

HIV Testing and Multiple Sexual Partnerships Among Men in Nigeria: Evidence from the 2013 Demographic and Health Survey

Original Research Article | Volume 1 | Issue 5 | 2026 | Article Number: 019

Accepted: 14 September 2026 | Published: 10 October 2026 | ISSN: 2979-8582 (Online)

 Crossref : <https://doi.org/10.67693/BJCR-Q42T3WMV>



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Abstract

Low uptake of human immunodeficiency virus (HIV) testing and involvement in multiple sexual partnerships among men in Nigeria are likely perpetuating HIV transmission. This quantitative, cross-sectional study investigates the associations between HIV testing uptake, sociodemographic variables, HIV knowledge, attitudes regarding safer sex negotiation, and multiple sexual partnerships, utilizing the health belief model (HBM) to provide a theoretical foundation. Secondary data are from the 2013 Nigeria Demographic and Health Survey (NDHS), with a national sample of 17,359 men aged 15–49 years obtained through a three-stage stratified random design. Using Chi-square tests and binary logistic regression, significant associations are found between sociodemographic attributes of men (age, place of residence, marital status, religion, wealth status, ethnicity, and educational attainment), uptake of HIV test, and attitude toward negotiating safer sex and multiple sexual partnerships ($p < .05$). No significant association is observed with HIV knowledge related to sexual networks. **A substantial higher proportion of middle age men (25–39 years) reported engaging in multiple sexual partnerships than that observed in younger (15–24 years) or older (≥ 40 years) men or in Hausa men; Muslim men were less likely to be involved in this type of partnership.** Unforeseen results show that men who ever tested for HIV were significantly more prone to having multiple partnerships than men not previously tested for HIV (adjusted OR = 1.79, $p < 0.05$). The findings imply that HIV testing services alone without integrated structured post-test counseling and follow-up services are not effective for modifying sustained risk behaviors such as multiple sexual partnerships among men in Nigeria.

Keywords: HIV Testing, Multiple Sexual Partnerships, Men, Nigeria, Health Belief Model, Demographic And Health Survey

INTRODUCTION

Nigeria carries one of the largest HIV burdens in the world, and most new infections in the country are attributable to heterosexual transmission, with a median age at sexual debut of just over 21 years among men¹. Despite this burden, HIV test uptake among Nigerian men remains low: national survey data indicate that fewer than one in four men aged 15–49 years has ever been tested².

Multiple concurrent or sequential sexual partnerships are recognized as a principal driver of HIV transmission in Nigeria and across sub-Saharan Africa, extending sexual networks and increasing the likelihood that an infection introduced into one partnership will spread to others³. A substantial body of research has separately examined the determinants of multiple sexual partnerships and the determinants of HIV test uptake, but comparatively little research has directly examined how these two behaviors relate to one another among men, with most testing research instead concentrating on women attending antenatal care or on couples rather than on men in the general population⁴.

The health belief model provided the theoretical framework for this study^{5,6}. The model proposes that health behavior is shaped by an individual's perceived susceptibility to and severity of a health threat, the perceived benefits and barriers of a protective action, and cues to action, modifying factors, and self-efficacy. Under this framework, men's sexual risk behavior and their engagement with HIV testing services would be expected to move together: men who perceive themselves at risk should be more likely both to seek testing and to reduce risk behaviors such as multiple partnerships.

The purpose of this study was to examine the relationship between HIV test uptake, sociodemographic characteristics, HIV knowledge, attitudes toward safer-sex negotiation, and multiple sexual partnerships among men in Nigeria, using nationally representative survey data. Specifically, the study examined (a) the association between sociodemographic characteristics and multiple sexual partnerships, (b) the relationship between HIV test uptake and multiple sexual partnerships, and (c) the association between HIV knowledge and attitudes toward safer-sex negotiation and multiple sexual partnerships.

METHODS

Design and Data Source

This study used a quantitative, cross-sectional design and analyzed secondary data from the 2013 Nigeria Demographic and Health Survey (NDHS), a nationally representative household survey conducted by the National Population Commission with support from ICF International². The NDHS used a stratified two-stage cluster sampling design to select a nationally representative sample of households across Nigeria's 36 states and the Federal Capital Territory. The analytic sample comprised 17,359 men aged 15–49 years who completed the men's questionnaire.

Measures

The outcome variable, multiple sexual partnerships, was derived from survey items on the number of sexual partners in the 12 months preceding the survey and dichotomized as one or no partner versus more than one partner. Independent variables included sociodemographic characteristics (age, type of residence, marital status, ethnicity, religion, wealth status, and educational level), HIV test uptake (ever tested versus never tested), HIV knowledge regarding sexual networks (whether the respondent knew that having only

one uninfected, faithful partner reduces HIV risk), and attitude toward safer-sex negotiation (based on whether respondents agreed that a wife is justified in refusing sex with a husband who has other partners).

