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Full Length Research Paper

Wealth Status and Sexual Partnership Pattern among Nigerian Men

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ABSTRACT

Studies in sub-Saharan Africa have shown that many people engage in multiple sexual partnerships despite the high knowledge about the contribution of such practice to the spread of HIV. The culture in many African countries especially in Nigeria favour men to engage in sexual experimentation with many sexual partners as a symbol of manhood. Past studies on sexual behaviour in Nigeria have focused on women and adolescents while men's sexuality has received less attention. This study used data extracted from 2007 National HIV/AIDS and Reproductive Health Survey of sexually active Nigerians to investigate correlates and pattern of multiple sexual partnerships among men in Nigeria using multilevel logistic regression models. The findings indicate that individual characteristics such as ever use of condom influenced sexual behaviour of men compared to their contextual characteristics. Compared to men in the poorest group, moderately rich men were more likely to have multiple (OR=1.10, 95%CI=0.93-1.30) and non-regular sexual partners (OR=1.05, 95%CI=0.89-1.25). We found marital status, ever use condom, students, age (21-49years) as significant determinants of multiple sexual partnerships. Sexual behaviour in the men population is driven not only by their occupations or economic state; younger men are more prone to risky sexual behaviour.

Keywords: Sexual behaviour, Contextual factors, individual factors, Nigerian men.

INTRODUCTION

Sexuality is an integral part of human-being which is influenced by interaction of biological, psychological, social, cultural or religious factors. Many studies in sub-Saharan Africa have shown that men's multiple sexual partnerships contribute to the spread of HIV despite the high knowledge of HIV/AIDS transmission route (Oyediran *et al.*, 2010; Asare and Annim, 2008; Bingenheimer, 2010). Moreover, in sub-Saharan Africa, one defining factor in multiple sexual partnerships is the concurrent nature of sexual networks (Morris and Kretzschmar, 1997). The absence of regular partner is believed to hasten sexual networking with social and economical dimensions (Asare and Annim, 2008).

From Shepstone report (Shepstone, 2011), the more economically stable and wealthy nations like South Africa and Botswana have higher HIV prevalence rates, showing a positive association between wealth status and HIV infection levels. However, difference exists at the individual or household levels. Mixed patterns have been reported on the association between wealth status at the individual or household level and HIV infection levels. Individual or household background characteristics have been noted to be associated with risky sexual behaviour (Shepstone, 2011). The background characteristics influence the epidemic yet at the same time act as protective determinant (Asare and Annim, 2008).

In some regions of sub-Saharan Africa, Nigeria inclusive, men are regarded to be different from women in their desire for sex and this has resulted in the perception that men may have unlimited sexual freedom which promote and even institutionalize multiple and concurrent sexual partnerships as socially acceptable

forms of sexual conduct (Izugbara, 2008; Omololu, 2004). Concurrency is defined as overlapping sexual partnerships in which sex with one partner occurs between two episodes of sex with another partner. Also, men's multiple sexual partnerships contribute to the spread of HIV in sub-Saharan Africa (Chen Li *et al*., 2007; Aral and Holmes,1999) and the level of multiple partnerships among men and pattern of partnership varies across countries in the region (Bingenheimer, 2010).

This cultural belief is played out in sexual behavioural patterns; for example, according to the 2003 National HIV/AIDS and Reproductive Health Survey (NARHS), 26% of all men surveyed reported having more than one sexual partner in the past year. Social and economic trends deemed to contribute to HIV risk for young people in sub-Saharan Africa include the lengthening period between childhood and adulthood, the "globalization" of youth culture, and worsening economic conditions. Shifting cultural values, poor economic prospects, and high prevalence of HIV/AIDS along with low expectations of tangible changes in the near future may bring social disillusionment and encourage some young people, particularly those who are already socially or economically marginalized, to engage in unsafe sexual and health practices (Collins and Rau, 2000). It has been reported that wealth index is positively associated with men extramarital sexual behavior (Kongnyuy *et al*., 2006; Mistunaga *et al*., 2005); thus it may be hypothesised that, wealthy Nigerian men are more likely to engage in extramarital affairs partners than their poorer counterparts. Unfortunately, the association between wealth status and patterns of sexual partnership among Nigerian men has not been adequately explored.

