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# Relationship between Sexual Risk Behaviors and HIV Counseling and Testing (HCT) Uptake among Young People in Nigeria

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## Abstract

**This study examined the relationship between sexual risk behavior and HIV counselling and testing uptake among young people in Nigeria. Probability sampling technique was used to obtain a sample of 10,091 respondents (ages 15 to 24 years) for the study. The multistage cluster sampling was used to select suitable young people with known probability. Data were collected throughout Nigeria between September and December 2012 from 32,543 households (rural = 22,192; urban = 10,351) using structured and semi-structured questionnaires. The data were summed using descriptive statistics. Frequencies and percentages; measures of central tendencies were used to answer the research question while nonparametric test such as chi-square was used to analyze non-normally distributed data at 0.5 level of significance. Results of data analysis indicated that sexual risk behaviors comprised three variables: sex with multiple partners, intergenerational sex (sex with partners 10 years older), and transactional sex. The results of the chi-square test of association between sex with multiple partners and HCT uptake showed that there was no statistically significant relationship between sex with multiple partners and HCT uptake among young people ages 15 to 24 years in Nigeria. It was among others recommended that sexually active young people in Nigeria should use protection against HIV infection.**

## Keywords

**Sexual Risk Behavior, HIV Counselling, HCT Uptake, Young People**

## 1. Introduction

Human immune-deficiency virus (HIV) is one of the social problems in Nigeria. The first case of HIV in Nigeria

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was identified in 1985 and reported at the 1986 International AIDS Conference [1]. In 1991, the Nigerian FMOH made the first effort to evaluate the persistent problem of HIV in the country [2]. Globally, more recent researchers have found that Nigeria has the second highest incidence rate yearly because the prevalence of HIV in Nigeria is about 3.4 million, or 4.4% of the population [3] [4].

According to Nigeria's NACA [5], the ensuing national sentinel surveys indicated a prevalence of 3.8% in 1993, 4.5% in 1996, 5.4% in 1999, 5.8% in 2001, 5.0% in 2003, 4.4% in 2005, 4.6% in 2008, and 4.1% in 2010. The data for these years showed an increase in prevalence rates between 1993 and 1996 but a decrease between 2005 and 2010. Focusing on the incidence of HIV in Nigeria, most of the people affected by HIV in Nigeria are young people ages 15 to 29 years [6]. There has been an escalation in the prevalence of HIV among this population in the past decade [6].

The rates of HIV among young people ages 15 to 19 years are 3.3%; for young people ages 20 to 24 years, the rate is 4.6%; and for young people ages 25 to 29 years, the rate is 5.6%, all of which are considered extremely high rates [1]. A significant national strategy is to implement intensive national HIV prevention strategies to address this trend [7]. In Nigeria, the incidence and prevalence of HIV affect both sexes and all age groups, and the number of HIV-positive children is increasing, with mother-to-child transmission being the major route of infection [8].

Studies have shown that sexual risk behaviors are among the major contributors to the spread of HIV. The sexual risk behaviors of young people ages 15 to 24 years in Nigeria significantly affect the incidence and prevalence rates of HIV among this at-risk group [2] [9]. Specific factors related to the increased incidence of HIV include premature sex, sex with multiple partners, unprotected sex, involuntary sex, intergenerational sex (sex with partners 10 years older), and transactional sex [10].

Several studies too have been conducted on sexual behavior patterns. For example, John *et al*. studied sexual behavior patterns and HIV infection among secondary schools students in Jos, Nigeria [11]. Males accounted for 42.5% of the students studied; 19.2% of them were sexually active. Twenty-seven percent of the males were more sexually proficient than 13.4% of the females; among the sexually active males, 37.6% had multiple sex partners, and 63.9% never used condoms [11]. Imaledo, Peter-Kio, and Asuquo examined the sexual risk behaviors of undergraduate students at the University of Port-Harcourt in Rivers State and discovered that 52.0% of the students surveyed had either a boyfriend or a girlfriend and 50.1% engaged in sexual intercourse [12]. The mean age at sexual debut was 17.0 ± 4.5 years, and a greater proportion of students who reported lifetime use of alcohol were sexually active ($p < 0.005$) [12].

