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Original Article

Influence of Knowledge of Stigmatization and Discriminatory Practices against HIV-Positive Persons on Pregnant Women's HIV Testing in Nigeria

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Abstract

Background: Stigmatizing and discriminatory attitudes have been reported as factors militating against the control of the spread of HIV infection and ending the HIV epidemic. Women of reproductive age identified as a vulnerable group to HIV infection require comprehensive knowledge of HIV transmission and prevention to prevent contracting HIV infection. Therefore, this study aimed to determine the association between reproductive-age women's comprehensive knowledge of HIV transmission and prevention and their stigmatizing and discriminatory attitudes toward individuals living with HIV/AIDS.

Methodology: Secondary data from the 2018 Nigerian Demographic and Health Survey was used for this study. We used in each analysis a weighted sample of women of reproductive age with complete data on the comprehensive knowledge of HIV transmission and prevention and stigmatizing and discriminatory attitudes towards persons living with HIV/AIDS. Bivariable and multivariable logistic regression analysis was done to predict the effects of the comprehensive knowledge of HIV transmission and prevention of women of reproductive age on their stigmatizing and discriminatory attitudes toward persons living with HIV/AIDS. Predictor variables with a p-value of ≤ 0.05 were considered statistically significant determinants of HIV/AIDS stigmatizing and discriminatory attitudes.

Results: The number of respondents with HIV/AIDS stigmatizing and discriminatory attitudes was 22821 (77.0%). The multivariable regression models showed that women with an average household wealth index, of Islamic faith, and no access to media were more likely to have positive attitudes toward persons living with HIV at Alpha = .05.

Conclusion: Having comprehensive knowledge of HIV transmission and prevention by women of reproductive age did not affect their HIV stigmatizing and discriminatory attitudes towards individuals living with HIV/AIDS differently when compared to those without comprehensive knowledge. The findings that women with no access to media and those with an average household wealth index were more likely to have a positive attitude towards persons living with HIV/AIDS than those with access to media and a rich household wealth index, respectively, require further validation using primary data.

Keywords: Knowledge; Stigmatization; Discriminatory; HIV-Positive Persons; Pregnant Women; HIV Testing; Nigeria.

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Introduction:

Nigeria ranked fourth globally regarding the burden of HIV/AIDS epidemics.[1] Correct knowledge about HIV transmission and prevention and positive attitudes toward persons living with HIV/AIDS are vital to the prevention and control of HIV.[2–4] According to UNAIDS, Discrimination refers to the actual display of prejudicial behavior toward individuals living with HIV and AIDS based on a person's or community's feelings, beliefs, or opinions indicating devalued stereotypes.[5] Stigma refers to a person's feelings, opinions, or beliefs that signify devalued stereotypes that result in prejudicial behaviour toward people or individuals living with HIV/AIDS.[5] Stigma and discrimination have been reported as reasons why people, including women of reproductive age, will not attend or drop out of Prevention of Mother-to-Child Programs and refuse to attend antenatal care services and testing for HIV.[6,7] Also, they have been stated as some of the barriers preventing individuals from seeking suitable healthcare services or participating in prevention healthcare activities that will protect their health.[6,7] HIV is transmitted mainly through the heterosexual route.[8,9] Women of reproductive age are more vulnerable to contracting HIV infection because of this route of transmission, which makes them susceptible to stigmatizing attitudes and discriminatory practices by individuals and the community when they are infected with HIV.[10] Also, when individuals manifest stigmatizing and discriminatory attitudes towards persons living with HIV/AIDS, it becomes a barrier for them to engage in HIV preventive activities because they perceive that others will stigmatize or discriminate against them similarly.[11]. Women of reproductive age in Nigeria constitute the bulk of the Nigerian population infected with HIV.[1,12] Therefore, it is essential that the factors impacting their engagement in HIV preventive behaviours are identified and addressed. Nigeria has an HIV prevalence of 1.3%, with about 1.7 million persons living with HIV at the end of 2020.[1,12] Fifty-six-point forty-seven per cent (56.47%) of this number are women of reproductive age.[1] The 2018 Nigeria HIV/AIDS Indicator and Impact Survey reported that new infections are two times more likely to occur among women of reproductive age than men in the same age group [12]. Also, children become orphans and susceptible due to the effect of HIV on this population group, leading to unfavourable impacts on the social and health systems in Nigeria.[1] In a study done by Shodimu et al. in Nigeria on perceived stigmatizing and discriminating attitudes, it was reported that those with lower levels of HIV knowledge were more likely to have discriminating attitudes than those with higher knowledge of HIV knowledge of transmission and prevention.[8] Also, a study done in Pakistan reported that participants who did not know about HIV prevention and transmission were more likely to have discriminatory attitudes than those with some or comprehensive knowledge.[13] It has been reported in studies that comprehensive knowledge of HIV transmission and prevention, wealth index, level of education, place of residence, marital status, religion, and age impact individuals' HIV stigmatizing and discriminatory attitudes towards persons living with HIV/AIDS. [14–25] This study will explore the influence of comprehensive knowledge of HIV transmission and prevention on the HIV stigmatizing and discriminatory attitudes of women of reproductive age towards individuals living with HIV/AIDS and also the impact of some of the above-stated predictor variables that data were collected on in the 2018 NDHS.