Studies on sexual behaviour in Nigeria have been focused largely on adolescents and women. This might result from the norms that men are in need of sexual satisfaction than their female counterparts or because of heterogeneity in cultural belief across the nation. It is not clear whether the effect of wealth status on sexual partnership is attributable to specific contextual or individual level characteristics. It is on this note that we examined the relationship between wealth status of men and their sexuality pattern since this fuels HIV transmission.

METHODOLOGY

Study design

This cross-sectional and population based study utilised data extracted from the 2007 National HIV/AIDS and Reproductive Health Survey (NARHS) in Nigeria.

Description of NARHS

The National HIV/AIDS and Reproductive Health Survey (NARHS) was designed to provide information on the situation and variety of factors that influence reproductive and sexual health behaviour in Nigeria. These Behavioural surveys indicate what factors affect reproductive health practices or drive the HIV epidemic. They provide information on knowledge, perceptions and attitudes of individuals to reproductive health issues including HIV/AIDS. They also provide information on the possible impact of HIV prevention and care and support initiatives as well as programmes aimed at improving women and men's reproductive health. 2007 NARHS is the third survey in the series.

Sampling Technique

2007 NARHS was a household survey designed to provide quantitative data for monitoring the impact of reproductive health interventions in Nigeria and also address the nexus of HIV/AIDS and related areas of reproductive health. The survey covered all the 36 states of Nigeria and participants were selected through a probability sampling method.

The sampling frame used for 2007 NARHS Plus was drawn from the updated master sample frame of rural and urban localities developed and maintained by the National Population Commission (NPC). Administratively, Nigeria is divided into 36 states of the federation and federal capital territory and 6 regions. Probability sampling was used for the survey and the sampling procedure was a four-level multi-stage cluster sampling.

All localities in a state were stratified into rural and urban localities with settlement less than or equal to 20,000 (≤ 20,000) inhabitants classified as rural while urban settlement were stratified into major towns and medium towns. One major and one medium town were also selected with probability proportional to size of the town. Then any number picked which is corresponding to the number picked was chosen for the formation of cluster and interviewed. The second stage involves the selection of enumeration area which were within the selected rural and urban localities while a list of eligible persons within households were selected at stage 3 and finally selection of actual respondent for interview and testing.

Overall, 11,822 respondents were selected for interview of which 11,521 were successfully interviewed resulting in a 2.5% non response rate.

Data Collection

Data were collected by personal interview using structured and semi-structured with a total of 11,521 respondents consisting of 6,161 men aged 16-64 years and 5,360 women aged 15-49 years. Due to the focus of the present study, only information about men was used in the analyses.

Ethical consideration

Ethical clearance was obtained from the Institutional Review Board (IRB) of the National Institute of Medical Research prior to the commencement of the survey. Oral and written informed consent was sought from each respondent before a questionnaire was administered. In the case of never-married adolescents' age 15-17 years, consent was sought from a parent before the adolescent was asked for his/her assent. When there is no parent living in the household, consent was requested from the adult who is in charge of the youth's health and welfare at the time of the interview and who made decisions on his/her behalf.

Measures

Outcome variable

The dependent variable in this study is the pattern of sexual behaviours among men. In particular, we considered the type of sexual partnership among men (i.e regular and non-regular) and the number of sexual partners (i.e 0, 1, 2, etc) a man has. The regular sexual partners are those partners who are marital while the non-regular partners are non-marital (this may be casual or commercial sex workers). Sexual partner ranges from 0 to 22. Multiple sexual partners are considered in this study as having more than one sexual partner in the last 12 months and ranges from 0 to 22 in the present analysis.

Independent variables

The independent variables were grouped into individual-level characteristics and contextual characteristics.
Individual-level characteristics are:

Age was categorized into 3 groups: ≤ 20, 21-49 and 50 years or older.

Education attainment of respondent was recoded into 3 groups: No formal education is formulated from those who did not go to school at all and those with Quranic only as 1, Primary education as 2 and those with Secondary or Higher as 3.

Marital status was grouped into two groups: currently married and living with sexual partner is recoded into 'in union' while never married, widow, separated and divorced was recoded as 'not in union'

Religion was grouped into 3 groups: protestant and catholic are recoded into Christian, Islam and no religion, traditional and others were recoded as others.

Occupation was regrouped from 17options to 4 groups: Director/upper management, other management, sales manager/representative/Insurance broker, Professional/Specialist, Self employed/Own small business, Blue collar skilled and semi-skilled and civil servant was recoded as Skilled, Self employed (Hawkers/Informal sector/Vendors), unskilled, Clerk, Farmer/Forestry/Fishing/Mining and trader was recoded as Unskilled, students stand alone as a form of occupation, Housewife, Pensioner, unemployed and others was recoded as Others.

