame that grouped enumeration areas by state and then stratified the areas by the classification of urban and rural, with all areas with less

than 20,000 people constituting a rural area. Because stratification by state yielded too few cases per cell, region replaced state in the analysis.

Of the 2,346 men interviewed in the 2003 NDHS, 1,787 had sex prior to survey at least once. The other 547 men, who had never had intercourse, were removed from the study due to the assumption that they were not at risk of condom use. Twelve men had missing data regarding past intercourse and were therefore removed. Six men lacked data on their current method of contraception. They were removed. Lastly, a logical inconsistency caused the removal of two men who reported condom use as their current method while later reporting never using condoms. These deletions left a study sample of 1,779.

Distance was recategorized from a continuous variable to a variable with short intervals of < 1, 1-2, and 2+ kilometers given that most interviewees were within two kilometers of pharmacies or condom providers. Yoruba, Igbo, and Hausa ethnic groups each contained sufficient case cell numbers to merit a separate category. All other ethnic groups, despite their likely heterogeneity, were categorized as "other."

These surveys provide an opportunity to explore the possible relationship between barriers to use and contraceptive behavior. The NDHS contains ample questions that solicit the respondent's attitude towards contraception, women, and sex, such as: is buying condoms embarrassing; do condoms break easily; is contraception the woman's business, not the man's; and what is the self-perceived risk of getting AIDS?

An index of exposure to media messages that contain information about condoms was constructed using hearing about condoms from: radio, television, magazines or newspapers, leaflets or brochures, posters, town criers or mobile public announcements. Men were then categorized as having low, medium, and high levels of exposure to communications about condoms.

Socioeconomic data were collected and includes occupation and household possessions. A wealth index was constructed by ORC Macro using information on assets, household ownership and construction, and access to drinking water and sanitation. Assets were assigned weights through factor analysis and the wealth variable was divided into quintiles (NPC [Nigeria] and ORC Macro 2004).

Lastly, service availability data were generated at the enumeration area level in the 1999 NDHS, allowing community-level information on physical proximity to family planning to be assigned to each man.

Variables that capture attitude were: the belief that contraception is the woman's business, not the man's; the feeling that buying condoms is embarrassing; the belief that condoms break easily; and the self-perceived risk of getting AIDS. Variables measuring cost were: the feeling that condoms are expensive and the wealth index. Lastly, variables that capture physical access were: whether the nearest pharmacy sells family planning; distance to the nearest pharmacy (km); and distance to the nearest place or provider where condoms can be obtained (km).

The literature suggests including the covariates ethnic group; age; residence (urban/rural); region; marital status; religion; media exposure; having had any sexually transmitted disease

(STD) in last 12 months; and times away from home in last 12 months. Residence and region were included to also account for the sampling design employed by the NDHS.

Use or nonuse of condoms was the dependent variable for this study. The binary outcome variable required the use of a logistic regression model for the multivairiate analysis. Analysis followed three stages. First, univariate analysis ensured sufficient cell numbers in each variable category, the diagnosis of missing values, and any need for recategorization. Second, a univariate regression analysis of covariates provided an initial crude measure of association. Third, a multivariate logistic regression model estimated the relative effect of covariates on condom use, allowing a determination of the presence or absence of various barriers to condom use.

The interaction of education and media exposure on misconceptions about contraception or attitudes towards women was considered.

Results

The sample contained 277 men who cited condom use as current method of contraception. This represented 15.6 % of the sample. Male condom use varied by region, from 2.8% in the northwest to 29.1 % in the southwest (see Figure 1). Men in the northeast and northwest regions were approximately 20 % as likely to use condoms as compared to men living in the northcentral region. The three southern regions could not be distinguished from northcentral.

Univariate analysis showed that each category of barrier contained variables that were significant at the 0.10 level of significance using the likelihood ratio test, namely: the belief that contraception is the woman's business, not the man's; the feeling that buying condoms is embarrassing; the belief that condoms break easily; the self-perceived risk of getting AIDS; the feeling that condoms are expensive; the wealth index; whether the nearest pharmacy sells family planning; and distance to the nearest place or provider where condoms can be obtained (Table 1).

