Relationship between Knowledge of Hiv Transmission and Prevention and Hiv Counseling and Testing (Hct) Uptake Among Young People in Nigeria

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Abstract: This study examined the relationship between knowledge of HIV transmission and prevention and HIV counselling and testing uptake among young people in Nigeria. The study is a quantitative research guided by one research question and one hypothesis. 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. 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. 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 individual questionnaires asked about household characteristics, background characteristics of the respondents. Data were analyzed by inputing them into SPSS v21.0 for analysis [4] and then coded them for each participant. 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 the cognitive factors of knowledge of HIV prevention and knowledge of HIV transmission were statistically significant predictors of the likelihood of having HCT uptake. It was among others recommended that 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.

Keywords: HIV Transmission; HIV Prevention; HIV counselling HCT uptake; Young People.

1. Introduction

In Nigeria, sex is customarily a very private activity, so discussing sex with adolescent and young adults is considered inappropriate because of cultural and religious barriers. According to United Nations Programme on HIV/AIDS [1], in 2009, only 23% of schools in Nigeria were receiving real-life-based HIV education, and only 25% of young people ages 15 to 24 years could appropriately identify ways to inhibit the sexual transmission of HIV. In some Nigerian states, girls often marry at the very young age of 14 years, mostly to men who are much older [3]. Researchers have found that girls who marry young have less knowledge of HIV than single women and are more prone to believe that they are not at risk of HIV infection [5, 6]. According to Oyediran, *et al.* [7], young people who receive early sex education are more likely to use HCT services ($p < .05$). Appropriate and prompt sex education is an effective tool to prevent the spread of HIV, especially among young people   [8, 9]. One mode of transmission is mother-to-child.

Mother-to-child transmission occurs when a mother with HIV passes the virus to her baby during pregnancy, childbirth, or nursing [10]. Preventing this mode of transmission is important because approximately 245,000 women living with HIV in Nigeria become pregnant every year [2]. The adolescent fertility rate in Nigeria in 2008 was 121 live births per 1,000 births, the highest rate in Africa [11]. A survey conducted in 2010 by the WHO indicated that 4.3% of young women ages 15 to 19 years were pregnant with their first children. Mother-to-child transmission can be prevented or eradicated through HCT, access to ART drugs, safe delivery procedures, and the extensive accessibility and hygienic use of breast milk [12, 13]. If all these interventions were accessible to pregnant young women in Nigeria, it could help to reduce the incidence rate of HIV significantly among infants and young children [14].

According to Okusanya, *et al.* [15], Nigeria is increasing efforts to prevent mother-to-child transmission through primary health care (PHC) centers. Okunsanya et al. conducted a retrospective study of mother-to-child transmission at two PHC centers in northern Nigeria and discovered that of the 10,289 women who had the antenatal HIV test, 74 tested positive for HIV. The results of the study showed a prevalence of 0.7%, whereas the uptake of antenatal (99.8%) and intrapartum (97.3%) tests were high at both PHC centers. Okunsanya et al. concluded that the fundamental potentials of scaling up the prevention of mother-to-child transmission through PHC centers was evident, as portrayed by high acceptance of antenatal and intrapartum screening tests like Hepatitis B screening, maternal syphilis screening, and rubella susceptibility screening. There was a significant association between intrapartum HIV diagnosis ($X^2 = 6.9$; $p = .0136$) and acceptance of antenatal screening tests.

In another study, mother-to-child transmission interventions were used to reduce the rates of transmission among women in labor significantly at the University College Hospital in Ibadan [16]. Reducing the rate of mother-to-child transmission of HIV can be achieved with effective interventions, as well as enhanced access to ART and suitable infant feeding practices [14]. Despite these efforts to prevent mother-to-child transmission, many challenges and barriers remain, especially in Nigeria [17]. The rising cost and lack of accessible transportation, in addition to the family responsibilities of caring for children or other family members, hinder women from using the prevention services [15, 16, 18]. Other factors that can affect the uptake of mother-to-child transmission prevention services include fear of stigma, fear of ostracization, personal reasons, religion, geopolitical zone, and culture [17, 19].