Wealth index was computed from 22 household items such as having fridge, cars, washing machine etc using principal component analysis. Each variable was assigned a score and individual were ranked according to the score and divided into percentiles to form 3 groups of wealth index as Poorest, Middle class and Richest.

Ever use of condom was grouped into two groups: yes or no.

Alcohol use is also in two groups: yes or no.

Contextual characteristics are variables on the location or vicinity where the respondent lived. They are region, place of residence/Location and the ethnic group the respondent belongs.

Location was grouped into 2 groups: urban and rural.

Region comprises of the main 6 geo-political zone as: Northwest, Northeast, Northcentral, Southwest, Southeast, Southsouth.

Ethnicity was recoded from 36 groups into 4 groups: Yoruba, Igbo, Hausa/Fulani and others were the ethnic groups that cannot stand alone i.e they have smaller sample size.

Statistical analysis

Frequency tables were generated to describe categorical variables. The Chi-Square test was used to investigate associations between categorical variables. Variables that were significantly associated with the outcome variables were used in the multilevel logistic regression model to investigate if differences in the outcome variables are attributed to contextual or individual level characteristics of the subjects. Odd ratios and 95% confidence interval (CI) were computed for the variables to assess their association with the outcome variables in the study. Three models were developed: first is the empty model (intercept-only model) which serves as benchmark with which other models are compared, second model involves individual-level factors to investigate the extent to which these factors influence the pattern of Nigerian men sexuality and model three is contextual factors which is added to model two to investigate whether Nigerian men sexuality is influenced by their neighbourhood characteristics. Analysis was done with SPSS 20.

RESULTS

Frequency distribution of respondents

Data on a total of 6161 respondents (males aged 15 to 64 years old) were analyzed. Almost two-thirds (65.6%)

Table 1. Scoring factors and summary statistics for variables used in computation of first Principal Component

	ALL MEN IN NIGERIA			MEANS			
VARIABLES	Scoring Factor	Mean	SD	Scoring Factor x SD	Poorest 40%	Middle Class 40%	Richest 20%
Fridge	0.686	0.239	0.426	0.29	0.00	0.18	0.83
Radio	0.363	0.874	0.332	0.12	0.73	0.95	1.00
TV	0.819	0.519	0.500	0.41	0.03	0.77	1.00
Car	0.496	0.113	0.317	0.16	0.01	0.06	0.43
Video	0.779	0.401	0.490	0.38	0.01	0.52	0.95
Cable/S. Dish	0.440	0.060	0.238	0.10	0.00	0.02	0.27
Washing machine	0.140	0.010	0.097	0.01	0.00	0.01	0.03
GSM	0.716	0.484	0.500	0.36	0.08	0.65	0.95
Telephone	0.329	0.040	0.195	0.06	0.00	0.02	0.16
Generator	0.560	0.183	0.386	0.22	0.01	0.15	0.61
Gas/Electric cooker	0.456	0.077	0.267	0.12	0.00	0.03	0.33
Electricity	0.654	0.610	0.488	0.32	0.23	0.81	0.97
Grinding machine	0.244	0.060	0.238	0.06	0.02	0.05	0.17
Motorcycle	0.181	0.321	0.467	0.08	0.22	0.38	0.41
Bicycle	-0.150	0.393	0.489	-0.07	0.46	0.39	0.28
Fan	0.784	0.528	0.499	0.39	0.05	0.77	0.99
Kerosene stove	0.659	0.556	0.497	0.33	0.18	0.73	0.96
Cow	-0.289	0.161	0.367	-0.11	0.28	0.09	0.07
Goat	-0.368	0.448	0.497	-0.18	0.63	0.38	0.22
Own farmland	-0.424	0.618	0.486	-0.21	0.82	0.57	0.32
Boat/Ship/Canoe	-0.041	0.051	0.220	-0.01	0.06	0.06	0.03
Donkey/Carmel/Horse	-0.212	0.046	0.209	-0.04	0.09	0.01	0.02

of the respondents reside in rural areas. Majority of the respondents reported having multiple sexual partners (61.1%), non-regular sexual partnering amidst them was 62.8%, alcohol use was reported by 23.6% while 66.6% were non-users of condom (table not shown).