In the adjusted model, controlling for other variables, the effect estimates were similar but generally attenuated. The belief that contraception is the woman's business, not the man's; the feeling that buying condoms is embarrassing; and the belief that condoms break easily were highly predictive of condom use. Men who agreed with the statement that contraception is the woman's business, not the man's were less than half as likely to use condoms as men who disagreed with the statement (OR=0.43; 95 % CI, 0.26-0.67). Those men who find buying condoms embarrassing were no less likely to use condoms that men who disagreed with that statement. However, men who didn't know whether buying condoms is embarrassing were extremely unlikely to use condoms. Likewise, men who believe that condoms break easily were very unlikely to use condoms.

Ceteris paribus, risk perception of chance of getting AIDS was not predictive of condom use. The wealth index also lost its status as a predictor when holding other covariates constant.

One variable intended to model an economic barrier to condom use, the opinion that condoms are expensive, retained its strong relationship with condom use among those who did not know whether condoms are expensive relative to those who disagree that condoms are expensive (OR=0.21; 95 % CI, 0.07-0.60).

Lastly, men who lived in enumeration areas where the nearest pharmacy does not sell family planning were only 0.14 times as likely to use condoms when compared to men who lived in enumeration areas where the nearest pharmacy does sell family planning (95 % CI, 0.03-0.70). However, 91.3 % of the men lived in enumeration areas where the nearest pharmacy sells family planning suggesting that relatively few men experience this barrier. Men who lived further than two kilometers from providers where condoms can be obtained were nearly three times as likely to use condoms as those who lived less than one kilometer from a condom provider.

Young men aged 20-24 were the most likely and only statistically significant group to use condoms (OR=2.3; 95 % CI, 1.23-4.32) compared to men age 15-19. Marital status also affected condom use, with monogamous and polygynous men being much less likely to use condoms compared to the never married. By contrast, residence, having any STD in the last 12 months, education, times away from home in the last 12 months, religion, and media exposure did not have an effect.

Education was strongly correlated with the feeling that condoms are expensive. However, the interaction term between education and the feeling that condoms are expensive was nonsignificant.

Discussion

Evidence was found to support the hypothesis that attitude is a barrier to condom use. Variables that captured attitudes about gender and ignorance about condoms, were highly significant, this despite public awareness campaigns about condoms. The picture of male attitudes and understanding of condoms that emerges is more nuanced than that which has characterized much research into male roles in contraception and STI prevention (Greene and Biddlecom 2000).

Those who believed contraception is a woman's business and not the man's are expressing a conception of gender, suggesting that such feelings are rooted in a complex social construct. Lack of comfort about condoms, seen through expressed embarrassment at buying condoms could also be the product of gendered ideas about the locus of contraceptive and risk-reduction responsibility. Embarrassment could also be an expression of the discomfort that can accompany a lack of knowledge or the pervasive belief that condoms reduce sexual pleasure. However, in this study, embarrassment at buying condoms was not predictive of condom use, but those responding don't know had significantly reduced risk of condom use.

Early in the study, an index was created using the following variables: buying condoms is embarrassing; do condoms break easily; is contraception the woman's business, not the man's. Correlation between the variables was generally below 0.5. In addition we thought it more informative to separate the effects of each aspect of attitude.

Those who believed that condoms break easily may have had a bad experience while experimenting with condoms. It seems more likely that such men lack knowledge or are misinformed about the true strength of latex condoms. Such opinions may be based on what they hear about condoms from other people.

The significance of the feeling that condoms are expensive was initially interpreted as a variable that characterized an economic barrier to condom use. However, cost does not appear to be a barrier to condom use in Nigeria. Only three of the 1,026 men who did not use condoms said they were nonusers because contraception is too expensive (NPC [Nigeria] and ORC Macro 2004). As with men who didn't know whether buying condoms is embarrassing, it was the not knowing whether condoms are expensive that proved significant, not position in the wealth quintile, nor any opinion one way or the other regarding the expense of condoms.

