

Original Article

Women's sexual autonomy as a determinant of misconception about modes of transmission of HIV in Nigeria

Olufemi Mayowa Adetutu ^{1*}, Temisola Emmanuel Oyelakin ¹, Joseph Ayodeji Kupoluyi¹, Funmilola Folasade Oyinlola¹, Immanuel Oluwadare Shittu ¹, Peter Adelaja Akerele ² and Fumnanya Lawrence Ofilu ¹.

Citation: Adetutu, O. M.; Oyelakin, T. E.; Kupoluyi, J. A.; Oyinlola, F. F.; Shittu, I. O.; Akerele, P. A.; Ofilu, F. L. Women's sexual autonomy as a determinant of misconception about modes of transmission of HIV in Nigeria. *Journal of African Population Studies* 2024, 37(1), 5294. <https://doi.org/10.59147/IFzYd5Mv>

Academic Editor: Ngianga-Bakwin Kandala

Received: 10 August 2023
Accepted: 12 April 2024
Published: 31 July 2024

Publisher's Note: JAPS stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) licence (<https://creativecommons.org/licenses/by/4.0/>).

¹ Department of Demography and Social Statistics, Faculty of Social Sciences, Obafemi Awolowo University Ile-Ife, postal address: 220005, Osun State, Nigeria
² Department of Sociology, Faculty of Social and Management Sciences, Federal University, postal address: 1157, Birnin Kebbi, Kebbi State, Nigeria
* Correspondence: oadetutu@oauife.edu.ng; Tel.: (+2347038065386, Adetutu O.)

Abstract: HIV prevention strategies have been hampered by sustained discriminatory attitudes and misconceptions about its modes of transmission. Women of low socio-economic status lack agency to resist unhealthy sexual practices with their partners. While women's sexual autonomy has been documented to be influenced by socioeconomic and demographic characteristics, little information exists on the relationship between women's sexual autonomy and misconception about the modes of HIV transmission. Data were extracted from the 2018 Nigeria Demographic and Health Survey, with a weighted sample size of 21,911. The outcome variable was misconception about the modes of HIV transmission. The principal explanatory variable was women's sexual autonomy. Data were analysed using frequency distribution and binary logistic regression model. The study revealed high sexual autonomy was associated with lower odds of misconception (aOR=0.62; C. I=0.54-0.71, p<0.001). Women with higher sexual autonomy and discriminatory attitudes had lower odds of misconceptions about modes of HIV transmission (aOR=0.66; C I=0.60-0.73, p<0.001). Low media exposure, poor wealth index, no formal education, rural residence, acceptance of wife beating, and inordinate marital control were associated with higher odds of misconception about the modes of HIV transmission. Women's sexual autonomy influenced misconception. Empowering women could prevent their biased thoughts about the modes of HIV transmission.

Keywords: sexual autonomy, misconception, discrimination, HIV transmission, Nigeria

1. Introduction

Sub-Saharan Africa (SSA) has the highest HIV burden in the world [1, 2]. Of the 37 million people living with HIV in the globe in 2015, 26 million were in SSA [3]. Research suggests that 38 million people were living with HIV/AIDS in 2019, with SSA having the highest burden [4]. Weak health systems and poor financing are some of the factors responsible for festering of the disease [5]. The 95-95-95 development agenda depicts 95% of people living with HIV diagnosed, 95% of these people should be on treatment and 95% should have achieved viral load suppression by the year 2030 [6]. However, HIV prevention strategies have been hampered by misconceptions and discriminatory attitudes towards people living with HIV. Available evidence shows that 90% of AIDS-related deaths occur in developing countries and women share a larger burden with limited access to testing, treatment and lack of sexual autonomy [7, 9]. We argue that misconception about the modes of transmission and discriminatory attitude could be fuelled by women's lack of agency to control their sexuality.

Improved women's sexual autonomy enhances health outcomes. A study linked women's sexual autonomy to cervical cancer screening [22]. Many studies on factors associated with stigma and discriminatory attitudes towards people

living with HIV did not consider women's ability to exert their agency to restrict unsafe sexual practices and how discriminatory attitudes resonate with misconceptions about the modes of HIV transmission [15, 23, 24]. Besides, women's sexual autonomy has been documented to prevent adverse sexual and reproductive health outcomes. Sexual autonomy is conceptualised as the ability of women to make decisions about their sexual health, such as abstaining from sexual intercourse, using condoms or opting for abortion. Sexual autonomy is a component of women's empowerment. This study intends to examine the influence of women's sexual autonomy on misconceptions about the mode of HIV transmission because unequal power dynamics between partners lead to gender inequalities in decision-making, which is at the root of diminished agency to resist unsafe sexual practices. Addressing misconception about the spread of HIV requires improved women's sexual autonomy to prevent negative attitudes towards people living with HIV. Evidence abounds on women's lack agency to negotiate safer sex. For instance, a study in Ghana revealed that 18.6% of women could not resist sex from their partners [8]. Also, a Nigerian study established that 44.0% of women lack such agency to resist sex [14]. This resonates with gender power theory which emphasises unequal power relations among partners in Nigeria. As such, we hypothesise that women who are not sexually autonomous are more likely to stigmatise and discriminate against people living with HIV and in turn have misconceptions about the modes of HIV transmission.