Wealth index computation

Table 1 reports the scoring factors from the principal components analysis of the 22 household assets. The mean value of the index was 0 and the standard deviation was 1.0; because all asset variables take only the values 0 (if such asset is absent) and 1 (if such asset is present). A household that owns a fridge has an asset index higher by 0.29 than any household that does not; having electricity raises a household's asset index by 0.32 while having a bicycle and owning farmland lowers the asset index by 0.07 and 0.21 respectively.

From the PCA results, we sort individuals by the asset index and establish cut-off values for percentiles of the population. We then assigned households to a group on the basis of their value on the index. The first 40% was referred to as 'poorest', the next 40% as 'middle class' and the top 20% was regarded as the 'richest' (Table not shown).

Furthermore, the last 3 columns of Table 1 compared the average ownership of each asset across the poor, middle and rich households. There was variation across groups for almost all types of assets. For instance, having a television set was 3% for the poor, 77% for those in the middle class and 100% for the rich. Also, having cable/satellite dish was 27% for the rich, 2% for those in the middle class while the poor have none (0%). It was interesting to note that washing-machine across the groups was very low. It was only 3% for those in the richest group. In the same manner, there was a wide variation in gas/electric cooker ownership by these men across the group. 0% for the poorest, 3% for those in the middle class and 33% for the richest. Comparing ownership of phone to telephone across the groups from table 2, it was found that the use of telephone is becoming outdated (0% in the poorest group, 2% among the middle class and only 16% among the rich) while use of GSM was common across the groups; although it was still low among the poor (8%).

Univariate analysis of individual-level factors associated with sexual partnership pattern among Nigerian men

There is no association between the level of education attained by respondents and having multiple sexual partners (Table 2 below). Out of 1,493 respondents with no formal education, 60.7% have more than one sexual partner, 59.1% of respondents with primary education and 62.0% of respondents with secondary or higher level of education have multiple sexual partners. Also, the proportion with non-regular sexual partner increases with increase in level of education of respondents.

With respect to wealth status of respondents (Table 2), multiple sexual partnering is more prevalent among the poor (62.8%) and this association is statistically

Table 2. Univariate Analysis of Individual-Level Factors Associated With Sexual Partnership Pattern among Nigerian Men

INDIVIDUAL CHARACTERISTICS	NUMBER OF SEXUAL PARTNERS			TYPE OF SEXUAL PARTNER		
	≤ 1	≥ 2	χ^2	Regular	Non-regular	χ^2
Age						
<=20	197(12.1%)	1427(87.9%)		44(2.7%)	1590(97.3%)	
21-49	1855(50.0%)	1856(50.0%)	684.36**	1727(46.5%)	1991(53.5%)	1204.434**
>=50	345(41.8%)	481(58.2%)		516(63.3%)	298(36.7%)	
Educational attainment						
No formal education	587(39.3%)	906 (60.7%)		814 (54.5%)	679 (45.5%)	
Primary	488 (40.9%)	705 (59.1%)	3.201+	554 (46.4%)	639 (53.6%)	403.739**
Secondary or Higher	1322 (38%)	2153 (62%)		923 (26.6%)	2552 (73.4%)	
Marital status						
In Union	1632 (57.9%)	1186 (42.1%)		2102 (74.6%)	716 (25.4%)	
Not in union	763 (22.9%)	2568 (77.1%)	786.755**	187 (5.6%)	3144 (94.4%)	3108.193**
Religion						
Islam	1086 (34.9%)	2026 (65.1%)		1365 (43.9%)	1747 (56.1%)	
Christianity	1266 (43.0%)	1681 (57.0%)	43.017**	873 (29.6%)	2074 (70.4%)	144.033**
Others	43 (45.3%)	52 (54.7%)		52 (54.7%)	43 (45.3%)	
Occupation						
Skilled	855 (52.3%)	781 (47.7%)		880 (53.8%)	756 (46.2%)	
Unskilled	1029 (43.9%)	1313 (56.1%)		1215 (51.9%)	1127 (48.1%)	
Schooling	334 (19.1%)	1412 (80.9%)	435.781**	53 (3.0%)	1693 (97.0%)	1285.043**
Others	179 (41.0%)	258 (59.0%)		143 (32.7%)	294 (67.3%)	
Wealth Index						
Poorest	915 (37.2%)	1546 (62.8%)		1090 (44.3%)	1371 (55.7%)	
Middle class	948 (38.5%)	1513 (61.5%)	13.372**	801 (32.5%)	1660 (67.5%)	87.678**
Richest	533 (43.3%)	697 (56.7%)		399 (32.4%)	831 (67.6%)	
Ever-use Condom						
Yes	890 (54.3%)	749 (45.7%)		514 (31.4%)	1125 (68.6%)	
No	1190 (36.4%)	2077 (63.6%)	142.819**	1331 (40.7%)	1936 (59.3%)	40.928**
Alcohol use						
Yes	713 (49.2%)	731 (50.6%)		556 (38.5%)	888 (61.5%)	
No	1658 (35.5%)	3007 (64.5)	88.880**	1715 (36.8%)	2950 (63.2%)	1.431+
Knowledge of symptom of STI in men						
No	575 (37.5%)	960 (62.5%)	26.032**	510 (33.2%)	1025 (66.8%)	38.855**
Yes	1490 (45.3%)	1802 (54.7%)		1404 (42.6%)	1888 (57.4%)	
Knowledge of symptoms of STI in women						
No	808 (40.0%)	1213 (60.0%)		725 (35.9%)	1296 (64.1%)	20.744**
Yes	1257 (44.8%)	1549 (55.2%)	11.135**	1189 (42.4%)	1617 (57.6%)	
Knowledge of HIV route of transmission						
No	275 (29.0%)	673 (71.0%)		312 (32.9%)	636 (67.1%)	
Yes	2122 (40.7%)	3091 (59.3%)	46.176**	1979 (38.0%)	3234 (62.0%)	8.763**