Exposure to messages about condoms did not distinguish users from non-users in the final analysis. It is possible that the kind of messages being promoted do not address what appears to be a widespread unmet need for specific pieces of information about condoms. Only 15.6 % of men who know of AIDS use condoms (NPC [Nigeria] and ORC Macro 2004). Public service announcement messages may need to be refined to address misconceptions about condom strength. The use of town criers and mobile public announcements is not having a discernable effect (results not shown). Spending on these particular media may not be merited. However, we suggest that the way these sources of media are being used bears review. Not everyone has access to print and electronic media sources.

Some studies have documented that exposure to the media could have a positive impact on attitudes toward condoms (Oyediran 2003). Therefore, condom promotion activities may find a greater effect through a more focused expenditure on radio, television, and print media, particularly in those parts of the country where there is limited availability of these media sources. Even so, media exposure variables did not retain significance when the effects of other covariates were controlled.

Condoms are widely available through many outlets in Nigeria. However, it appears that men have a preference in terms of where to obtain them.

The other barrier that is affecting condom use is insufficient proximity to the type of condom outlet that Nigerian men prefer, pharmacies. There seems to be a feature of pharmacies that make them preferable to other outlets where condoms can be obtained, with 92.8 % of current condom users citing pharmacies as a source of condoms. Only 10.8 % of condom users in the sample cited stores, the next most popular condom source.

Of the 1,026 men who do not use any type of contraception, only 20 claimed they did not use condoms due to a lack of access. In addition, less than three percent of men lived in an enumeration area where the nearest pharmacy did not sell condoms. Ensuring that all of Nigeria's pharmacies stock condoms might have an effect on the men who live in enumeration areas where pharmacies did not sell condoms. However, this barrier affects few men when compared to the barrier of attitude.

The finding that men who live further away from providers of condoms are more likely to use condoms is difficult to interpret. The reliability of key informants to identify exact distances to condom providers might be challenged. Some respondents provided suspiciously precise estimates, for example that the nearest source of condoms is 88 or 94 kilometers away. The ability of a key informant to judge distance may be less reliable than general knowledge of whether the nearest pharmacy sells family planning. An additional weakness of the physical access data exists in that the information is four years old in relation to linked data from the

2003 NDHS data. In addition, the use of key informants rather than the men of the sample further obscures the relationship of service availability data and the data obtained in 2003.

There is a debate as to what extent policy makers have been part of the causal mechanism of Ugandan HIV prevalence decline (Singh et al. 2003). Additional research could focus on identifying the paths through which attitude and misconceptions about condoms and proximity to services affect condom use.

For example, a study might productively map the daily activities of men in Nigeria with special attention to how men use pharmacies as sources of condoms and other commodities. Another study might seek to more fully characterize those who hold inaccurate beliefs about condoms as a way of identifying target groups for social marketing campaigns. The beliefs and customs of Nigerian men vary tremendously by region. Future studies certainly need to take population heterogeneity into account. It is also important to gain a better understanding of what men find embarrassing about condoms so that steps can be taken to increase comfort levels among apprehensive men.

Conclusion

In the third decade of the HIV epidemic, condom promotion has been recognized as an important activity in prevention efforts, particularly in light of evidence from countries like Thailand and Uganda, where the success with which the epidemic was brought under control is largely attributed to intense condom promotion along with other activities. Although condoms are effective in reducing the rate of transmission through heterosexual intercourse, their effectiveness depends on the extent to which sexually active people use them, how correctly and consistently they use them, with what kind of partner and under what circumstances.

This study sought to identify barriers that hinder male condom use in Nigeria. Three categories of barrier were proposed, attitude, cost, and physical access.

The main barrier in Nigeria appears to be male attitudes towards contraception and several misconceptions about condoms that are widespread. One third of the sample of men believes that contraception is simply not their concern. A larger number do not know whether condoms are expensive or whether condoms break easily.

The hypothesis that cost might determine condom use was not supported. However, this needs further investigation considering that in Nigeria, free condoms are widely available through many non-governmental organizations. The importance of cost may have been insignificant in this case because majority of non-users would not have any need to purchase condoms while most users are likely to have access to free condoms distributed by condom promotion programs. Distributing free condoms has been effective in reducing the spread of infection among high risk groups, but limited evidence exist concerning condoms distributed freely among the general public (Hughes et al. 1995).