Reports on HIV in Nigeria showed that 1.9 million people had the virus, with 74,000 new HIV infections and 51,000 AIDS-related deaths [12]. The reports further show that Nigeria must achieve 95-95-95 for HIV testing and treatment by 2025 in order to eliminate AIDS by 2030. Yet, 90% of people have known their HIV status, 90% are on treatment and 86% have suppressed viral loads. In Nigeria, women are more vulnerable to HIV infection and bear a higher burden of its stigma and discrimination owing to their diminished socio-economic status [13]. Studies have also linked women's employment status, educational level, household wealth index, religious and traditional beliefs, place of residence, poor knowledge of HIV/AIDS, distance to place of HIV screening to discrimination against people living with HIV [14, 15]. Added to factors associated with stigma and discrimination against people living with HIV are adequate knowledge of HIV, higher level of education, wealth status, ethnic diversity, and mass media exposure associated with lower odds of stigma and discrimination against people living with HIV/AIDS [18, 20, 21]. In like manner, a multi-country study revealed 47.1% of discriminatory attitudes towards people living with HIV [17]. There is a systematic absence of studies linking women's sexual autonomy, as well as a range of gender norms to misconception about the modes of HIV transmission in Nigeria. Hence, this study examined the relationship between sexual autonomy and misconception about modes of HIV transmission in Nigerian context. This study will contribute to existing evidence in social science and public health research.

2. Materials and Methods

Study design.

This study employed a cross-sectional research design. The study extracted data from the women recode data set of the 2018 Nigeria Demographic and Health Survey (NDHS). The choice of the 2018 NDHS was informed by high quality of the data, as well as the availability of the datasets in the public domain, which encourages replication of the study and the international comparability of the study findings (external validity).

Data source

This study extracted data from the 2018 NDHS, which was conducted under the auspices of the Demographic and Health Survey (DHS) programme. The DHS programme is being implemented in several developing countries by the Inner-City Fund (ICF) to build capacity for the collection and provision of reliable national estimates of demographic and health characteristics in developing countries [26]. The 2018 NDHS was conducted by the National Population Commission (NPC) with the technical, and financial support of many development partners [10]. The methodology adopted for the conduct of the 2018 NDHS is similar to the methodology adopted in the DHS program. Details of the methodology are widely available to all interested researchers via <https://dhsprogram.com/pubs/pdf/FR359/FR359.pdf>.

Population and sample

The study focused on women aged 15-49 years. The sampled population in the 2018 Nigeria Demographic and Health Survey was 41,821. The sample size of this study was derived upon execution of the inclusion/exclusion criteria. This was necessary to maintain the focus of the study. The study included women of reproductive age and women who were not sexually active. The analysed sample in the study was 21,911 women. This was derived by using the DHS weighting factor.

Measurement of variables

Outcome variable

The outcome variable in the study was misconception about the modes of transmission of HIV. This was derived from a set of questions posed to women in the 2018 NDHS, including women who responded in the affirmative to the misconceptions were coded '1' while those who responded 'no' were coded '0'. The statements included whether HIV could be contracted by mosquito bites, by sharing food with a person who has HIV, exposure to witchcraft, would be afraid to get HIV from contact with saliva of an infected person and a healthy-looking person can have HIV. This measure is in line with prior studies on HIV discrimination and stigmatisation of people living with the virus [16, 17].

Explanatory variables

Existing literature, as well as gender and power theory informed the selection of explanatory variables. Women's sexual autonomy includes a set of questions posed to women in the 2018 NDHS. Women's sexual autonomy was measured from responses to four different questions. One, women were asked if it is justified to refuse sex with a husband who is infected with a sexually transmitted disease. Two, women were asked if they could refuse sexual demands from their husbands. Three, women were asked if they could request their husbands to use condoms before intercourse. Four, women were asked if they could resist sex if they noticed their partners had another woman. Each question had a 'Yes' or 'No' response. Sexual autonomy was generated by combining the responses. Women who reported 'Yes' to the four questions were deemed to be 'sexually autonomous', and coded '1', while other women were grouped as 'not sexually autonomous', and coded '2'. This measure is consistent with the measurement of sexual or reproductive autonomy in existing studies [14,15]. The variable inflation factor also showed there was no multicollinearity.

Intervening variable

The intervening variables included proxies for stigmatisation and discriminatory attitudes. These variables were negative stereotypes about people living with HIV/AIDS: people talk badly about people with or believed to have HIV, people with or believed to have HIV lose respect from other people, would be ashamed if someone in the family had HIV, children with HIV should be allowed to attend school with children without HIV, people hesitate to take HIV test because of reaction of other people if positive. Discrimination on the other hand was measured by aggregating response to attitudinal items, such as willingness to care for relatives with HIV/AIDS, whether or not respondents would buy vegetables from a vendor with HIV, among others. Response to these measures was dichotomized into yes (1) and No (2). Previous studies have used these measures [15].

Some control variables were included in this study: individual-level factors (maternal age, maternal educational level, mass media exposure, employment status, religion, and knowledge of HIV) and household-level factors (wealth quintile, degree of marital control, attitude towards wife beating, marriage type and household decision-making autonomy, household size and partner alcohol consumption). Others were region and place of residence. These control variables were selected based on their availability in the dataset and relevance to women's sexual autonomy based on evidence from scholarly literature [27, 28].