Data Analysis

Descriptive statistics summarized the sociodemographic profile of the sample. Bivariate associations between each independent variable and multiple sexual partnerships were tested using chi-square tests of independence. Binary logistic regression was used to estimate adjusted odds ratios across three sequential models: Model 1 examined the unadjusted association between HIV test uptake and multiple sexual partnerships; Model 2 added sociodemographic covariates; and Model 3 added HIV knowledge and attitude toward safer-sex negotiation. Statistical significance was set at $p < .05$.

Ethical Considerations

This study used publicly available, de-identified secondary survey data; no identifiable information about individual respondents was accessed. The original NDHS was conducted under ethical protocols approved by the National Health Research Ethics Committee of Nigeria and ICF International's Institutional Review Board, with informed consent obtained from all participants at the time of data collection.

RESULTS

Descriptive Statistics

The mean age of respondents was 29 years ($SD=10$). Slightly more than half resided in rural areas (56.1%), and half were married or living with a spouse (50.2%). A third of respondents were classified as poor (33.7%), and Hausa/Fulani/Kanuri respondents made up the largest single ethnic category (34.4%), followed by roughly equal proportions of Yoruba (13.5%) and Igbo (13.4%) respondents. Islam (51.6%) and Christianity (47.4%) were the two predominant religious affiliations. Nearly all respondents (93.5%) correctly knew that having a single, uninfected, faithful partner reduces HIV risk. Fewer than a quarter (23.8%) had ever been tested for HIV, and just over one in five (21.1%) reported multiple sexual partnerships in the preceding 12 months.

Sociodemographic Correlates of Multiple Sexual Partnerships

Multiple sexual partnerships were significantly associated with age, type of residence, wealth status, ethnicity, religion, and educational level at the bivariate level (Table 1). In the fully adjusted model, being married or widowed/divorced/separated (relative to never married), being of Igbo, Yoruba, or other ethnicity (relative to Hausa/Fulani/Kanuri), attaining primary or tertiary education (relative to no education), and having average or high wealth status (relative to poor) each remained significantly associated with higher odds of multiple sexual partnerships, while Islamic faith (relative to Christianity) was associated with lower odds. Type of residence was not an independent predictor once other sociodemographic variables were controlled (Table 1).

Characteristic	Have multiple partners, %	χ^2 (bivariate)	Adjusted OR (95% CI)*
Age (ref: 15–24 y)		458.65†	
25–39 years	25.3		2.3 (2.0–2.6)†
≥40 years	7.5		2.3 (1.9–2.7)†

Marital status (ref: never married)			
Married/living with spouse	6.5		2.4 (2.1–2.7)†
Widowed/divorced/separated	45.7		2.0 (1.5–2.8)†
Ethnicity (ref: Hausa/Fulani/Kanuri)		2140.34†	
Igbo	30.9		4.0 (3.3–4.9)†
Yoruba	31.5		1.7 (1.4–2.0)
Other ethnic groups	29.2		2.5 (2.2–3.0)†
Educational level (ref: none)		797.81†	
Primary	16.6		2.4 (1.9–3.0)†
Secondary	25.9		4.1 (3.3–5.1)
Tertiary	31.4		13.7 (10.9–17.1)†
Wealth status (ref: poor)		675.47†	
Average	24.7		1.2 (1.0–1.4)†
Rich	29.9		1.8 (1.5–2.1)†
Religion (ref: Christianity)		1389.75†	
Islam	9.0		0.8 (0.7–0.9)†
African traditional/other	21.5		0.7 (0.5–1.1)
Type of residence (ref: urban)		101.12†	
Rural	18.1		1.0 (0.9–1.1)

Table 1. Sociodemographic characteristics and multiple sexual partnerships among Nigerian men (N=17,359)

*Adjusted for all sociodemographic covariates shown (Model 2). † $p < .05$.

HIV Testing, Knowledge, Attitude, and Multiple Sexual Partnerships

HIV testing showed a significant bivariate association with multiple sexual partnerships: the prevalence of multiple partnerships among men who had been tested (31.3%) was nearly double the prevalence among men who had never been tested (17.9%). This association persisted in the fully adjusted model: men who

had ever tested for HIV had significantly higher odds of reporting multiple sexual partnerships than men who had never tested. HIV knowledge regarding sexual networks was not significantly associated with multiple sexual partnerships at either the bivariate or multivariate level. Attitude toward safer-sex negotiation, however, was significantly associated with multiple sexual partnerships at both levels: men with a positive attitude toward a wife's right to refuse sex had significantly different odds of multiple partnerships than men with a negative attitude (Table 2).

