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ORIGINAL RESEARCH

Should They Also Have Babies? Community Attitudes Toward Sexual and Reproductive Rights of People Living With HIV/AIDS in Nigeria

Zubairu Iliyasu, MBBS, PhD, Hadiza S. Galadanci, MBBS, MS, Yusuf A. Ibrahim, MBBS, Musa Babashani, MBBS, Mohammed S. Mijinyawa, MBBS, Melynda Simmons, BS, Muktar H. Aliyu, MD, DrPH

Kano, Nigeria; Sheffield, United Kingdom; and Nashville, Tennessee

Abstract

BACKGROUND People living with HIV have the right to healthy, satisfying sex lives and to appropriate services to ensure their sexual and reproductive health, including having healthy children. The reproductive rights of people living with HIV/AIDS are, however, often met with skepticism and discrimination, despite recent advances in HIV treatment.

OBJECTIVE To assess the attitudes of community members in Kano, Nigeria, toward the right of persons living with HIV/AIDS to have healthy sexual relationships and bear children.

METHODS A cross-section of 399 adults was interviewed using pretested structured questionnaires. Logistic regression analysis was used to obtain adjusted estimates for predictors of agreement with the rights of persons with HIV/AIDS to bear children.

FINDINGS A substantial proportion of respondents (28.6%) strongly agreed and agreed (10.5%) that persons with HIV/AIDS should not be allowed to marry. More than a fifth of the respondents disagreed (16.0%) and strongly disagreed (8.0%) with the rights of HIV-infected persons to bear children. Agreement with the statement "HIV-infected persons should have biological children" was independently associated with higher educational status (adjusted odds ratio: 2.26, 95% confidence interval: 1.82-6.73) and awareness of prevention of mother-to-child HIV transmission effectiveness (adjusted odds ratio: 2.53, 95% confidence interval: 1.92-5.37). Of those who agreed that HIV-infected persons should have children (n = 253), 17.8% and 26.1% strongly agreed and agreed, respectively, that persons living with HIV/AIDS should be restricted to having fewer children. Further, 11.5% and 4.8% of respondents disagreed and strongly disagreed, respectively, that infertile HIV-infected couples should receive fertility treatment.

CONCLUSIONS People living with HIV/AIDS face discriminatory attitudes to their reproductive rights in northern Nigeria. There is a need for effective, culturally appropriate information, education, and communication approaches to improving community perceptions of sexual and reproductive rights of people living with HIV/AIDS.

KEY WORDS HIV/AIDS, Nigeria, sexual and reproductive rights, community attitudes, biological children

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From the Departments of Community Medicine (ZI, YAI), Obstetrics and Gynecology (HSG), and Medicine, Bayero University, Kano, Nigeria (MB, MSM); Department of Health Policy and Vanderbilt Institute for Global Health, Vanderbilt University Medical Center, Nashville, TN (MS, MHA); Section of Public Health, School of Health and Related Research, the University of Sheffield, Sheffield, UK (ZI). Address correspondence to Z.I. (ziliyasu@yahoo.com).

INTRODUCTION

Before the advent of effective antiretroviral treatment, recommendations that HIV-infected women cease childbearing altogether were not unusual.[1] Some providers even offered abortion to pregnant HIV-positive women.[2] However, highly active antiretroviral therapy has transformed HIV infection from a lethal disease to a chronic manageable condition.[3] This changed landscape has dramatically improved the quality of life of and renewed hope for people living with HIV/AIDS (PLWHA). However, in many developing countries health systems and community attitudes often still do not support the rights of PLWHA to enter into relationships, marry, and bear children.[4] The Cairo Declaration and the Beijing Platform of Action recognize sexual and reproductive rights as essential human rights for PLWHA.[5] These include the right to access information and services regarding sexuality and fertility, access to sexually transmitted infection treatment, and the right to choose to reproduce or not. The World Health Organization also requires that all persons respect the sexual and reproductive rights of others, including the right to equality and nondiscrimination, to marry and form families, to decide the number and spacing of one's children, and to access the highest standard of sexual and reproductive health care.[6]

Despite increasing recognition of these rights, PLWHA in parts of sub-Saharan Africa still face immense pressure from some members of the public, family, friends, and even health care providers to give up the idea of having children. The negative stigma associated with PLWHA exercising their reproductive rights stems from the perceived risk of infecting their partners and offspring or out of concern for the children's future given the possibility of parental death.[7] The current perspective in northern Nigeria, however, remains unknown, although it has historically been a conservative region with high fertility preferences, low contraceptive prevalence, and high rates of polygamy.[8] Using a cross-sectional survey, we assessed community members' level of knowledge about HIV/AIDS and their attitudes toward PLWHA's right to marry and procreate in Kano, northern Nigeria. Our findings could inform policies and services for affected couples in similar situations.