Methodology

Data Source

This study used the 2018 Nigerian Demographic and Health Survey data of women of reproductive age 15-49 years. This is a nationally representative study that used a two-stage stratified cluster design to select the study participants in Nigeria and collect data on the variables of interest using the women's questionnaire. The detailed methodology of the 2018 NDHS has been described elsewhere.[9]

Variable Measures

The measure for the dependent variable stigma and discrimination attitudes was created by combining three questions asked to the participants in the 2018 NDHS, namely: 1. Would be ashamed if someone in the family had HIV? 2. Would buy vegetables from vendor with HIV? 3. Children with HIV should be allowed to attend school with children without HIV? A correct answer by a participant to the three questions is graded as a Positive Attitude and coded as I, while a score of less than three is graded as a Negative Attitude and coded as 0.

The UNICEF definition of HIV Comprehensive knowledge of transmission and prevention for young people 15-25 years provided the criteria for grading the independent variable "HIV comprehensive knowledge" into "No comprehensive knowledge" and "Have comprehensive knowledge. The grading includes that the women of reproductive age 15-49 years identify two HIV sexual transmission prevention major routes, i.e., having sex with only one faithful uninfected partner and using condom consistently during sexual intercourse; b) rejecting two most common local misconceptions about transmission of HIV (i.e., a person can get HIV from Mosquito bite, a person can get HIV by sharing food with an infected person, and c) having the knowledge that a healthy-looking person can have HIV infection [26]. In this study, we added another most common local misconception about the transmission of HIV, "A person can get HIV by witchcraft or supernatural means." These were coded as 0 = "No Comprehensive HIV Knowledge" if the respondent answered less than six questions correctly and 1 = Have Comprehensive HIV Knowledge if the respondent answered all six questions correctly. The I don't know category was treated as user-defined missing data. Sociodemographic variables identified in previous studies as determinants of HIV stigma and discrimination, which data were collected in the primary study, were included in the study as covariates. The identified variables include educational level, age categories, marital status, religion, place of residence, access to media, and wealth index. They were measured on the nominal scale except for the educational level and wealth index, which were measured on the ordinal scale. The age of the women was categorized in ascending order into five-year interval groups. Place of Residence was coded as (Rural = 0; Urban = 1); Educational Level was recoded as (No Education =0, Primary Education = 1, Secondary and Higher Education = 2; Religion recoded as Christians = 1 (combining Catholic and Other Christians) and Islam = 2. Traditionalist and Other categories were treated as user-defined missing data because the sample sizes were too small to yield reliable estimates. Marital Status categories recoded as Currently Married (combining married and living with a partner as if married options) = 1, Not Currently Married (combining other options) = 0. The Wealth Index was recoded as (Poor Household Wealth Index = 1 (combining poorest and poorer), Average Household Wealth Index coded = 2, and Rich Household Wealth Index = 3 (combining richer and richest). Access to media was created by combining whether the participants read a newspaper, watch television, or listen to the radio. No access to media was coded as = 0 if the participant is not exposed to any of the above-mentioned media, and 1 = if the participant is exposed to at least one of the media mentioned above.

Data Management and Analysis

The IBM Statistical Package for Social Sciences (SPSS) Version 28 was used for the study analysis. The level of significance was set at Alpha = .05. To ensure that the sample is representative of the target population, the non-proportional allocation of samples to states and places of residence, including the different response rates in the primary study, was addressed by applying the sample weight provided by the Demographic and Health Survey program (DHS) in the analyses.[9] Bivariable and multivariable logistic regression analysis was used to predict the relationship between these predictor variables and stigma and discrimination attitudes. Covariates not statistically significant at Alpha = .05 were not

included in the multivariable regression analysis. Crude and adjusted odds ratios with 95% confidence interval were reported for different categories of the predictor variables relative to their reference categories. A complete case analysis of all women of reproductive age was done in the survey. Cross-tabulation between the covariates and the dependent variable was used to get the valid weighted frequencies and percentages.