Researchers on HIV in Nigeria have shown that even though risky sexual behaviors are prevalent among young people ages 15 to 24 years, only a small number of those sexually active individuals use protection [2]. Other researchers have recommended that schools implement curriculum-based sex, HIV, and HCT education initiatives [13] [14]. The HIV Prevention Initiative under PEPFAR has strongly recommended abstinence until marriage [15] and has provided HCT services to almost 3.7 million young people in Nigeria [16].

Sexual risk behaviors are actions that put people at risk for STDs, especially HIV [17]. The sexual risk behaviors assessed in this study were sex with multiple partners, intergenerational sex (sex with partners 10 years older), and transactional sex. Intergenerational sex occurs when young people become sexually involved with adults who are much older than they are, sometimes decades older and usually at least the age of their parents [7]. It was measured using the NARHS Plus Sexual Risk Behavior Scale [2].Transactional sex refers to the exchange of money or gifts for a sexual relationship [5]. It was measured using the NARHS Plus Sexual Risk Behavior Scale [2]. Sex with multiple partners refers to people who have sex with more than one person at a given time interval [18]. It was measured by the NARHS Plus Sexual Risk Behavior Scale [2]. The sexual risk behavior variables (sex with multiple partners, engagement in intergeneration sex, and engagement in transactional sex) were measured as binary variables (0—no, 1—yes).

Sexual risk behavior plays a major role in the spread of HIV among young people. Relevant literature on sexual behavior patterns among young people in Nigeria was examined in this section. Specifically, no researcher has used the NARHS Plus to examine the possible relationship between and knowledge of sexual risk behaviors and HCT uptake among young people in Nigeria. The NARHS Plus was the latest survey conducted by the HIV/AIDS Division of the FMOH in Nigeria. The survey report and data were released in December 2013. The major objective of the NARHS Plus was to obtain accurate HIV prevalence estimates and information on behavioral and other risk factors related to HIV infection at the national and state levels [2]. In addition, the NARHS Plus includes data on various determinants of HCT uptake among young people ages 15 to 24 years in

Nigeria [2]. The researcher addressed this gap in knowledge so that policymakers in Nigeria can work to identify and eliminate the factors that can prevent HCT uptake among young people [19]. The researcher therefore examined the relationship between sexual risk behaviors and HCT uptake among young people in Nigeria.

### 1.1. Purpose of the Study

The purpose of this quantitative study was to examine the association between sexual risk behaviors among young people and HCT uptake.

### 1.2. Research Question

What is the relationship between sexual risk behaviors (having multiple sex partners, engagement in intergeneration sex and engagement in transactional sex) and HCT uptake among young people in Nigeria?

**Hypothesis**

$H_{01}$: Sexual risk behaviors will not be significantly associated with HCT uptake among young people in Nigeria.

$H_{a1}$: Sexual risk behaviors will be significantly associated with HCT uptake among young people in Nigeria.

## 2. Methods

This study is a quantitative research. Quantitative research is deductive and confirmatory [20]. The design used in the study was a non-experimental, cross-sectional research design. This design was adopted because the data were collected only once in 2013. Again, the use of secondary data made a cross-sectional design the most appropriate for this study.

The target population comprised young people in Nigeria ages 15 to 24 years because the focus of this study was to identify the factors affecting HCT uptake among young people in this age cohort. This age group was considered because according to the NARHS Plus individuals aged 15 to 24 years are considered young adults [2]. The representative sample was obtained from the updated master sample frame of rural and urban zones developed by the National Population Commission in Nigeria. This master sample frame was a national survey that comprises all 36 states in Nigeria [2]. Probability sampling technique was used to obtain a sample of 10091 respondents (ages 15 to 24 years) for the study. The multistage cluster sampling was used to select suitable young people with known probability. Stage 1 involved the selection of rural and urban zones. Stage 2 involved the selection of enumeration areas within the selected rural and urban zones. The listing and selection of households were conducted in Stage 3, and Stage 4 involved the selection of young respondents to complete the survey and participate in HIV testing. An already validated and reliable instrument titled "The NARHS Plus Sexual Risk Behavior Scale" was adopted and used to measure sexual risk behaviors (*i.e.*, sex with multiple partners, engagement in intergenerational sex, and engagement in transactional sex). The NARHS Plus was nationally represented to gather information about HIV and AIDS, RH knowledge, and behavior-related issues [2]. Data were collected using three structured and semi-structured questionnaires. The individual questionnaires asked about household characteristics, background characteristics of the respondents, sexual behaviors, HIV and AIDS, personal risk perceptions of contracting HIV, condom accessibility and usage, stigma and discrimination, malaria prevention, exposure to health communication, reproductive rights and violence against women, maternal mortality, and vesico-vaginal fistulae [2].