significant at $p<0.05$. However, having non-regular sexual partner increases with increase in wealth status of respondent. The incidence was highest among the richest (67.6%) and least among the poorest (55.7%). Furthermore, multiple sexual partnering was highest among non-users of condom (63.6%) while majority of condom users (68.6%) have non-regular sex partners. Also, from Table 2b, multiple sexual partnering was more common among rural dwellers (62.4%) compared to their urban counterparts but the prevalence of non-regular

Table 2b. Univariate Analysis of Contextual-Level Factors Associated With Sexual Partnership Pattern among Nigerian Men

CONTEXTUAL CHARACTERISTICS	NUMBER OF SEXUAL PARTNERS ≤ 1	≥ 2	χ^2	TYPE OF SEXUAL PARTNER Regular	Non-regular	χ^2
LOCATION						
Urban	875(41.3%)	1243 (58.7%)		764(33.8%)	1483(66.2%)	
Rural	1522(37.6%)	2468(62.4%)	7.864**	1522(39.0%)	2397(61.0%)	15.786**
ETHNIC GROUP						
Yoruba	406 (36.7%)	791(64.4%)		345 (31.2%)	844(68.7%)	
Igbo	372 (43.2%)	505(56.9%)	41.868**	263 (30.5%)	620(69.8%)	121.834**
Hausa/Fulani	826 (34.8%)	1504(65.7%)		1084 (45.7%)	1237(54.1%)	
Others	793 (43.5%)	994(56.4%)		599 (32.9%)	1178(66.9%)	
GEOGRAPHICAL REGION						
North-west	492 (32.5%)	1022 (67.5%)		712 (47.0%)	802 (53.0%)	
North-east	318 (38.9%)	500 (61.1%)		378 (46.2%)	440 (53.8%)	
North-central	433 (39.2%)	672 (60.8%)	78.778**	365 (33.0%)	740 (67.0%)	149.17**
South-west	399 (36.1%)	705 (63.9%)		335 (30.3%)	769 (69.7%)	
South-east	276 (42.1%)	379 (57.9%)		196 (29.9%)	459 (70.1%)	
South-south	473 (49.6%)	480 (50.4%)		301 (31.6%)	652 (68.4%)	

+ Implies non-significance, * $p<0.05$, ** $p<0.01$

sexual partners was highest among urban dwellers (66.2%). This association is statistically significant at $p<0.05$.

Multilevel logistic regression for predictors of multiple sexual partnerships among Nigerian men

From Table 3 below (model 2), among respondents aged 15-20years, the odds of having multiple sexual partners was higher compared to those of age group 50years or older (OR=1.32, 95%CI: 0.99-1.76). Although, there is no association between education attainment and multiple sexual partnership, respondents with primary education are 1.1 times more likely to have multiple sexual partner compared to those of Secondary or Higher level of education (OR=1.07, 95%CI: 0.89-1.27) and the odds of having more than one sexual partner was 16% lower among respondents with no formal education compared to those of secondary or higher level of education (OR=0.84, 95%CI: 0.67-1.04).