METHODS

Setting/Study Population. The study was conducted in Kano, the second largest city in Nigeria. Kano is inhabited predominantly by the Muslim Hausa-Fulani ethnic group and has a population of about 9 million, based on the most recent census (2006).[9] The study population comprised adult (18 years) residents of Gwale local government area (both sexes). Visitors and persons who declined consent were excluded from the study.

Design and Sampling. This was a descriptive cross-sectional survey. A minimum sample size of 367 was obtained using the hypothesis testing method,[10] proportion of community members with positive attitude toward child bearing rights of HIV-positive couples reported in a previous study (39.3%), and desired precision of 5%.[4,10] The calculated minimum sample size was increased by 10% to account for subject nonresponse, giving a final sample size of 404. A multistage sampling method was employed. In the first stage, 1 local government area was selected from the existing 8 areas of metropolitan Kano through a simple ballot. In the second stage, 5 wards were sampled from the 10 wards in the selected local government area, using the same method. The next step was the simple random selection of a settlement from each sampled ward followed by allocation of samples proportionate to size. Finally, a sampling frame was obtained in each settlement by mapping, house, and household enumeration.

Systematic sampling was used to select individual respondents. The sampling interval was obtained from the total number of houses and the sample size. To identify the first house to be studied, a random number table was used to pick a number between 1 and the sampling interval for each settlement. Subsequent houses were identified by adding the respective calculated sampling interval to the preceding respondent's house number in each settlement. In each sampled house, one household was selected using a 1-time ballot. All eligible adults in the selected household were approached to participate in the survey.

Data Collection. Informed consent was obtained from prospective respondents. The content of the consent form was translated into the local (Hausa) language. Literate respondents indicated acceptance by signing the consent form, while nonliterate participants used a thumbprint in the presence of a witness. Approval for the study was obtained from Aminu Kano Teaching Hospital Ethics Committee.

Theoretical Framework and Measurements. This study was based on the theory of attitude formation and change,[11] wherein a respondent's attitude is

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viewed as the person's feeling toward and evaluation of some object or event. Attitude was measured in 2 important dimensions: direction (positive/negative, or neutral/undecided) and intensity (strength of feeling—eg, strongly agree or agree). We used a pretested structured interviewer-administered questionnaire adapted from validated survey tools used in a previous study.[4] The first section of the questionnaire inquired about personal data, including age, occupation, ethnicity, religion, and highest educational level completed. The second part elicited information about respondent's awareness of HIV/AIDS, knowledge of cause of AIDS, routes of transmission, and methods of prevention including awareness of prevention of mother-to-child transmission (PMTCT). For the assessment of attitude toward sexual and reproductive rights of PLWHA, we used 5-point Likert-type questions where participants were asked to indicate their level of agreement with several statements, such as "HIV-positive people have sexual feelings" and "HIV-positive people should not marry." Some questions assessing attitude toward procreation among PLWHAs included, "HIV-positive couples should have biological children," "HIV-positive couples should have fewer children," and "HIV-positive pregnant women should have an abortion." Finally, participants were asked to respond to the statement "Infertile HIV-positive couples should receive fertility treatment."

The questionnaire was translated from English into the local (Hausa) language. The accuracy of translation was checked by independent backtranslation. The questionnaire was revalidated through a pretest among 30 adults in a different local government area (Tarauni). This was to identify ambiguous questions and ensure cultural sensitivity, acceptability, and appropriateness. It was also used to determine consistency of questions asked in assessing attitude. The questionnaires were administered by 5 trained research assistants.

Data Analysis. Data was analyzed using SPSS Version 22 (IBM Corp., Armonk, NY).[12] Quantitative variables were summarized using appropriate measures of central tendency and variation. Responses were presented as frequencies and percentages. Bivariate analysis involved the use of the Pearson χ^2, χ^2 test for trend, or Fisher's exact test, as appropriate. At the multivariate level, logistic regression analysis was used to obtain adjusted odds ratios (aORs) with (95% confidence intervals [CIs]) for predictors of agreement with the rights of PLWHA to bear children. The dependent variable was strongly agree or agree with the statement "HIV-positive couples should have biological children." Covariates included variables that were significantly associated with positive attitude toward reproductive rights of PLWHA at the bivariate level. The level of significance was set at $P < .05$.

RESULTS

A total of 399 of the 404 participants completed the interviews, yielding a response rate of 98.7%. The 5 nonrespondents declined consent before the commencement of interviews. The respondents were mostly men (56%), Muslim (98.7%), of Hausa/Fulani ethnicity (97.2%), and ranged in age from 18-55 years (mean ± standard deviation [SD]: 25.2 ± 6.3 years). More than half of all respondents had postsecondary education (53.2%), and one-third were unemployed (Table 1).