Variable	Have multiple partners, %	χ^2 (bivariate)	Adjusted OR (95% CI)*
HIV testing (ref: never tested)		301.40†	
Ever tested	31.3		1.8 (1.6–2.0)†
HIV knowledge, sexual network (ref: no knowledge)		0.03	
Has knowledge	21.1		1.1 (0.9–1.3)
Attitude toward safer-sex negotiation (ref: negative)		202.19†	
Positive	18.6		1.3 (1.2–1.4)†

Table 2. HIV testing, knowledge, attitude, and multiple sexual partnerships among Nigerian men (N=17,359)

*Adjusted for sociodemographic covariates and other variables shown (Model 3). † $p < .05$.

DISCUSSION

Consistent with prior research, multiple sexual partnerships were more common among never-married and middle-aged men^{7,8}, reflecting patterns observed elsewhere in sub-Saharan Africa in which marital status and greater sexual autonomy are strongly linked to partnership concurrency⁸. The lower prevalence of multiple partnerships among Hausa/Fulani/Kanuri and Muslim respondents relative to other ethnic and religious groups is consistent with the broader literature on religious affiliation and sexual risk behavior in Nigeria, and may reflect stronger normative and religious proscriptions against extramarital sex among predominantly Muslim communities in northern Nigeria.

Multiple sexual partnerships increased steadily with educational attainment and wealth status, a pattern that runs counter to a simple poverty-drives-risk narrative and instead points toward greater sexual exposure, mobility, and access to resources for transactional relationships among wealthier and more educated men⁹. This is consistent with earlier Nigerian research linking urbanization, modernization, and economic status to multiple partnerships¹⁰⁻¹², and suggests that HIV prevention messaging aimed only at poorer or less-educated men risks missing a demographic at meaningfully elevated risk.

A central and counterintuitive finding of this study was that men who had ever tested for HIV had significantly higher odds of reporting multiple sexual partnerships than men who had never tested. This

finding runs contrary to earlier studies that found HIV test uptake associated with subsequent reductions in sexual risk behavior¹³⁻¹⁵, but is consistent with other research finding that knowledge of HIV status alone does not reliably reduce partner numbers^{16,17}. A plausible explanation is that men engaged in higher-risk sexual behavior are also more motivated to seek testing in the first place, reflecting the health belief model's construct of perceived susceptibility, but that a negative test result may paradoxically reduce perceived risk and reinforce, rather than interrupt, existing sexual behavior. This interpretation is consistent with the health belief model, in which perceived susceptibility can decline once an immediate threat feels resolved, and points to a specific gap in current testing programs: the absence of structured behavioral counseling and follow-up after a negative result.

Attitude toward safer-sex negotiation was independently associated with multiple sexual partnerships, with men holding more negative attitudes toward a wife's right to refuse sex reporting higher rates of multiple partnerships. This finding is consistent with research linking patriarchal gender norms and male control over sexual decision-making to elevated HIV risk behavior in Nigeria¹⁸, and reinforces calls for HIV prevention programming that addresses gender power dynamics directly, rather than focusing solely on individual knowledge or testing access.

Limitations

This study has several limitations. The cross-sectional design precludes causal inference; men who reported multiple partnerships and prior testing may differ from other men in unmeasured ways related to risk-taking or health-seeking behavior more broadly. The data are drawn from a 2013 survey, and sexual behavior patterns, testing access, and HIV prevention programming in Nigeria have continued to evolve since that time. Both exposure and outcome measures relied on self-report, which is subject to social desirability bias for sensitive behaviors such as extramarital partnerships. Finally, the health belief model constructs used in this analysis capture only part of the full model; perceived severity, perceived barriers, and self-efficacy were not directly measured in the underlying survey.

Implications and Conclusion

Despite these limitations, the findings have practical implications for HIV prevention programming among men in Nigeria. Post-test counseling should be strengthened to include structured follow-up for men who test negative, explicitly addressing the risk of reduced perceived susceptibility after a negative result. Prevention messaging should be extended beyond poorer and rural populations to also engage wealthier, more educated, and urban men, who show elevated rates of multiple partnerships. Programs that engage men on gender norms and shared sexual decision-making may help address a key structural driver of multiple partnerships identified in this study. Sociodemographic characteristics, HIV test uptake, and attitude toward safer-sex negotiation were each independently associated with multiple sexual partnerships among Nigerian men in this nationally representative sample. The finding that HIV testing was positively, rather than negatively, associated with multiple partnerships underscores the need for HIV prevention programs in Nigeria to pair test uptake with sustained behavioral counseling, rather than treating testing itself as a sufficient risk-reduction intervention.

Acknowledgements

None declared.

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