Ethical Procedures

We requested permission to use the dataset, which was granted to download the data for the study from https://www.dhsprogram.com/data/dataset_admin/index.cfm.The procedure approved by the Institution Review Board for DHS public-use datasets does not permit respondents, households, or sample communities to be identified. The data files do not contain personal identifiers of individuals or households.

Results

Table 1 shows the frequency distribution of the predictor variables and the dependent variable (comprehensive knowledge of HIV transmission and prevention, educational level, current marital status, place of residence, age categories, religion, wealth index, frequencies of access to media, and HIV stigmatizing and discriminating attitudes) of the study participants. Women of reproductive age with secondary and higher education were highest in the sample, with 51.4 %, followed by those with no education (34.2 %) and primary education (14.4%). Currently, more married women were in the sample (70.2 %) than those not currently married (29.8 %), and most lived in rural areas. Younger women aged 15-19 were more in the study, while those between 45-49 years were the least. The number of women of reproductive age with comprehensive knowledge of HIV/AIDS was 1098 (2.9 %), while those without comprehensive knowledge of HIV/AIDS was 36270 (97.1%). Women with negative attitudes with regards to HIV stigmatizing and discriminating attitudes were 28821(77%), while those with positive attitudes were 8593 (23%).

Table 1. Frequency distribution of the social and demographic characteristics of the women of reproductive age 15-49 years in the study.

Predictors	Weighted Frequency (n)	Weighted Percent (%)
Educational Level		
No Education	12790	34.2
Primary Education	5393	14.4
Secondary/Higher Education	19231	51.4
Age Categories (Years)		
15-19	7208	19.3
20 – 24	6,202	16.6
25 – 29	6,496	17.4
30 – 34	5,661	15.1
35 – 39	4,941	13.2

Predictors	Weighted Frequency (n)	Weighted Percent (%)
40 – 44	3,570	9.5
45 - 49	3,335	8.9
Place of Residence		
Rural	20,058	53.6
Urban	17,356	46.4
Religion		
Christian	17,261	46.4
Islam	19.977	53.6
Marital Status		
Not Currently Married	11,139	29.8
Currently Married	26, 275	70.2
Access to Media		
No Access to Media	11823	31.6%
Access to Media	25590	68.4%
Household Wealth Index		
Poor Household Wealth Index	13,764	35.0
Average Household Wealth Index	7,721	19.6
Rich Household Wealth Index	17,853	45.4
Comprehensive knowledge of HIV Transmission and Prevention		
No Comprehensive HIV Knowledge of Transmission and Prevention	36270	97.1
Have Comprehensive HIV Knowledge of Transmission and Prevention	1098	2.9

HIV Stigmatizing and Discriminatory Attitudes		
Negative Attitudes	28821	77.0
Positive Attitudes	8593	23.0

Most of the women of reproductive age had negative attitudes toward individuals living with HIV.
The crude and adjusted odds ratios from bivariable and multivariable logistic regression analyses are presented in Table 2. There was no statistically significant difference between comprehensive knowledge of HIV transmission and prevention, educational level, and HIV stigmatizing and discriminatory attitudes at Alpha = .05 in the multivariable regression analysis. Women of reproductive age of the Christian faith (AOR = .81: 95% CI; .76, .86) were statistically significantly less likely to have positive attitudes than their Islamic counterparts. There was no statistically significant difference in HIV stigmatizing and discriminating attitudes between Women with Poor Household Wealth Index (AOR = .97: 95% CI; .90, 1.04) and those with the Rich Household Wealth Index, while those with an Average Household Wealth Index (AOR = 1.18: 95% CI; 1.10, 1.26) were statistically significantly more likely to have positive attitudes than those with Rich Household. Women with no Access to Media were more likely to have positive attitudes than those with access to media (AOR = 1.15: 95% CI; .1.09, 1.22). Overall, Age Categories statistically significantly impacted HIV stigmatizing and discriminatory attitudes of the women of reproductive age. However, none of the individual Age Categories significantly affected the women's attitude. Place of Residence and Current Marital Status were not statistically significant in the bivariate regression model at Alpha = .05 and were removed from the multivariable regression analysis model.

Table 2: Logistic regression models of the effect of comprehensive knowledge of HIV transmission and prevention of women of reproductive age (15-45 Years) on their discriminatory attitudes towards persons living with HIV/AIDS control for the effects of the covariates.