Being a student is statistically associated with having more than one sexual partner. The odds of having multiple sexual partners was higher by 50% compared to those with other forms of occupation (OR=1.50, 95%CI: 1.14-1.98). From table 3, we showed that wealth status is not statistically associated with having multiple sexual partners but the odds of having multiple sexual partners was 3% higher among the poorest group (OR=1.03, 95%CI: 0.85-1.26) and 10% higher among the middle class compared to those in the richest group (OR=1.10, 95%CI: 0.93-1.30). Ever use of condom is statistically associated with having more than one sexual partner. The odds of having multiple sexual partners was 95% higher among respondents who were ever users of condom (OR=1.95, 95%CI= 1.68-2.26).

Inclusion of the contextual factors had little effect on the contribution of individual –level variables to the likelihood of having multiple sexual partners (model3). The effect of marital status, ever use condom, occupation (student), age (21-49years) remained statistically significant.

Also, location was not associated with multiple sexual partnerships from Table 4. Urban dwellers were 0.9 less likely to report having more than one sexual partner compared to men in rural areas (OR=0.88, 95%CI: 0.76-1.03).

Multilevel logistic regression for predictors of non-regular sexual partners among Nigerian men

Table 4 below revealed that, the prevalence of non-regular sexual partnering among students was very high. The odds of having non-regular sexual partner was 88% higher compared to those with other forms of occupation. (OR=2.88, 95%CI: 1.83-4.52). Across the occupation groups, there was no significant change when contextual factors were added to model2 in Table 4. Ever use of condom is statistically associated with having non-regular sexual partner. The odds of having non-regular sexual partner was 75% lower among men who never use condom compared to those who were ever users (OR=0.75, 95%CI= 0.61-0.91) while the odds of having non-regular sexual partner were 16% higher among respondents who took alcohol (OR=1.16, 95%CI: 0.94-1.44).

Furthermore, marital status was negatively associated with non-regular sexual partnership while religion was positively associated. The odds of having non-regular sexual partner was 96% lower among men who were in union compared to those who were not.

Table 3. Individual and Contextual factors associated with Multiple Sexual Partnership among Nigerian men

	Empty model	Model with individual variables	Model with individual and Contextual variables
Individual Variables	OR(95% CI)	OR(95% CI)	OR(95% CI)
Age groups			
<= 20		0.771 (0.495-1.200)	0.786 (0.489-1.261)
21-49		1.701 (1.192-2.426)**	1.730 (1.212-2.470)**
>= 50		Reference	Reference
Educational attainment			
No formal education		1.326 (0.932-1.888)	1.331 (0.924-1.917)
Primary		0.976 (0.792-1.204)	0.965 (0.790-1.180)
Secondary or Higher		Reference	Reference
Marital status			
In union		3.001 (2.032-4.434)**	3.029 (2.044-4.489)
Not in union		Reference	Reference
Religion			
Christianity		1.264 (1.022-1.562)*	1.327 (1.022-1.725)*
Islam		1.556 (1.119-2.161)**	1.571 (1.110-2.223)
Others		Reference	Reference
Occupation			
Skilled		0.976 (0.808-1.179)	0.963 (0.787-1.177)
Unskilled		0.902 (0.666-1.222)	0.921 (0.682-1.244)
Schooling		0.653 (0.532-0.801)**	0.653 (0.516-0.826)**
Others		Reference	Reference
Wealth Index			
Poorest		0.952 (0.798-1.136)	1.067 (0.866-1.315)
Middle class		0.901 (0.992-1.026)	0.959 (0.847-1.086)
Richest		Reference	Reference
Ever use condom			
Yes		Reference	Reference
No		0.532 (0.445-0.635)**	0.534 (0.443-0.643)**
Alcohol use			
Yes		0.945 (0.747-1.196)	0.937 (0.740-1.187)
No		Reference	Reference
Knowledge of HIV route			
Yes		Reference	Reference
No		0.978 (0.814-1.176)	0.983 (0.823-1.173)
Knowledge of symptoms of STI in men			
Yes		Reference	Reference
No		0.878 (0.757-1.018)	0.869 (0.744-1.015)
Knowledge of symptoms of STI in women			
Yes		Reference	Reference
No		1.129 (0.930-1.370)	1.130 (0.944-1.353)
Contextual variables			
Location			
Urban			1.183 (1.092-1.281)**
Rural			Reference
Ethnic group			
Yoruba			1.053 (0.630-1.761)
Igbo			1.202 (0.936-1.545)
Hausa/Fulani			0.925 (0.747-1.145)
Others			Reference
Intercept	0.655 (0.548-0.748)**	0.414 (0.195-0.880)*	0.341 (0.144-0.810)*
Random effect			
Area random variance (SE)	0.06 (0.04)	0.05 (0.04)	0.05 (0.04)
Variance partition coefficient (%)	1.79	1.50	1.50
Model fit statistic			
AIC	26,376	18,953.465	18,983.930