Lack of physical access to pharmacies that offer condoms, the outlet that is by far the most popular, constitutes a barrier to the use of condoms. The prevalence of condoms in the community as a whole may not be a barrier. However, prevalence of condoms in pharmacies seems to be a problem for a small percentage of Nigerian men. Only 2.6 % of men lived in an area where the nearest pharmacy did not sell family planning.

Social marketing could be further honed to address specific gaps in knowledge and barriers of attitude. Increasing condom use is one component in a strategy to reduce unintended pregnancies and the spread of HIV (Hearst and Chen 2004).

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Table 1. Odds ratios from unadjusted and adjusted logistic regression models of whether sexually experienced Nigerian men use condoms by barrier to use and background characteristic (N = 1,779)

			Unadjusted			Adjusted		
Variable	**N**	**%**	**OR**	**95% CI**	**p-value[1]**	**OR**	**95% CI**	**p-value[1]**
Attitude								
Contraception is the woman's business, not the man's								
Disagree	975	54.81	1.00			1.00		
Agree	560	31.48	0.30	(0.21-0.42)	<.0001	0.43	(0.26-0.67)	0.0004
Don't know	244	13.72	0.16	(0.09-0.30)	<.0001	0.37	(0.16-0.85)	0.0187
Buying condoms is embarrassing								
Disagree	731	41.23	1.00			1.00		
Agree	446	25.16	0.29	(0.21-0.40)	<.0001	1.14	(0.72-1.82)	0.5793
Don't know	596	33.62	0.01	(0.00-0.03)	<.0001	0.07	(0.01-0.30)	0.0005
Condoms break easily								
Disagree	468	26.38	1.00			1.00		
Agree	432	24.35	0.33	(0.24-0.45)	<.0001	0.45	(0.30-0.67)	0.0001
Don't know	874	49.27	0.03	(0.01-0.04)	<.0001	0.23	(0.11-0.47)	<.0001
Risk perception of chance of getting AIDS								
No risk at all	965	54.2	1.00			1.00		
Small	456	25.6	1.46	(1.09-1.96)	0.0123	0.89	(0.56-1.40)	0.6115
Moderate	86	4.8	1.97	(1.17-3.33)	0.0113	0.75	(0.38-1.49)	0.4090
Great	53	3.0	2.64	(1.43-4.87)	0.0020	1.41	(0.63-3.15)	0.4052
Don't know/Unsure	191	10.7	0.48	(0.27-0.86)	0.0127	0.60	(0.28-1.29)	0.1926
Missing	28	1.6	0.47	(0.11-2.00)	0.3059	2.26	(0.21-24.02)	0.4995
Cost								
Condoms are expensive								
Disagree	799	45.0	1.00			1.00		
Agree	173	9.8	0.74	(0.51-1.09)	0.1278	1.23	(0.71-2.14)	0.4538
Don't know	802	45.2	0.02	(0.01-0.04)	<.0001	0.21	(0.07-0.60)	0.0035
Wealth Index								
Poorest	339	19.1	1.00			1.00		
Poorer	297	16.7	1.22	(0.64-2.33)	0.5542	1.14	(0.50-2.58)	0.7582
Middle	335	18.8	2.55	(1.45-4.46)	0.0011	1.80	(0.86-3.77)	0.1221
Richer	369	24.9	4.20	(2.47-7.12)	<.0001	1.93	(0.92-4.06)	0.0823
Richest	442	24.9	6.35	(3.82-10.55)	<.0001	1.56	(0.72-3.35)	0.2604
Physical Access								
Nearest pharmacy								