Predictors	**COR (95% C.I.), *p*-value**	**AOR (95% C.I.), *p*-value**
Comprehensive Knowledge of HIV Transmission and Prevention		
No Comprehensive Knowledge	1.11(.96, 1.29); $p = .16$	1.14 (.98, 1.32); $p = .09$
Have Comprehensive Knowledge	*Ref.*	*Ref.*
Educational Level	$p < .001$	$p = .18$
No Education	1.20 (1.14, 1.27); $p < .001$	1.05 (.97, 1.13); $p = .23$
Primary Education	1.03 (.96, 1.10); $p = .48$	.97 (.90, 1.05); $p = .48$
Secondary and Higher Education	*Ref.*	*Ref.*
Age Categories (Years)	$p = .003$	$p = .03$

Predictors	**COR (95% C.I.), *p*-value**	**AOR (95% C.I.), *p*-value**
15-19	1.05 (.95, 1.15); *p* = .36	1.02 (.92, 1.12); *p* = .77
20 – 24	1.11 (1.00, 1.22); *p* = .05	1.07 (.97, 1.18); p = .20
25 – 29	1.00 (.91, 1.11); *p* = .98	.98 (.88, 1.08); *p* = .67
30 – 34	1.01 (.91, 1.11); *p* = .93	.99 (.89, 1.10); *p* = .84
35 – 39	.91 (.82, 1.01); *p* = .08	.91 (.82, 1.01); *p* = .08
40 – 44	1.04 (.93, 1.17); *p* = .48	1.02 (.92, 1.15); *p* = .68
45 - 49	*Ref.*	*Ref.*
Place of Residence		
Rural	1.03 (.98, 1.08); *p* = .19	
Urban	*Ref.*	
Religion		
Christianity	.77 (.73, .81), *p*< 0.001	.81 (.76, .86); *p* < .001
Islam	*Ref.*	*Ref.*
Marital Status		
Not Currently Married	.99 (.93, 1.04), *p* = .57	
Currently Married	*Ref.*	
Access to Media	*p* <.001	*p*< .001
No Access to Media	1.22 (1.16, 1.29); *p* < *.001*	1.15 (1.09, 1.22); *p* < *.001*
Access to Media	*Ref.*	*Ref.*
Household Wealth Index	*p*< .001	*p*< .001
Poor Household Wealth Index	1.14 (1.08, 1.20); *p*< .001	.97 (.90 , 1.04); *p* = .34
Average Household Wealth Index	1.26 (1.18, 1.34); *p*< .001	1.18 (1.10, 1.26); *p*< .001
Rich Household Wealth Index	*Ref.*	*Ref.*

Discussion

There is a high level of HIV stigmatizing and discriminatory attitudes toward persons living with HIV/AIDS in this study. Seventy-seven percent (77.0%, 28821) of the women had HIV stigmatizing and discriminatory attitudes, while 23.0% (8593) do not have the attitudes. Also, the study findings showed that 48.3% of the women would not allow children with HIV/AIDS to attend school with children without HIV, 53.4% would not buy vegetables from a vendor with HIV/AIDS, while 68.9% would be ashamed if a family member of their family had HIV/AIDS. These findings are consistent with what Dahlui et al. and Shodimu et al. reported in other studies done in Nigeria.[7,27] This high level of negative attitudes may be related to the major route of HIV transmission, which is the sexual route that makes individuals infected with HIV seen as promiscuous in the eyes of the individuals and the community.[28] The negative attitudes may also be related to the women's awareness that HIV is a contagious disease. Li et al. reported in their study an increased likelihood of manifesting HIV-negative attitudes due to the awareness that it is a contagious disease.[24] The implication of this high level of stigmatizing and discriminatory attitudes is that these women may have emotional pressure, avoid antenatal care services, refuse HIV testing and HIV result disclosure, and drop out of prevention of mother-to-child transmission programs.[6,7,29] The comprehensive knowledge of HIV transmission and prevention was not statistically significantly associated with the HIV stigmatizing and discriminatory attitudes of the women of reproductive age in this study at Alpha = .05 in both the bivariable and multivariable regression models. Our study results showed that only 1098 (2.9%) of the study participants had comprehensive knowledge of HIV transmission and prevention, while 36270 (97.1%) had no comprehensive knowledge of HIV transmission and prevention. Even the introduction of covariates in the multivariable logistic regression model did not significantly impact the effect of the comprehensive knowledge of HIV transmission and prevention on the HIV stigmatizing and discriminatory attitudes of women of reproductive age towards persons living with HIV/AIDS. Although this study did not find a statistically significant relationship between comprehensive knowledge of HIV transmission and prevention and HIV stigmatizing and discriminatory attitudes, many other studies have reported a significant relationship between these variables. Khan et al, Li et al, Teshale and Tesema, and Teshme et al. all reported in their study a significant relationship between comprehensive knowledge of HIV transmission and prevention and stigmatizing and discriminatory attitudes towards persons living with HIV/AIDS.[16,24,30,31] According to Diress et al, lack of information about the transmission and prevention modes of HIV and the associated myths facilitates stigmatizing and discriminatory attitudes toward persons living with HIV/AIDS.[25] Surprisingly, our study found that educational status did not affect the HIV stigmatizing and discriminatory attitudes of women of reproductive age. Unlike our study findings, many other studies have reported that lower levels of education are associated with HIV stigmatizing and discriminatory attitudes.[17,24,30,31] However, another study has reported that individuals with higher educational levels had more negative attitudes toward persons living with HIV/AIDS.[28] A higher educational level is supposed to impact individuals' knowledge and understanding of how HIV is transmitted and prevented, hence facilitating positive attitudes among women.