Data were collected throughout Nigeria between September and December 2012 from 32,543 households (rural = 22,192; urban = 10,351) using structured and semi-structured questionnaires. Out of the households, a total of 31,235 individual respondents were interviewed using the NARHS Plus [2]. Among the individual respondents, 15,596 were men, and 15,639 were women, resulting in a response rate of 88%. The data set was released in December 2013 by the FMOH, but it is not yet available to the public. Secondary data were collected from 31,235 respondents who were interviewed using the NARHS Plus [2]. To obtain the required sample size, which comprised young people in Nigeria ages 15 to 24 years, data were filtered to include only individuals in that age range (10,091 individuals).

Data were analyzed by in puting them into SPSS v21.0 for analysis and then coded them for each participant [21]. The data were summed using descriptive statistics. Frequencies and percentages; measures of central tendencies such as the mean, standard deviation, and range were used to answer the research question. Nonparame-

tric test such as chi-square was used to analyze non-normally distributed data. The HCT uptake was measured as a categorical variable to indicate engagement with HCT among young people ages 15 to 24 years in Nigeria. Engagement with HCT was denoted as yes (1), and non-engagement with HCT was denoted as no (0).

## 3. Results

Research Question: What is the relationship between sexual risk behaviors (having multiple sex partners, engagement in intergeneration sex and engagement in transactional sex) and HCT uptake among young people in Nigeria?

The data analyses for the research one are presented in **Tables 1-4**.

As indicated in **Tables 1-3**, the sexual risk behaviors comprised three variables: sex with multiple partners, intergenerational sex (sex with partners 10 years older), and transactional sex. Of all the variables, the sexual risk behaviors variables were the ones that many participants chose not to respond to (see **Tables 1-3**).

**Table 1.** Frequency table for sex with multiple partners.

| Sex with multiple partners | Frequency | % |
|---|---|---|
| No | 3770 | 42.3 |
| Yes | 820 | 9.2 |
| Total | 4590 | 51.5 |
| Missing | 4330 | 48.5 |
| Total | 8920 | 100.0 |

**Table 2.** Frequency table for intergenerational sex.

| Intergenerational sex | Frequency | % |
|---|---|---|
| No | 462 | 5.2 |
| Yes | 107 | 1.2 |
| Total | 569 | 6.4 |
| Missing | 8351 | 93.6 |
| Total | 8920 | 100.0 |

**Table 3.** Frequency table for transactional sex.

| Transactional sex | Frequency | % |
|---|---|---|
| No | 4139 | 46.4 |
| Yes | 401 | 4.5 |
| Total | 4540 | 50.9 |
| Missing | 4380 | 49.1 |
| Total | 8920 | 100.0 |

**Table 4.** Frequency table for HCT uptake.

| Uptake of HCT | Frequency | % |
|---|---|---|
| No | 7082 | 79.4 |
| Yes | 1838 | 20.6 |
| Total | 8920 | 100.0 |

For the variable of sex with multiple partners, only 4590 (51.5%) participants chose to respond, with 3770 (42.3%) respondents never having engaged in sex with multiple partners and 820 (9.2%) having engaged in sex with multiple partners. For the variable of intergenerational sex (sex with partners 10 years older), only 569 (6.4%) participants chose to respond, with 462 (5.2%) never having engaged in intergenerational sex and 107 (1.2%) having engaged in intergenerational sex. For the variable of transactional sex, only 4540 (49.1%) participants chose to respond, with 4139 (46.4%) never having engaged in transactional sex and 401 (4.5%) having engaged in transactional sex.

In **Table 4**, the dependent variable was HCT uptake. As illustrated in **Table 4**, a total of 7082 (79.4%) participants responded with "no" to HCT uptake, and 1838 (20.6%) responded with "yes" to HCT uptake.

**Testing Hypothesis**

$H_{01}$: Sexual risk behaviors will not be significantly associated with HCT uptake among young people in Nigeria.

$H_{a1}$: Sexual risk behaviors will be significantly associated with HCT uptake among young people in Nigeria.

For an in-depth analysis, each of the components of Sexual risk behaviors was given a separate analysis. They are presented in **Tables 5-10**.