sells family planning								
Yes	1625	91.3	1.00			1.00		
No	46	2.6	0.38	(0.12-1.23)	0.1059	0.14	(0.03-0.70)	0.0164
Don't know	31	1.7	1.90	(1.12-3.22)	0.0167	0.81	(0.33-1.95)	0.6304
Missing	77	4.3	0.18	(0.03-1.33)	0.0932	0.08	(0.01-0.82)	0.0339
Distance to the nearest place or provider where condoms can be obtained (km)								
< 1	104	5.87	1.00			1.00		
>= 1 and < 2	1488	83.97	1.13	(0.64-1.98)	0.6742	2.92	(0.77-11.05)	0.1139
>= 2	180	10.2	1.77	(0.93-3.39)	0.0848	3.03	(1.23-7.45)	0.0156
Background characteristic								
Age								
15-19	126	7.1	1.00			1.00		
20-24	281	15.8	1.87	(1.15-3.05)	0.0114	2.30	(1.23-4.32)	0.0096
25-29	286	16.1	1.16	(0.70-1.90)	0.5690	1.44	(0.74-2.81)	0.2848
30-34	269	15.2	0.59	(0.35-1.02)	0.0583	1.23	(0.56-2.71)	0.6149
35-39	199	11.2	0.31	(0.16-0.59)	0.0004	1.91	(0.72-5.09)	0.1962
40 +	201	34.7	0.15	(0.08-0.26)	<.0001	1.13	(0.46-2.79)	0.7901
Residence								
Urban	713	40.1	1.00			1.00		
Rural	1066	59.9	0.46	(0.35-0.59)	<.0001	0.87	(0.56-1.34)	0.5190
Region								
Northcentral	330	18.6	1.00			1.00		
Northeast	343	19.3	0.25	(0.15-0.42)	<.0001	0.24	(0.07-0.86)	0.0276
Northwest	361	20.3	0.12	(0.06-0.24)	<.0001	0.20	(0.05-0.84)	0.0277
Southeast	200	11.2	1.23	(0.80-1.89)	0.3454	0.72	(0.19-2.78)	0.6306
Southsouth	246	13.8	1.16	(0.77-1.75)	0.4678	0.47	(0.14-1.55)	0.2125
Southwest	299	16.8	1.74	(1.20-2.52)	0.0035	0.42	(0.12-1.52)	0.1863
Had any STD in the last 12 months								
No	1713	96.3	1.00			1.00		
Yes	48	2.7	2.79	(1.51-5.17)	0.0010	1.57	(0.71-3.50)	0.2663
Don’t know	18	1.0	0.33	(0.04-2.48)	0.2810	0.20	(0.02-2.31)	0.1957
Education								
No education	416	23.4	1.00			1.00		
Primary	475	26.7	5.08	(2.36-10.93)	<.0001	0.52	(0.19-1.42)	0.2017
Secondary	653	36.7	17.24	(8.38-35.48)	<.0001	0.70	(0.26-1.88)	0.4771
Higher	235	13.2	17.88	(8.38-38.16)	<.0001	0.91	(0.32-2.58)	0.8551
Times away from home in last 12 months								
A little	955	53.7	1.00			1.00		

A lot	810	45.5	1.38	(1.07-1.79)	0.0135	0.93	(0.64-1.34)	0.6814
Missing	14	0.8	1.06	(0.23-4.78)	0.9419	1.26	(0.21-7.60)	0.8014
Marital status								
Never married	541	30.4	1.00			1.00		
Monogamous	909	51.1	0.12	(0.09-0.17)	<.0001	0.18	(0.10-0.32)	<.0001
Polygynous	269	15.1	0.03	(0.01-0.08)	<.0001	0.09	(0.03-0.29)	<.0001
Formerly married	60	3.4	0.43	(0.22-0.82)	0.0109	0.65	(0.26-1.61)	0.3559
Religion								
Christianity	914	51.4	1.00			1.00		
Islam	832	46.8	0.37	(0.28-0.49)	<.0001	0.96	(0.58-1.59)	0.8816
No religion and other	33	1.9	0.36	(0.11-1.21)	0.0980	2.21	(0.39-12.59)	0.3706
Ethnic group								
Yoruba	266	15.0	1.00			1.00		
Igbo	298	16.8	0.68	(0.47-0.98)	0.0392	0.57	(0.25-1.26)	0.1638
Hausa	376	21.1	0.07	(0.04-0.14)	<.0001	0.41	(0.14-1.17)	0.0955
Other	839	47.2	0.29	(0.21-0.40)	<.0001	0.34	(0.17-0.67)	0.0020
Media index								
Low	872	49.0	1.00			1.00		
Medium	421	23.7	2.57	(1.82-3.62)	<.0001	1.03	(0.64-1.67)	0.9045
High	485	27.3	3.90	(2.85-5.35)	<.0001	0.92	(0.58-1.47)	0.7321