All the variables namely, maternal age, wealth quintile and place of residence used the standard DHS format of coding. Women's educational level was coded as no education, primary, secondary or higher. Religious affiliation was coded as Christianity, Islam and others. Others included maternal age (15–24, 25–34, or 35–44 and 45+ years), education (no formal education, primary, secondary, or higher), media exposure (low, moderate, or high), religion (Islam, Christianity, and other), household size (family with a child, 2-4, and 5 and over) and women's autonomy (low, medium or high, with low indicating women's lack of involvement in the household decision, with medium indicating women's low involvement in the household decision, and high indicating sole or joint involvement with a partner). These variables have been identified as important predictors of sexual and reproductive autonomy in previous studies [29]. The variables selected were, type of marriage (monogamy or polygyny), household wealth quintile (poor, average and rich), alcoholic consumption (partner drinks or partner does not drink), family decision-making (male dominated or egalitarian), and degree of marital control (low, moderate, and high). Marital control was derived from a husband's controlling attitudes identified in existing studies as an important factor in promoting women's autonomy and contraceptive behaviour. Two community-level characteristics were selected. These were residency type (rural or urban) and geographic region (Northeast, North west, North central, South-south, South east and South west). The variables were selected based on literature and availability in DHS [10, 11].

Statistical Analysis

Data Analysis

Three levels of analysis were conducted for this study: univariate, bivariate and multivariate analysis. Frequency and percentage distributions were conducted at univariate level to present background and gendered-norm characteristics of respondents. The independent effect of women's sexual autonomy, other control variables on misconception about the modes of transmission of HIV were analysed at the bivariate level to test for level of significance at $p < 0.05$. Adjusted binary logistic regression model was used at the multivariable level to examine the factors predicting misconception about the modes of HIV transmission at $p < 0.05$. Results were presented as odds ratios (ORs) with 95% confidence intervals (CIs) and alpha level set at .05. Analysis was conducted using STATA (Version 14.2). Sample weights were used to adjust for disproportionate sampling and non-response in the data. Three models were built at multivariable level, using a binary logic regression. Model I addressed women's sexual autonomy and misconception about the modes of transmission of HIV. Model II examined women's sexual autonomy and discriminatory attitudes towards people living with HIV and misconception about the modes of HIV transmission. Model III combined women's sexual autonomy, discriminatory attitudes towards people living with HIV, other socio-demographic characteristics and misconception about the modes of HIV transmission. The Variance Inflation Factor was used to test for multicollinearity, with a mean score of 1.18 (See the Appendix below).

3. Results

3.1. Descriptive analysis

The weighted sample for the study was 21,911 women of reproductive age. Table 1 presents the socio-demographic and gendered-norm characteristics of the cross-sectional sample of women. Overall, 23.8% of women had low sexual autonomy while (48.5%) had high sexual autonomy. Also, misconception about the mode of HIV transmission was (21.9%) while discrimination against people living with HIV was 48.4%. The results showed (68.4%) were employed and a similar percentage was in polygamous marriage. The vast majority of the respondents had secondary education (31.8%). Regarding the norms of wife beating, one-quarter approve of it given that the wife goes out without partners' consent, (24.7%) neglect children, (24.3%) argues with the husband, and (24.3%) if she burns food. The result also revealed (40.5%) had moderate marital control by the husbands. However, the results showed low women's autonomy in household decision-making (65.6%). Other results showed (65.2%) had adequate knowledge of HIV and (96.1%) had knowledge of having one uninfected HIV partner to prevent HIV. The results further indicated (43.7%) were in the group of poor wealth status and two-thirds were residents of rural areas.

Table 1: Socio-demographic and gendered-norm characteristics of the respondents

Characteristics	Frequency (n=21,911)	Per cent	Characteristics	Frequency (n=21,911)	Per cent
Sexual autonomy			Level of education		
Low	4,862	23.8	No Education	9,738	44.4
Medium	5,650	27.7	Primary	3,293	15.0
High	9,907	48.5	Secondary	6,962	31.8
Misconceptions about HIV transmission			Higher	1,919	8.8
No	16,180	78.1	Partner alcoholic consumption		
Yes	4,538	21.9	Does not drink	5,111	76.2
Discrimination of PLWH			Drink	1,592	23.8
No	10,697	51.6	Norm of wife beating if she goes out without telling husband		
Yes	10,021	48.4	Not accepted	16,420	75.0
Employment status			Accepted	5,461	25.0
Not Working	6,926	31.6	Norm of wife beating if she neglects the children		
Working	14,985	68.4	Not accepted	16,469	75.3
Marriage type			Accepted	5,412	24.7
Monogamy	14,368	31.6			
Polygamy	6,215	68.4			

Frequent use of condoms during sex to prevent HIV			Norm of wife beating if she argues with husband		
No	3,422	17.5	Not accepted	16,843	77.0
Yes	16,097	82.5	Accepted	5,034	24.3
Exposure to Mass Media			Norm of wife beating if she refuses to have sex with husband		
No Access	8241	37.6	Not accepted	16,554	75.7
Low Access	7301	33.3	Accepted	5,306	24.3
Moderate Access	6369	29.1	Norm of wife beating if she burns the food		
Household decision-making			Not accepted	18,081	82.6
Not Autonomous	13,543	65.6	Accepted	3,800	17.4
Autonomous	7,094	34.4	Degree of marital control		
Knowledge of having one uninfected HIV partner to prevent HIV			Low	2,751	42.3
No	805	3.9	Moderate	2,633	40.5
Yes	19,637	96.1	High	1,125	17.3
Knowledge of HIV			Age		
Not adequate	6,777	34.8	15-24	5,421	24.7
Adequate	12,698	65.2	25-34	10,456	47.7
Religion			35-44	5,334	24.4
Christianity	8,344	38.1	45 plus	698	3.2
Islam	13,450	61.4	Parity		
Traditional & Others	117	0.5	Primiparity (1 Child)	4,204	19.4
Region			Multiparity (2-4)	11,040	51.1
North Central	3,031	13.8	Grand multiparity (5+)	6,379	29.5
North East	3,862	17.6	Wealth Index		
North West	7,644	34.9	Poor	9,566	43.7
South East	2,138	9.8	Average	4,448	20.3
South South	2,019	9.2	Rich	7,897	36.0
South West	3,218	14.7	Place of Residence		
			Urban	8,712	39.8
			Rural	13,199	60.2