**Table 5.** Cross-tab test for sex with multiple partners and HCT uptake.

| | | | Sex with multiple partners | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| HCT uptake | No | Count | 2771 | 567 | 3338 |
| | | % within sex with multiple partners | 73.5% | 69.1% | 72.7% |
| | Yes | Count | 999 | 253 | 1252 |
| | | % within sex with multiple partners | 26.5% | 30.9% | 27.3% |
| Total | | Count | 3770 | 820 | 4590 |
| | | % within sex with multiple partners | 100.0% | 100.0% | 100.0% |

**Table 6.** Chi-square test for sex with multiple partners and HCT uptake.

| | Value | *df* | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson chi-square | 6.439 | 1 | 0.011 |
| Continuity correction | 6.222 | 1 | 0.013 |
| Likelihood ratio | 6.313 | 1 | 0.012 |
| No. of valid cases | 4590 | | |

**Table 7.** Cross-tab test for intergenerational sex and HCT uptake.

| | | | Intergenerational sex | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| HCT uptake | No | Count | 298 | 77 | 375 |
| | | % within intergenerational sex | 64.5% | 72.0% | 65.9% |
| | Yes | Count | 164 | 30 | 194 |
| | | % within intergenerational sex | 35.5% | 28.0% | 34.1% |
| Total | | Count | 3770 | 462 | 107 |
| | | % within intergenerational sex | 100.0% | 100.0% | 100.0% |

**Table 8.** Chi-square test for intergenerational sex and HCT uptake.

| | Value | *Df* | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson chi-square | 2.152 | 1 | 0.142 |
| Continuity correction | 1.833 | 1 | 0.176 |
| Likelihood ratio | 2.207 | 1 | 0.137 |
| No. of valid cases | 569 | | |

**Table 9.** Cross-tab test for transactional sex and HCT uptake.

| | | | Transactional sex | | Total |
|---|---|---|---|---|---|
| | | | No | Yes | |
| HCT uptake | No | Count | 3017 | 285 | 3302 |
| | | % within transactional sex | 72.9% | 71.1% | 72.7% |
| | Yes | Count | 1122 | 116 | 1238 |
| | | % within transactional sex | 27.1% | 28.9% | 27.3% |
| Total | | Count | 3770 | 4139 | 401 |
| | | % within transactional sex | 100.0% | 100.0% | 100.0% |

**Table 10.** Chi-square test for transactional sex and HCT uptake.

| | Value | *Df* | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson chi-square | 0.610 | 1 | 0.435 |
| Continuity correction | 0.522 | 1 | 0.470 |
| Likelihood ratio | 0.604 | 1 | 0.437 |
| No. of valid cases | 4540 | | |

The hypothesis examined whether three sexual risk behaviors (*i.e.*, sex with multiple partners, intergenerational sex, and transactional sex) were significantly associated with the uptake of HCT among young people in Nigeria. To examine the association between sex with multiple partners and HCT uptake, a chi-square test between the two variables was conducted. **Table 5** and **Table 6** present the results of the chi-square test, with **Table 5** presenting the cross-tabulation table for sex with multiple partners and HCT uptake and **Table 6** presenting the chi-square test statistics. Individuals engaging in sex with multiple partners were more likely to have HCT uptake. The results of the chi-square test of association between sex with multiple partners and HCT uptake showed that there is no statistically significant relationship between sex with multiple partners and HCT uptake among young people ages 15 to 24 years in Nigeria, $X^2$ (1, $n$ = 4590) = 6.44, $p$ = 0.011.

A chi-square test between the two variables was conducted to examine the association between intergenerational sex and HCT uptake. **Table 7** and **Table 8** present the results of the chi-square test, with **Table 7** presenting the cross-tabulation table for intergeneration sex and HCT uptake and **Table 8** presenting the chi-square test statistics. Individuals engaging in intergenerational sex were less likely to have HCT uptake. The results of the chi-square test of association between intergenerational sex and HCT uptake showed that there is no statistically significant relationship between intergenerational sex and HCT uptake among young people ages 15 to 24 years in Nigeria, $X^2$ (1, $n$ = 569) = 2.15, $p$ = 0.142.