+ Implies not significant, *p<0.05, **p<0.01
SE implies standard error, AIC is Akaike information criterion

Table 4. Individual and Contextual factors associated with Non-regular Sexual Partnership among Nigerian men

	Empty model	Model with individual variables	Model with individual and Contextual variables
Individual Variables	OR(95% CI)	OR(95% CI)	OR(95% CI)
Age groups			
<= 20		0.306 (0.171-0.549)**	0.312 (0.166-0.585)**
21-49		1.159 (0.868-1.547)	1.167 (0.858-1.588)
>= 50		Reference	Reference
Educational attainment			
No formal education		1.496 (1.306-1.713)**	1.473 (1.272-1.705)**
Primary		1.130 (0.786-1.624)	1.130 (0.790-1.616)
Secondary or Higher		Reference	Reference
Marital status			
In union		24.295 (18.311-32.236)**	24.533 (18.19-33.089)**
Not in union		Reference	Reference
Religion			
Christianity		1.101 (0.432-2.807)	1.027 (0.407-2.589)
Islam		0.767 (0.316-1.860)	0.765 (0.312-1.874)
Others		Reference	Reference
Occupation			
Skilled		1.181 (1.015-1.374)*	1.158 (0.974-1.378)
Unskilled		0.910 (0.769-1.076)	0.914 (0.772-1.080)
Schooling		0.392 (0.252-0.609)**	0.390 (0.249-0.613)**
Others		Reference	Reference
Wealth Index			
Poorest		1.030 (0.737-1.438)	1.099 (0.828-1.460)
Middle class		0.872 (0.722-1.053)	0.900 (0.757-1.069)
Richest		Reference	Reference
Ever use condom			
Yes		Reference	Reference
No		1.351 (1.243-1.469)**	1.347 (1.213-1.497)**
Alcohol use			
Yes		Reference	Reference
No		0.796 (0.636-0.996)*	0.806 (0.646-1.005)
Knowledge of HIV route			
Yes		Reference	Reference
No		1.039 (0.777-1.389)	1.046 (0.778-1.406)
Knowledge of symptoms of STI in men			
Yes		Reference	Reference
No		0.847 (0.667-1.076)	0.835 (0.671-1.040)
Knowledge of symptoms of STI in women			
Yes		Reference	Reference
No		1.093 (0.811-1.473)	1.096 (0.813-1.478)
Contextual variables			
Location			
Urban			1.099 (0.882-1.368)
Rural			Reference
Ethnic group			
Yoruba			1.29 (0.784-2.125)
Igbo			1.112 (0.643-1.925)
Hausa/Fulani			1.257 (1.075-1.469)**
Others			Reference
Intercept	0.565 (0.440-0.727)**	0.106 (0.035-0.322)**	0.089 (0.030-0.258)**
Random effect			
Area random variance (SE)	0.113 (0.07)	0.083 (0.06)	0.092 (0.07)
Variance partition coefficient (%)	3.32	2.46	2.72
Model fit statistic			
AIC	26,565.658	23,309.395	23,276.764

+ implies not significant, *p<0.05, **p<0.01
SE implies standard error, AIC is Akaike information criterion

(OR=0.04, 95%CI=0.03-0.05). Interestingly, this association does not change after adding the area-level factors to model2 in table 4. The odds of having non-regular sexual partner were higher among Muslim men (60%) and low among Christian men (13%).

Wealth index was not associated with non-regular sexual partnership. The odds of having non-regular sexual partner was 13% higher among men in the middle class (95%CI: 0.90-1.42) and 94% lower among the poor (95%CI: 0.72-1.23) compared to men in the richest

group. After adding contextual factors, there was an association between having non-regular sexual partner and wealth status (middle class).