3.2 Bivariate analysis

Table 2 shows the results of binary logistic regression on predictors of misconception about modes of HIV transmission. The results showed that women with high sexual autonomy had lower odds of misconception about the modes of HIV transmission (uOR=0.70, CI: 0.60-0.81). The results further revealed that women who had high discrimination against PLHIV were less likely to have misconception about the modes of HIV transmission (uOR=0.66, CI=0.59-0.72). The association between women's sexual autonomy and misconception about the modes of HIV transmission was statistically significant. Likewise, there was a significant association between discrimination of PLHIV and misconception about the modes of HIV transmission. The results further revealed that women in polygamous marriage had higher odds of misconception about the modes of HIV transmission (uOR =1.12; CI= 1.01-1.23) and women who reported frequent use of condom during sex to prevent HIV infection had lower odds of misconception (uOR=0.78; CI: 0.68-0.88).

Additionally, the results showed that women with higher levels of education had lower odds of misconception about modes of HIV transmission (uOR=0.34; CI: 0.22-0.41). Women who approved of wife beating if the wife goes out without partners' consent had higher odds of misconception about the modes of HIV transmission (uOR=1.22, CI=1.08-1.38). Women who approve of wife beating if she argues with husbands were 31% more likely to have misconception about the modes of HIV transmission (uOR =1.31, CI=1.16-1.48), and women who approved of wife beating if she refuses to have sex with husbands had an elevated odds of misconception about the modes of HIV transmission (uOR=1.19; CI=1.05-1.35). The results further revealed higher odds of misconception about the modes of HIV transmission if she

burns food (UOR =1.19, CI=1.02-1.34) and if the partners had higher marital control over the women (uOR=1.59, CI = 1.30-1.94). Women who are residents of rural areas were 59% more likely to have misconception about the modes of HIV transmission (uOR=1.59, CI=1.41-1.78).

Moreover, women of the rich wealth category have lower odds of misconception about the modes of HIV transmission (uOR =0.58; CI= 0.52-0.66). Women whose regions were South-South and North East had higher odds of misconception about the modes of HIV transmission, North-East (uOR=1.06; CI =0.90-1.45), South –South (uOR=1.30, CI=1.08-1.54) while women from South-West (uOR=0.70; CI=0.32-0.91) and North-West (uOR=0.57; CI=0.49-0.67) had lower odds of misconception about the modes of transmission of HIV.

Table 2: Relationship between misconception and correlates of the modes of HIV transmission

Characteristics: Misconception	UOR	95%CI	Characteristics	UOR	95%CI
Sexual autonomy			Level of Education		
Low	RC		No Education	RC	
Medium	0.70***	0.60-0.81	Primary	1.03	0.91-1.15
High	0.56***	0.49-0.64	Secondary	0.77***	0.69-0.86
Stigma			Higher	0.34***	0.22-0.41
No	RC				
Yes	0.66***	0.59-0.72			
Employment status			Partner Alcoholic Consumption		
Not Working	RC		Does not Drink	RC	
Working	1.04	0.94-1.15	Drink	1.08	0.90-1.28
Marriage type			Norm of wife beating if she goes out without telling husband		
Monogamy	RC		Not accepted	RC	
Polygamy	1.12**	1.01-1.23	Accepted	1.23***	1.09-1.39
Frequent use of condoms during sex prevents HIV			Norm of wife beating if she neglects the children		
No	RC		Not accepted	RC	
Yes	0.78***	0.68-0.88	Accepted	1.22***	1.08-1.38
Exposure to Mass Media			Norm of wife beating if she argues with husband		
No Access	RC		Not accepted	RC	
Low Access	0.95	0.86-1.06	Accepted	1.31***	1.16-1.48
Moderate Access	0.69***	0.60-0.79	Norm of wife beating if she refuses to have sex with husband		
Household decision making			Not accepted	RC	
Not Autonomous	RC		Accepted	1.19***	1.05-1.35
Autonomous	1.01	0.90-1.13	Norm of wife beating if she burns food		
Knowledge of having one non-infected HIV partner prevent HIV			Not accepted	RC	
No	RC		Accepted	1.17**	1.02-1.34
Yes	0.67***	0.53-0.83	Degree of marital control		
Knowledge of HIV			Low	RC	
Not adequate	RC		Moderate	1.52***	1.29-1.78
Adequate	1.58***	1.42-1.74	High	1.59***	1.30-1.94
Religion			Respondent Age		
Christianity	RC		15-24	RC	
Islam	0.93	0.84-1.04	25-34	0.82***	0.75-0.90
Traditional & Others	0.64	0.33-1.24	35-44	0.81***	0.73-0.12
Place of residence			45 plus	1.09	0.89-1.11
Urban	RC		Parity		
Rural	1.59***	1.41-1.78	Primiparity	RC	