A chi-square test between the two variables was conducted to examine the association between transactional sex and HCT uptake. **Table 9** and **Table 10** present the results of the chi-square test, with **Table 9** presenting the cross-tabulation table for transactional sex and HCT uptake and **Table 10** presenting the chi-square test statistics. Individuals engaging in transactional sex were equally likely as individuals not engaging in transactional

sex to have HCT uptake. The results of the chi-square test of association between transactional sex and HCT uptake showed that there is no statistically significant relationship between transactional sex and HCT uptake among young people ages 15 to 24 years in Nigeria, $X^2(1, n = 4540) = 0.61$, $p = 0.435$.

The chi-square test showed no statistically significant relationship between the sexual risk factor variables and the dependent variable of HCT uptake. Null Hypothesis was not rejected in favor of Alternate Hypothesis due to lack of evidence to do so: The sexual risk behavior variables tested were not significantly associated with the uptake of HCT among young people in Nigeria.

## 4. Discussion

The findings of this study indicated that higher levels of engagement in sexual risk behaviors led to a higher rate of HCT uptake. This is an intuitive finding because individuals engaging in higher levels of sexual risk behaviors could naturally be expected to seek out sexual health treatment facilities more often. However, research has indicated that most sexually active young people in Nigeria do not use protection [22] [23], which is the most basic and most effective way to protect against HIV and other STDs [6].

In Nigeria, the long years of continued education has created a big gap between the age of puberty and age at marriage, thus increasing the likelihood of sexual initiation and unprotected premarital sex, it thus creates a situation where people are students and at the same time are sexually active [12]. According to the Nigeria Demographic and Health Survey results, over 16% of teenage females had first sexual intercourse by age 15 and among young women ages 20 to 24, nearly half (49.4%) reported first sexual intercourse by age 18; among teenage males, 8.3% reported first sexual intercourse by age 15 and among those ages 20 to 24, 36.3% reported first sexual intercourse by age 18 [24].

The hypothesis stated in the work dealt with sexual risk behaviors, including sex with multiple partners, intergenerational sex, and transactional sex. Participants engaging in sex with multiple partners had a higher rate of HCT uptake. However intergenerational sex and transactional sex did not affect HCT uptake. In a way, this finding is contradictory because engagement in sexual risk behaviors could be construed as a disregard for one's sexual health but HCT uptake could be viewed as an attempt to improve it. Peltzer and Matseke investigated the prevalence and determinants of HIV testing among young people ages 18 to 24 years and discovered that transactional sex is significantly related to HCT uptake [25]. Sexual risk behaviors affecting HCT uptake include premature sex, sex with multiple partners, unprotected sex, and transactional sex [2]. Suleiman et al. conducted a study to examine how HCT affects sexual risk behaviors and discovered that out of 60% of the respondents who had engaged in transactional sex, about 49% had used HCT services [26].

Those who are exposed to HIV risk, particularly young people who ever had sexual intercourse, were twice as likely to obtain test for HIV than those who never had sex [3]. Similarly young people who perceived themselves to be at risk were observed to be more likely to test for HIV. John *et al*. examined sexual risk behavior and HIV infection among adolescents in secondary schools in Nigeria and discovered that 37.6% had two or mores exualpartners in their life [27]. Multiple sexual partners have been known to be a risk factor for HIV infection and this finding portray great danger for young people [27] [28]. Engagement in sexually risky behaviors could precede input from peers and friends about the dangers associated with sexually risky behaviors.

## 5. Conclusion

The purpose of this study was to fill a gap in the literature by examining sexual risk behaviors and the uptake of HCT among young people ages 15 to 24 years in Nigeria. Lack of education can affect HCT uptake among young people in Nigeria. Young people in Nigeria should be better educated about HIV sexual risk behaviors and HCT uptake.

## Recommendations

Based on the findings of this study and the discussion that followed, the following recommendations were made:

1. The stakeholders, authorities, and providers of health services in Nigeria should strive to increase the rate of HCT uptake among young people ages 15 to 24 years.
2. Unscrupulous sexual practices or behaviors in the society remained a strong determinant or risk factor to HIV infection, and therefore a critical issue that cannot be ignored when planning appropriate interventions in the prevention and control of the growing epidemics of HIV infection in the country.

3. Sexually active young people in Nigeria should use protection against HIV infection.

Compliance with Ethical Standards.

## Funding

No funding was received for this study.

## Conflict of Interest

I declare that I have no conflict of interest.

## Ethical Approval

This article does not contain any studies with human participants performed by any of the authors.

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