[1] Wald test
[2] Quartiles

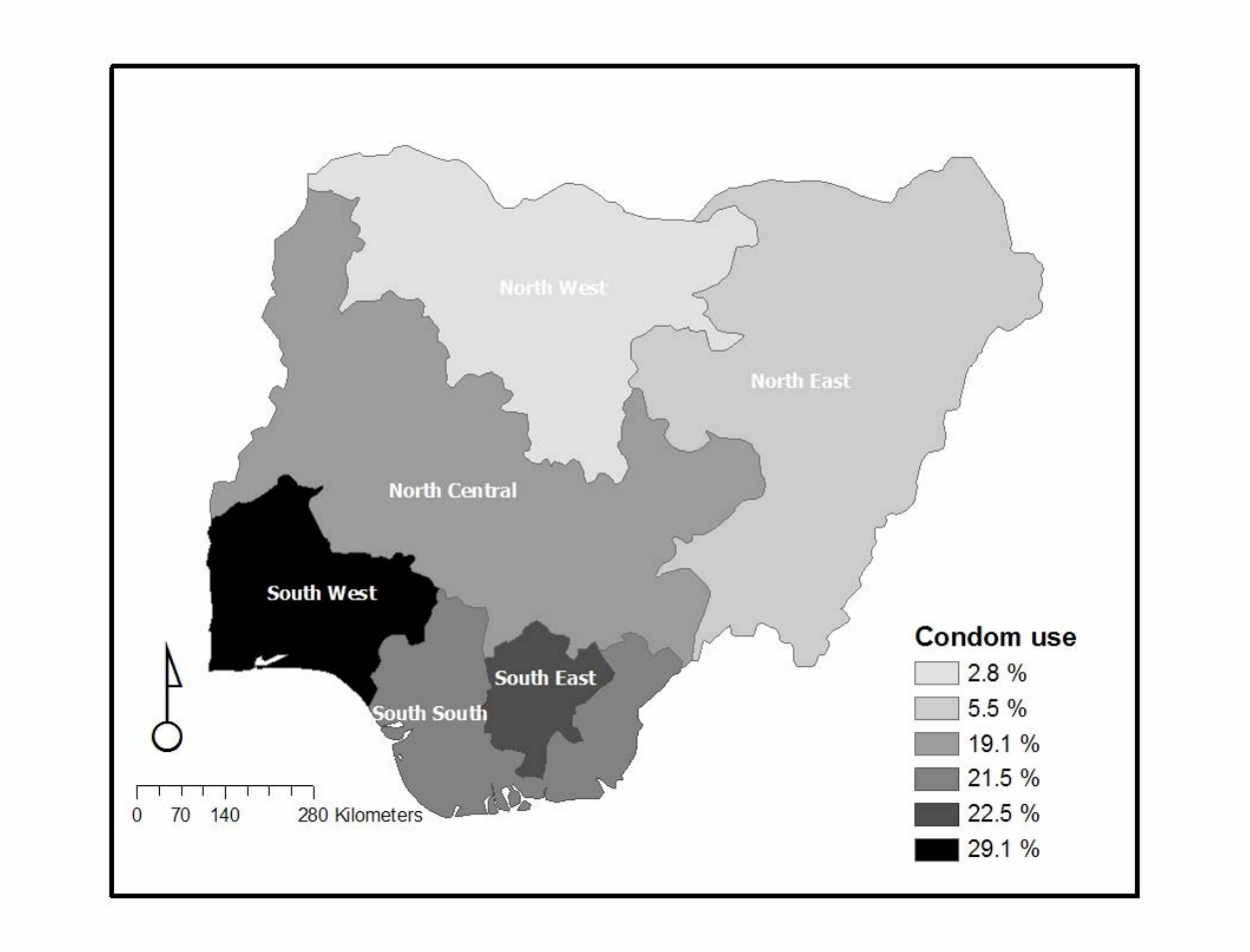

Figure 1. The regional range of condom use among men in Nigeria, 2003

Figure text: The percentage of men who use condoms, Nigeria DHS, 2003

Source: National Population Commission [Nigeria] and ORC Macro.
Nigeria Demographic and Health Survey 2003.