Region			Multiparity	0.95	0.86-1.06
North Central	RC		Grand multiparity	0.99	0.88-1.11
North East	1.06	0.90-1.45			
North West	0.57***	0.49-0.67	Wealth Index		
South East	0.57***	0.42-0.62	Poor	RC	
South South	1.30**	1.08-1.54	Average	0.74***	0.64-0.84
South West	0.70***	0.32-0.91	Rich	0.58***	0.52-0.66

* p<0.05

**p<0.01

***p<0.001

4. Multivariable analysis

Table 3 shows adjusted results of multivariable analysis using binary logistic regression. Three models were built. Model 1 considered the association between women's sexual autonomy and other socio-demographic factors (place of residence, region, age of women, education, employment status, media exposure, religion, parity, and wealth index). Model 2 considered the influence of sexual autonomy and discrimination against PLHIV on misconception about the modes of HIV transmission. Model 3 is the combination of all the variables (women's sexual autonomy, household decision-making autonomy, marriage type, partners' consumption of alcohol and degree of marital control).

The results in Model 1 showed that women with high sexual autonomy had lower odds of misconception about the modes of HIV transmission (aOR=0.62; CI=0.54-0.71). Women in the high wealth status category had lower odds of misconception about the modes of HIV transmission (aOR=0.66; CI=0.57-0.76). Like the unadjusted odds ratio, women from South-South had higher odds of misconception about the modes of HIV transmission (aOR=1.89; CI=1.56-2.29). Women who reside in the rural areas had an elevated odds (aOR=1.17; CI=1.03-1.33), while traditional worshippers were less likely to have misconception about modes of HIV transmission (aOR=0.45, CI=0.20-0.95).

Furthermore, model 2 showed that women with high sexual autonomy had lower (aOR=0.72; C I=0.62-0.83) odds of misconception about the mode of HIV transmission and those who stigmatized PLHIV had lower odds (aOR=0.66; CI=0.60-0.73). In model 3, the results showed that women with high sexual autonomy (aOR=0.77, CI=0.57-0.87), higher education (aOR=0.29, CI=0.18-0.45) had lower odds of misconception about the modes of HIV transmission. However, women from South-South (aOR= 1.90; CI=1.37-2.63) and older women (aOR=1.56, CI=1.00-12.41) had higher odds of misconception about the modes of HIV transmission. Similarly, the results showed that women in polygamous marriage (aOR= 1.20, CI=0.99-1.44) and women whose husband had high marital control (aOR=1.30; CI=1.01-1.63) had higher odds of misconception about the modes of HIV transmission. However, women in the rich wealth status (aOR=0.72; CI=0.56-0.91), women who had between 2 and 4 children (aOR=0.96; CI=0.76-1.22) and women who stigmatised PLHIV had lower odds of misconception about the modes of HIV transmission (aOR=0.78, CI=0.66-0.93).

Table 3: Adjusted Odds ratio predicting misconception about modes of HIV transmission.

Variable	Model I	Model II	Model III
	AOR (95%CI)	AOR (95%CI)	AOR (95%CI)
Sexual autonomy			
Low	RC	RC	RC
Medium	0.79(0.68-0.92) ***	0.72(0.62-0.83) ***	0.84 (0.67-105) ***
High	0.62(0.54-0.71) ***	0.60(0.52-0.69) ***	0.77(0.57-0.87) ***
Stigmatized			
No		RC	RC
Yes		0.66*** (0.60-0.73)	0.78*** (0.66-0.93)
Employment Status			
Working	RC		RC
Not Working	1.01(0.91-1.14)		0.83(0.69-1.01)
Media Exposure			
No Access	RC		RC

Low Access	1.11(0.99-1.25)		1.01(0.83-1.22)
Moderate Access	1.04(0.88-1.22)		0.83(0.66-1.06)
Level of Education			
No Education	RC		RC
Primary	0.88(0.79-1.02)		0.76*(0.59-0.98)
Secondary	0.65***(0.56-0.75)		0.61***(0.46-0.79)
Higher	0.33(0.25-0.42) ***		0.29***(0.18-0.45)
Religion			
Christianity	RC		RC
Islam	0.98(0.83-1.15)		1.01(0.79-1.28)
Traditional & Others	0.49**(0.2-0.95)		0.41(0.16-1.03)
Place of Residence			
Urban	RC		RC
Rural	1.17**(1.03-1.33)		1.21(0.99-1.48)
Region			
North Central	RC		RC
North East	0.75***(0.62-0.87)		0.68**(0.51-0.89)
North West	0.40***(0.31-0.46)		0.34***(0.25-0.45)
South East	0.69***(0.55-0.84)		0.54***(0.39-0.77)
South South	1.89***(1.56-2.29)		1.90***(1.37-2.63)
South West	1.04(0.86-1.27)		0.92(0.67-1.25)
Age			
15-24	RC		RC
25-34	0.88**(0.78-0.99)		1.12(0.90-1.39)
35-44	0.86 (0.73-1.00)		1.05(0.79-1.36)
45+	1.07(0.84-1.36)		1.56*(1.00-2.41)
Parity			
Primiparity	RC		RC
Multiparity	0.96(0.84-1.10)		0.96*(0.76-1.22)
Grand-multiparity	0.96(0.80-1.14)		0.90(0.67-1.20)
Wealth index			
Poor	RC		RC
Average	0.72***(0.63-0.83)		0.84(0.67-1.06)
Rich	0.66***(0.57-0.76)		0.72**(0.56-0.91)
Household decision			
No-autonomy			RC
Autonomy			1.06(0.88-1.30)
Partner Alcoholic Consumption			
Does not drink			RC
Drink			1.07(0.85-1.35)
Marriage Type			
Monogamy			RC
Polygamy			1.20***(0.99-1.44)
Degree of marital control			
Low			RC
Moderate			1.48***(1.23-1.78)
High			1.30***(1.04-1.63)