According to Chukwujekwu, *et al.* [20], another initiative to address the increasing incidence of HIV is family planning (FP) and RH. They found that RH and FP prevent approximately 8,158 unintended HIV positive childbirths per year. The President's Emergency Fund for AIDS Relief (PEPFAR) also has allotted funds to support RH and FP programs in Nigeria [2]. However, despite these initiatives, the promotion of RH has been minimal [2, 20]. In response, there has been a shift supporting the integration of FP and HIV services globally, as supported by international organizations [20]. Previous researchers [21], [22] have suggested that establishing the indicators for the integration of FP and HIV health services was reemphasized in 2008, which led to the inauguration of FP-HIV integration program. However, Chukwujekwu et al. argued that these indicators must consider the challenges of being applied in developing countries especially among young people in Nigeria.

In response to these challenges, media campaigns have been used to raise awareness of ways to prevent the spread of HIV in Nigeria [23]. In 2005, the FMOH launched a campaign to increase public awareness of HIV in Nigeria. This campaign sent text messages via cell phones that promoted HIV knowledge and awareness to approximately 9.6 million people in the country [10]. According to Muessig, *et al.* [24], cell phone messages support the delivery of personalized HIV prevention information and are progressively being used to expedite health interventions in response to the HIV epidemic. The SFH, NACA, and other high-profile entertainers have promoted HIV prevention campaigns in Nigeria via radio broadcasts, billboards, flyers, and TV infomercials [25].

In 2011, about 24% of MSM received HIV intervention programs, but only half of these men actually used condoms in their last anal sex encounters [1]. To reduce the incidence of HIV among young MSM, members of this cohort must know their HIV status; however, HCT has decreased among this group, with only 25% testing for HIV [2]. HCT is another way to prevent HIV in Nigeria among young people ages 15 to 24 years [23, 26]. This study examined the relationship between the cognitive factors of knowledge of HIV prevention and HCT uptake among young people in Nigeria. It addressed the gap in the literature by identifying the correlation between knowledge of HIV prevention and HCT uptake.

1.2. Purpose of the Study

The main purpose of this study was to examine the relationship between the cognitive factors of knowledge of HIV prevention and knowledge of HIV transmission and HCT uptake among young people in Nigeria.

1.3. Research Question

What is the relationship between the cognitive factors of knowledge of HIV prevention and knowledge of HIV transmission and HCT uptake among young people in Nigeria?

1.4. Hypothesis

H_{02}: There is no significant relationship between HCT awareness and HCT uptake among young people in Nigeria.

H_{a2}: There is a significant relationship between HCT awareness and HCT uptake among young people in Nigeria.

2. Research Methodology

This study is a quantitative research. According to Creswell [27], quantitative research is deductive and confirmatory. 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 [2], individuals aged 15 to 24 years are considered young adults.

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 [2] was nationally represented to gather information about HIV and AIDS, RH knowledge, and behavior-related issues. Data were collected using three structured and semi-structured questionnaires. The individual questionnaires asked about household characteristics, background characteristics of the respondents, sexual behaviors, knowledge and awareness of 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 inputing them into SPSS v21.0 for analysis [4] and then coded them for each participant. 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. Nonparametric 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

3.1. Research Question

What is the relationship between the cognitive factors of knowledge of HIV prevention and knowledge of HIV transmission and HCT uptake among young people in Nigeria?

Table-1. Descriptive Statistics for Knowledge of HIV Prevention and Transmission

	No. of participants	Min	Max	M	SD
Knowledge of HIV prevention	8,913	0.00	8.00	5.8151	2.43366
Knowledge of HIV transmission	8,916	0.00	5.00	4.0140	1.34616

Table-2. Frequency Table for Knowledge of Where to Obtain HCT

	Frequency	%
No	7,082	79.4
Yes	1,838	20.6
Total	8,920	100.0

The cognitive factors comprised three variables: knowledge of HIV prevention, knowledge of HIV transmission, and knowledge of where to obtain HCT. Descriptive statistics of knowledge of HIV prevention and knowledge of HIV transmission are presented in Table 8, and Table 9 shows the frequency table knowledge of where to obtain HCT.

As illustrated in Tables 1 and 2, (99.92%) participants provided complete responses for HIV prevention and7 participants had missing responses on knowledge of HIV prevention. There were 8,916 (99.96%) participants of the total ($N = 8,920$) that provided complete responses for HIV transmission, 4 participants had missing responses on knowledge of HIV transmission. For knowledge of HIV prevention, the minimum score was 0, and the maximum was 8, with a mean score of 5.82 ($SD = 2.43$). For knowledge of HIV transmission, the minimum score was 0, and the maximum was 5, with a mean score of 4.01 ($SD = 1.35$). For knowledge of where to obtain HCT, 7,082 (79.4%) had no knowledge of where to obtain HCT, and 1,838 (20.6%) had knowledge of where to obtain HCT.