From table 4 (model 3), none of the contextual factors added is significant with having non-regular sexual partners. The odds of having non-regular sexual partner was 4% lower among the urban dwellers compared to rural dwellers (OR=0.96, 95%CI: 0.78-1.18). Ethnicity has a negative association with non-regular sexual partnership. Out of the 3 main tribes, the odds of reporting non-regular sexual partnership was lowest among Igbo men (95%CI: 0.61-1.35) compared to those from other ethnic group.

DISCUSSION

This study investigated the determinants of sexual partnership pattern among Nigerian men with a focus on their wealth status using data from National HIV/AIDS and Reproductive Survey, 2007. The findings from this study show that mostly individual factors are associated with sexual partnership and not the contextual factors.

We found from the multilevel analysis that wealth index and level of education were not associated with men's multiple sexual partnership. Compared to men in the poorest group, moderately rich men were more likely to have multiple and non-regular sexual partners. Thus, the high probabilities of sexual risk behaviour among the wealthier men may be linked to educational status or their occupation. This finding is consistent with findings from previous study (Bingenheimer, 2010) conducted in 15 sub-Saharan African countries where men residing in wealthier households and those with wage-paying jobs were more likely to report having multiple sexual partners. In general, there is inverse relationship between age and sexual partnership which confirms the fact that there is love for pleasure by younger men compared to older ones which is consistent with previous study (Asare and Annim, 2008; Oyediran *et al.,* 2010).

Interestingly, as wealth index is not associated with multiple sexual partners, level of education attained is not but there is no consistent relationship between forms of occupation and multiple sexual partners. In a similar study carried out among married men in 8 African countries (Nigeria inclusive), men with only primary education and those who worked for pay had increased odds of risky extramarital sex in some of the countries(Stephenson, 2010). We further observed from the present study that most of the study participants were from rural areas and were not in union while people in marital union were less likely to report having multiple sexual partners.

Furthermore, although past studies have found alcohol consumption to be significantly associated with men's extramarital sexual behaviours (Oyediran *et al*., 2010) and past alcohol use with women sexual behaviours (Uthman, 2008), the multilevel analysis in the present study show that there is no relationship between alcohol use and multiple sexual partnership. Moreover, ever use of condom was significantly associated with sexual partnership even after controlling for individual and contextual factors. This implies that ever use of condom is related to respondent's sexual behaviours irrespective of their personal attributes and background.

In an unadjusted analysis (results not shown), we found that place of residence was associated with multiple sexual partnership this is similar to Mitsunaga findings in 2005 where location was positively associated with extramarital sex by Nigerian men. However, this finding is in contrast with Oyediran *et al*., 2010 where place of residence does not significantly influence extramarital sexual behaviour among married Nigerian men and extramarital sex was negatively associated with extramarital sexual behaviour. Other similar studies carried out in other African countries (Cote d'Ivoire and Zimbabwe) also revealed higher prevalence of extramarital sex in the urban areas compared to rural areas (Ali and Cheland, 2001; Kimuna and Djamba, 2005).

Furthermore, we also found that ethnicity was not associated with sexual partnership when only contextual factors were used. The odds of having multiple sexual partners were higher among the Yoruba and Hausa/Fulani men than the Igbo men. Although we lack direct evidence in the analysis, the present variation might be linked to religious affiliation; as Muslims were found to be less likely to engage in extramarital sex (Oyediran *et al*., 2010) and men from Hausa/Fulani were predominantly Muslims while Igbo are mostly Christians (catholic). Moreover, we understood from previous study, that ethnicity influences sexual behaviour in Africa and that urbanization and education influence traditional norms and values especially in cities where people are more likely to abandon traditions (Addai, 1997).

CONCLUSSION / RECOMMENDATION

The main objective of this study was to assess the association between wealth status and their sexual partnership pattern among Nigerian men. The hypothesis that wealth was associated with number and type of sexual partner was not confirmed. This study revealed that the pattern of sexual partnership among Nigerian men varies according to individual characteristics and behavioral factors rather than their contextual characteristics. Also, findings from this study suggested that there was variation in wealth status across the region and ethnic groups among men. More than half of men in the rural areas are in the poorest group while urban dwellers were mostly in the middle class. The limitations of this study was that there was no cluster variable in the data which makes it difficult to objectively assess

contextual factors and the wealth index computed is only a proxy and not the real economic status of the men. The data on sexual partnership is self-reported which is subject to bias in the information provided by the respondents.

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