Norm of wife beating if she burns the food			
Not Accepted			RC
Accepted			1.06(0.78-1.44)
Norm of wife beating if she refuses to have sex with husband			
Not Accepted			RC
Accepted			1.00**(0.73-1.37)
Norm of wife beating if she argues with husband			
Not Accepted			RC
Accepted			1.28(0.95-1.76)
Norm of wife beating if she neglects the children			
Not Accepted			RC
Accepted			0.98(0.69-1.40)
Norm of wife beating if she goes out without telling husband			
Not Accepted			RC
Accepted			0.86(0.62-1.20)
Frequent use of condoms during sex prevents HIV			
No			RC
Yes			0.96(0.67-1.38)

* p<0.05 **p<0.01 ***p<0.001

5. Discussion

The study examined the relationship between women's sexual autonomy and misconception about the modes of HIV transmission. This study revealed many interesting findings which may provide insights into research, practice and intervention. The study revealed that women's sexual autonomy was significantly related to misconception about the modes of HIV transmission. This finding is consistent with other studies which have documented the relationship between women's sexual autonomy and other health outcomes, such as cervical cancer screening [22] and birth spacing [31]. The implications of these previous studies suggest that less sexually empowered women might be mythical about health implications of cancer and resist screening. Additionally, women with low sexual autonomy are unable to resist sexual intercourse and as such, are exposed to high-risk births of closely spaced children. This is because less empowerment in terms of sexuality exposes women to a double jeopardy of sexually transmitted infections and high-risk births. Further, a plausible explanation for the finding is that women with diminished sexual autonomy tend to be less informed about knowledge of HIV and bereft of sexual and reproductive health ideas. The gender power theory depicts unequal power relationships with respect to household decision-making and this resonates with women's disadvantaged socio-economic position. This confirms our hypothesis that women with less sexual autonomy have discriminatory attitudes towards people living with HIV and also misconceive ideas about the modes of spread of HIV. Policy should focus on enhancing the status of women to boost their agency in resisting and biased ideas about the modes of HIV transmission.

The study also revealed that women's sexual autonomy and discriminatory attitudes towards people living with HIV were significantly related to misconception about the modes of HIV transmission. The effect of discriminatory attitudes lends credence to the stance that women with less discriminatory attitudes were less likely to misconceive ideas about the mode of spread of HIV [16]. Contrary to previous studies, our study found that women who had high discriminatory

attitudes towards PLHIV had lower odds of misconception about the mode of HIV transmission [17, 32]. The plausible reason for this could be awry physical appearance and fatality associated with HIV infection, but this might not inform misconception about the modes of HIV transmission. High discriminatory attitudes towards PLHIV negates our hypothesis that women who stigmatise PLHIV tend to have misconceptions about the modes of HIV transmission. In addition, other studies have confirmed that media exposure and poor socio-economic status influenced discrimination towards PLWH [16]. There is a tendency for women with less sexual autonomy and discriminatory attitudes to have misconceptions about the mode of HIV transmission. The discriminatory attitudes are precursors to misconception about modes of HIV transmission. This is the novelty of this work. Policy should focus on mass media campaigns and empowerment to dispel discriminatory attitudes and bias towards people living with HIV.

Finally, the study revealed that controlling for women's poor socio-economic and demographic characteristics, sexual autonomy and discriminatory attitudes towards people living with HIV, the odds of misconception were higher among less educated women, rural dwellers, South-South region, poor wealth category, high marital control from partner, tolerance of wife beating for sex refusal and discrimination against people living with HIV had higher odds of misinformation about the spread of HIV. Prior studies agree with these results [22, 30]. The plausible explanation for these findings is that disadvantaged socioeconomic status fuels less decision-making power for women to dispel traditional and cultural bias towards innovative ideas. Gender inequality resonates well with low sexual autonomy, discriminatory attitudes, stigma and misconception about the modes of HIV transmission. Policy makers should empower women to improve their socio-economic status.

One of the strengths of this study is the use of nationally representative secondary data which ensures robust findings, minimal sampling errors and external validity. The study also explored an important concept, women's sexual autonomy which has been rarely considered as a causal factor by researchers, contributing novel ideas to the knowledge base by teasing out information on gender-related norms and sexual and reproductive health issues. Yet, some variables were missing in the 2018 NDHS to measure misconception and discriminating attitudes towards people living with HIV. This is a cross-sectional study and as such information provided may be limited by recall bias and lack of tendency to ascertain causality. However, this study was a modest contribution and novel to the body of knowledge considering the association between women's sexual autonomy and misconception about the modes of HIV transmission in Nigeria.

6. Conclusions

This study concluded that women with lower sexual autonomy were more likely to have misconceptions about the modes of HIV transmission. The study also indicated a clear philosophical stance that women with poor or disadvantaged socio-economic status were more likely to possess discriminatory attitudes and misconception about the modes of HIV transmission. Rural dwellers, South-South region, subservient gender norms and inordinate marital control were more likely to have misconception about the modes of HIV transmission. However, discriminatory attitudes were not significantly associated with misconception about the mode of HIV transmission.