3.2. Testing of Hypothesis

H_{02}: There is no significant relationship between HCT awareness and HCT uptake among young people in Nigeria.

H_{a2}: There is a significant relationship between HCT awareness and HCT uptake among young people in Nigeria.

The hypothesis examined whether the cognitive factors of knowledge of HIV prevention and knowledge of HIV transmission were significantly related to HCT uptake among young people ages 15 to 24 years in Nigeria. The result is presented in the tables below.

Table-3. Null Model Classification Table

Observed			Predicted		
			HCT uptake		%
			No	Yes	correct
Step 0	HCT uptake	No	7,076	0	100.0
		Yes	1,837	0	0.0
	Overall %				79.4

Table-4. Null Model Variables in Equation

	B	SE	Wald	Df	Sig.	Exp(B)
Constant	-1.349	.026	2652.304	1	0.000	.260

The beginning block (or the null model) evaluated the model with only the constant in the equation. The classification table and the variables in the equation table for the null model are presented in Tables 3 and 4. Without accounting for the predictor variables, the predicted odds of young people in Nigeria having HCT uptake was 0.26 (*n* = 8,913).

Results of the study indicated that the cognitive factors of knowledge of HIV prevention and knowledge of HIV transmission were statistically significant predictors of the likelihood of having HCT uptake. Results of testing for all IVs as predictors of HCT uptake, indicated that the variables of gender, place of residence, education, geopolitical zone, knowledge of where to obtain HCT, and knowledge of HIV transmission were statistically significant predictors of the likelihood of having HCT uptake.

4. Discussion of Findings

The cognitive factors were the variables of HCT awareness, knowledge of HIV prevention, and knowledge of HIV transmission. Knowledge of HIV prevention referred to practices to prevent the spread of HIV that was measured by the NARHS Plus Knowledge Scale About HIV Prevention [2]. Knowledge of HIV transmission referred to awareness of the various ways of spreading HIV and was evaluated by the NARHS Plus Knowledge Scale About HIV Transmission [2]. HCT awareness referred to knowledge of where to obtain HCT and was measured by the NARHS Plus Knowledge Scale About HCT [2].

Knowledge of HIV prevention was assessed using eight items: One can reduce risk of contracting HIV by having sex with only one faithful uninfected partner, by using condoms, by abstaining from sex; by delaying sexual debut, by avoiding sex with sex workers, by reducing the number of sexual partner, by avoiding sex with people with multiple partners, and by avoiding the sharing of sharp objects. These items required yes/no responses, with "yes" being the correct response. As such, the highest possible score for knowledge of HIV prevention was 8 (i.e., the sum of the total correct scores), and the lowest was 0.

The researcher assessed the participants' knowledge of HIV transmission by asking whether any of the following were a risk factor for HIV transmission: sexual intercourse, sharing of sharp unsterilized objects, transfusion with unscreened blood, sharing of unsterilized needles, and transmission of infection from mother to unborn child. Similar to the survey items about prevention, these five items were answerable by yes/no responses, with the "yes" response being the correct response. Hence, the highest possible score for knowledge of HIV transmission was 5 (i.e., the sum of the total correct scores), and the lowest was 0. The researcher assessed HCT awareness by asking if the participant knew of a place to obtain an HIV test. HCT awareness was a binary variable (0 - no, 1 - yes).

HCT uptake occurs when individuals actually undergo HIV counseling and testing [28].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).

5. Conclusion

This quantitative study was conducted to investigate the relationships between the DV of HCT uptakes among young people ages 15 to 24 years in Nigeria. Results of the statistical test provided support to reject null hypothesis because some of the variables encompassed by factors were significantly associated with the HCT uptake among young people ages 15 to 24 years in Nigeria.

6. Recommendations

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. However, it is clear from the findings that many variables affect this rate. Although some variables can be controlled, such as level of education, knowledge of HIV

transmission, and knowledge of HIV prevention, other variables cannot. The goal of future researchers should be to examine the effect of the variables that can be controlled.

Religion and cultural norms often negatively affect the use of HCT resources by the Nigerian population. Stigmatizing individuals who have contracted HIV/AIDS can affect treatment decisions [29]. In addition, young people who are experimenting sexually often feel invincible [30] and do not worry about contracting HIV. These factors have not been examined in their relationship to HCT uptake, and I recommend future research to test them.

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