Overall, in this study, age categories affected the HIV/AIDS stigmatizing and discriminatory attitudes of the women. However, none of the individual age categories affected the women's attitudes. This is consistent with what a study has reported that age categories did not affect the stigmatizing and discriminatory attitudes toward persons living with HIV/AIDS, [25] although another study done in Nigeria found that HIV stigmatizing attitudes were more prevalent in younger age categories than in the older categories.[7]

Our study found no difference between HIV Stigmatizing and discriminatory attitudes of women with poor and rich household wealth index. However, women with an average household wealth index were more likely to have a positive attitude towards persons living with HIV/AIDS than those with a rich

household wealth index. This finding is not consistent with what other similar studies have reported, that lower odds of HIV stigmatizing and discriminatory attitudes are associated with a higher wealth index.[18,30] Women with higher wealth index are more likely to be urban dwellers and more educated with access to electricity, internet, radio, and television, which will give them more information on HIV/AIDS and enhance their knowledge of HIV/AIDS. However, the results of this study showed that living either in urban or rural areas and different levels of educational did not affect differently the HIV stigmatizing and discriminatory attitudes of the women of reproductive age.

Women of Christian faith are less likely to have positive attitudes toward persons living with HIV/AIDS than those of Islamic faith in this study. This is consistent with what a previous literature reported.[32] Another study reported that being of Islamic Religion is associated with having positive attitudes towards persons living with HIV/AIDS.[33] However, another study done in Nigeria reported that religion does not have a significant impact on the stigmatizing and discriminatory attitudes of women.[7] This is attributed to the religious groups being more compassionate towards the sick and at the forefront of the HIV/AIDS control Programmes in Nigeria.

Women who had no access to media (Newspapers, radio, and television) were more likely to have positive attitudes toward persons living with HIV/AIDS than those with access to media. This is surprising as radio and television stations in Nigeria provide information to Nigerians on HIV/AIDS either as part of corporate social responsibility or as paid advertisements by relevant stakeholders. This finding is not consistent with what other studies have reported. Other studies have reported that individuals with access to media are more likely to have positive attitudes toward persons living with HIV/AIDS than those without access to media.[25,31,34] Also, other studies have reported that exposure to media such as radio and television facilitated more likelihood of having comprehensive knowledge of HIV transmission and prevention, [15,23] which is supposed to impact women's HIV stigmatizing and discriminatory attitudes.[15,23]

A limitation of this study is the cross-sectional design of the primary study, which makes it unattainable to establish causality between the predictors and the dependent variable. Another limitation is social desirability, which may have impacted this study's findings because respondents may give answers that make them look good to others, hence concealing their true opinion. Unmeasured confounding is another potential limitation because the study covariates were restricted to the ones collected in the 2013 NDHS.

Conclusion

It was found in this study that having comprehensive knowledge of HIV transmission and prevention by women of reproductive age did not affect their HIV stigmatizing and discriminatory attitudes towards individuals living with HIV/AIDS differently when compared to those without comprehensive knowledge. Also found is that women with average household wealth index, of Islamic faith, and with no access to media were more likely to manifest positive attitudes toward individuals living with HIV/AIDS. Given the association between Christianity and HIV stigmatizing and discriminatory attitudes, it is recommended that Christian faith leadership should promote anti-HIV stigma and discrimination attitudes through sensitization of members on HIV/AIDS issues. These study findings will assist in designing informed policies, strategies, and interventions for the control of the HIV epidemic in Nigeria. Most of this study's findings are contrary to what most studies reported about the relationship between the predictors and HIV stigmatizing and discriminatory attitudes towards individuals living with HIV; therefore, further studies using primary data for validation are recommended.

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