Author Contributions: O. M. A. and T. E. O conceptualised and designed the study. O. M. A., T. E. O., and F. F. O developed the methodology and models. O. M. A., T. E. O., J. A. K and F. L. O implemented the formal analysis and interpreted the data. O. M. A. and P. A. A. provided the computing resources and analytical tools. O. M. A. T. E. O. and F. L. O reviewed the analysis and interpretation of the results. O. M. A. and T. E. O. drafted, reviewed and edited the manuscript. All authors have read and agreed to publish this version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was based on the analysis of openly available data. Thus, ethical approval was not necessary.

Acknowledgments: The authors are grateful to ICF Macro, USA for granting the authors the request to use the Demographic and Health Survey Data.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix 1

Variable	VIF	1/VIF
Religion	1.50	0.668813

Age at first marriage	1.31	0.762668
Household size	1.27	0.787399
Mass media	1.22	0.817425
Women's sexual autonomy	1.16	0.863628
Marriage type	1.16	0.866287
Employment status	1.11	0.899984
Knowledge of condom	1.03	0.968392
Discrimination against PLHIV	1.03	0.970070
Knowledge of HIV	1.03	0.986595
Mean VIF	1.18	

References

- Bekker LG, Alleyne G, Baral S, Cepeda J, Daskalakis D, Dowdy D, et al., M, Eholie S, E. (2018). Advancing global health and strengthening the HIV response in the era of the Sustainable Development Goals: the International AIDS Society-Lancet Commission. *Lancet*. 2018 Jul 28;392(10144):312-358. doi:10.1016/S0140-6736(18)31070-5. Epub 2018 Jul 20. PMID: 30032975; PMCID: PMC6323648.
- Frank, T. D, Carter, A., Jahagirdar, D., Biehl, M. H., Douwes-Schultz, D., Larson, S. L and Abu-Raddad, L. J. (2019). Global, regional, and national incidence, prevalence, and mortality of HIV, 1980– 2017, and forecasts to 2030, for 195 countries and 14 Justice (2019)
- Piot, P, Karim, S. S., Hecht, R., Legido-Quigley, H., Buse, K., Stover, J, et al. (2015). Defeating AIDS— advancing global health. *Lancet*. 2015;386(9989):171–218. [https://doi.org/10.1016/S0140-6736\(15\)60658-4](https://doi.org/10.1016/S0140-6736(15)60658-4).
- UNIADS (2019). Fact sheet: Global AIDS update. Retrieved on the 4th of October 2019 from <https://www.unaids.org/en/resourses/presscentre/featurestories>.
- Schneider, H, Blaauw, D., Gilson, L., Chabikuli, N., Goudge, J. (2006). Health systems and access to antiretroviral drugs for HIV in southern Africa: service delivery and human resources challenges. *Reproductive health matters*. 2006;14(27):12– 23. [https://doi.org/10.1016/S0968-8080\(06\)27232-X](https://doi.org/10.1016/S0968-8080(06)27232-X)
- Pandey, A. and Galvani, A. P. (2019). The global burden of HIV and prospects for control. *The Lancet HIV* 6(12), e809–e811.
- Poku, N.K. (2017). *The Political Economy of AIDS in Africa* (A. Whiteside, Ed.) (1st ed.). Routledge. <https://doi.org/10.4324/9781315237756>
- Darteh EKM, Doku DT, Esia-Donkoh K. (2014). Reproductive health decision making among Ghanaian women. *Reprod Health*. 2014;11(23):1–8. <https://doi.org/10.1186/1742-4755-11-23>.
- UNAIDS data (2019). Available at: https://www.unaids.org/sites/default/files/media_asset/2019-UNAIDS-data_en.pdf. Accessed 25 Mar 2021.
- National Population Commission (NPC) [Nigeria] and ICF. 2019. *Nigeria Demographic and Health Survey 2018*. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF.
- Federal Ministry of Health. (2019). *National Health Promotion Policy*. Abuja: Federal Ministry of Health; 2019. 36. Connell RW. *Gender and power*. Stanford: Stanford University Press; 1987.
- UNAIDS. (2021). *Global AIDS Update: Seizing the moment; July 2020*. UNAIDS. AIDS Info website. Available at: <https://aidsinfo.unaids.org/>. Accessed 3 Mar 2021.
- Sunmola, A. M, Sambo, M. N, Mayungbo, O. A, Morakinyo, L. A. Moderating effect of husband's controlling attitudes on the relation between women's household decision making autonomy and intimate partner violence experience in Nigeria. *J Interpers Violence*. 2021;36(21–22):NP12125–54. <https://doi.org/10.1177/0886260519888534>.
- Solanke BL, Adetutu OM, Sunmola KA, Opadere AA, Adeyemi NK, Soladoye DA. Multi-level predictors of sexual autonomy among married women in Nigeria. *BMC Womens Health*. 2022 Apr 12;22(1):114. doi:10.1186/s12905-022-01699-w. PMID: 35413895; PMCID: PMC9003154.
- Seidu, A. A, Aboagye, R. G, Okyere J, Agbemavi, W., Akpeke, M, Budu, E et al. (2021). Women's autonomy in household decision-making and safer sex negotiation in sub-Saharan Africa: an analysis of data from 27 Demographic and Health Surveys. *SSM-Population Health* 14, 100773.
- Odimegwu, C. O. Alabi, O., De Wet, N. and Akinyemi, J. O. (2018). Ethnic heterogeneity in the determinants of HIV/AIDS stigma and discrimination among Nigeria women. *BMC Public Health* (2018) 18:763 <https://doi.org/10.1186/s12889-018-5668-2>
- Teshale, A. B, Tesema, G. A. Discriminatory attitude towards people living with HIV/AIDS and its associated factors among adult population in 15 sub-Saharan African nations. (2022) *PLoS ONE* 17(2): e0261978. <https://doi.org/10.1371/journal.pone.0261978>

18. Nachega, J. B, Morroni, C, Zuniga, J. M, Sherer, R, Beyrer C, Solomon S, et al. (2012). HIV-related stigma, isolation, discrimination, and serostatus disclosure: a global survey of 2035 HIV-infected adults. *Journal of the International Association of Physicians in AIDS Care*. 2012; 11(3):172–8. <https://doi.org/10.1177/1545109712436723> PMID: 22431893
19. Nattabi, B, Li, J., Thompson, S. C, Orach, C. G. Earnest, J. (2012) Between a rock and a hard place: stigma and the desire to have children among people living with HIV in northern Uganda. *J Int AIDS Soc*. 2012; 15 (2):17421. <https://doi.org/10.7448/IAS.15.2.17421> PMID: 22713256
20. Diress, G. A., Ahmed, M., Linger, M. (2020). Factors associated with discriminatory attitudes towards people living with HIV among adult population in Ethiopia: analysis on Ethiopian demographic and health survey. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*. 2020; 17(1):38–44. <https://doi.org/10.1080/17290376.2020.1857300> PMID: 33357027
21. Arefaynie, M., Damtie, Y., Kefale, B., Yalew, M. (2021). Predictors of Discrimination Towards People Living with HIV/AIDS Among People Aged 15–49 Years in Ethiopia: A Multilevel Analysis. *HIV/AIDS (Auckland, NZ)*. 2021; 13:283–92. <https://doi.org/10.2147/HIV.S299812> PMID: 33758550
22. Miresa Midaksa, Alemnew Destaw, Adamu Addissie, Eva Johanna Kantelhardt and Muluken Gizaw (2022). Women’s sexual autonomy as a determinant of cervical cancer screening uptake in Addis Ababa, Ethiopia: a case–control study. *BMC Women’s Health*. <https://doi.org/10.1186/s12905-022-01829-4>
23. Harichund, C. and Moshabela, M. J. A (2018). Acceptability of HIV self-testing in sub-Saharan Africa: scoping study. *AIDS and Behavior* 22(2), 560–568.
24. Asaolu, I. O, Gunn, J. K., Center, K. E, Koss M. P, Iwelunmor, J. I and Ehiri, J. E. (2016). Predictors of HIV testing among youth in sub-Saharan Africa: a cross-sectional study. (2016) *PloS One* 11(10), e0164052.
25. Dodoo, N. D., Atiglo, D. Y, Biney, A. A., Alhassan, N., Peterson, M. B., Dodoo, F. N. A. (2019). Does financial autonomy imply reproductive and sexual autonomy? Evidence from urban poor women in Accra, Ghana. *African Studies*. 2019; 78(4):477–95.
26. United States Agency for International Development. (2018). *The DHS Program and Health Surveys*. USA: USAID; 2018.
27. Feyisetan B. and Oyediran K. A. Can married or cohabiting women negotiate protective sex? Findings from Demographic and Health Surveys of two West African countries. (2019) *Journal of Biosocial Science*, <https://doi.org/10.1017/S0021932019000798>
28. Putra IGNE, Dendup T, Januraga PP. The roles of women empowerment on attitude for safer sex negotiation among Indonesian married women. *Women Health*. 2020;61(1):95–108. <https://doi.org/10.1080/03630242.2020.1831685>.
29. Abodey E, Odoi A, Agbaglo E, Sambah F, Tackie V, Schack T. Mass Media Exposure and Women's Household Decision-Making Capacity in 30 Sub-Saharan African Countries: Analysis of Demographic and Health Surveys. *Front Psychol*. 2020 Oct 28; 11:581614. doi:10.3389/fpsyg.2020.581614. PMID: 33192898; PMCID: PMC7655773.
30. Solanke, B. L., Shobanke, D. A. (2014). Male partner controlling behaviour as a determinant of contraceptive use among women in Nigeria. *Afr J Psychol Study Soc Issues*. 2014;17(2):156–66.
31. Teshome R, Youjie W, Habte E, Mohamedkassm N. (2016), Comparison and Association of Comprehensive HIV/AIDS Knowledge and Attitude towards people Living with HIV/AIDS among Women Aged 15-49 in Three East African Countries: Burundi, Ethiopia and Kenya. *J AIDS Clin Res* 7: 559. doi:10.4172/2155- 6113.1000559
33. Seidu AA, Ahinkorah BO, Hagan JE Jr, Ameyaw EK, Abodey E, Odoi A, Agbaglo E, Sambah F, Tackie V, Schack T. Mass Media Exposure and Women's Household Decision-Making Capacity in 30 Sub-Saharan African Countries: Analysis of Demographic and Health Surveys. *Front Psychol*. 2020 Oct 28; 11:581614. doi:10.3389/fpsyg.2020.581614. PMID: 33192898; PMCID: PMC7655773.