Nearly all respondents (97%, n = 387) had heard of AIDS. The most commonly mentioned modes of transmission included unprotected sexual intercourse (97.2%, n = 388), transfusion of infected blood (93.7%, n = 374), mother-to-child transmission (92.5%, n = 369), and intravenous drug use (81.5%, n = 325). Nearly all respondents believed that HIV transmission could be prevented by abstinence from sexual intercourse (95.7%, n = 382), being faithful to an uninfected partner (96.0%, n = 383), and using condoms consistently (91.7%, n = 366). Others suggested screening of individuals (80.5%, n = 321) and isolation of HIV-infected individuals (40.6%, n = 162). The majority of respondents (84.7%, n = 338) were aware of a program that reduces mother-to-child HIV transmission (data not shown).

The majority of respondents strongly agreed (51.4%, n = 205) or agreed (24.0%, n = 96) that PLWHA have sexual feelings (Fig. 1). However, more than a third (39.0%) of respondents rejected the right of PLWHA to marry. Of those who supported PLWHA's right to marry (n = 182), an overwhelming majority, 80.2%, indicated that they should marry only HIV-infected partners. Furthermore, 37.4% of those who supported marriage rights of PLWHA also approved of polygamous marriages among HIV-positive individuals who wish to do so. Most respondents strongly agreed (54.9%, n = 219) or agreed (20.6%, n = 82), respectively, that premarital HIV screening should be mandatory. Similarly, more than a third (34.6%, n = 138) of respondents strongly agreed

Table 1. Sociodemographic Characteristics of Respondents, Kano, Nigeria

Characteristics	Frequency No. (%) N = 399
Age group	
<20	52 (13.0)
20-29	282 (70.7)
30-39	47 (11.8)
≥40	18 (4.5)
Sex	
Male	223 (55.9)
Female	176 (44.1)
Ethnicity	
Hausa	309 (77.4)
Fulani	79 (19.8)
Others	11 (2.8)
Religion	
Islam	394 (98.7)
Christianity	5 (1.3)
Education	
No formal	45 (11.2)
Primary	15 (3.8)
Secondary	127 (31.8)
Postsecondary	212 (53.2)
Marital status	
Single	264 (66.2)
Ever married	135 (33.8)
Occupation	
Unemployed	133 (33.3)
Trading	84 (21.1)
Civil servant	54 (13.5)
Homemaker	43 (10.8)
Farming	10 (2.5)
Others	75 (18.8)

that they would divorce their partners on discovering that they were HIV positive (Fig. 1).

More than a fifth of the respondents (16.0%, n = 63) disagreed and 8.0% (n = 31) strongly disagreed, respectively, with the rights of PLWHA to bear children. Of those who agreed that PLWHA should have children (n = 253), 17.8% and 26.1% strongly agreed and agreed, respectively, that PLWHA should be restricted to having fewer children (Fig. 1). Also, 21.3% (n = 20) and 10.6% (n = 10) of those who denied the rights of PLWHA to having children (n = 94) strongly agreed and agreed, respectively, that HIV-positive women who conceive should have an abortion. Further, 11.5% (n = 46) of all respondents disagreed that infertile HIV-positive couples should receive fertility treatment (Fig. 1).

At bivariate level, there was a significant increasing trend with age in the proportion of respondents who supported the reproductive rights of PLWHA, defined as agreement with the statement "HIV-infected persons should have biological children" ($\chi_{trend} = 7.51$, $P < .05$, Table 2). Female sex and increasing level of education were positively associated with the attitude of respondents toward PLWHA's right to procreate ($P < .05$, Table 2).

On multivariate analysis, having formal education and being aware of a PMTCT program remained significant predictors of positive attitude toward the reproductive rights of PLWHA (Table 3). Specifically, individuals with primary or secondary education had a nearly 2-fold increased likelihood of supporting childbearing among HIV-infected couples compared with those with no formal education (aOR [95% CI] = 1.77 [1.21-3.84]). Further, respondents with postsecondary education were twice as likely to be supportive of the reproductive rights of PLWHA compared with respondents without formal education (aOR = 2.26 [95% CI: 1.82-6.73]), Table 3. Respondents who were aware of a PMTCT program were also more likely to favor childbearing by HIV-infected couples. Respondents who indicated awareness of PMTCT programs had 2.5 times the odds of being supportive of the reproductive rights of HIV-infected couples compared with those who were not aware (aOR = 2.53 [95% CI: 1.92-5.37]).

DISCUSSION

We found that HIV-infected persons in urban Kano, Nigeria, face significant negative attitudes to their rights to marry, conceive, and bear children. These negative attitudes were significantly associated with educational attainment and awareness of PMTCT effectiveness, with persons of higher educational attainment and those who were aware of PMTCT services twice as likely to approve of HIV-infected persons bearing children compared with those of lower educational achievement and those who lack awareness of PMTCT services, respectively. Our results also suggest that a sizeable proportion of community members who were surveyed did not approve of infertile HIV-positive couples receiving fertility treatment. Even among respondents who approved of childbearing among PLWHA, almost half of them (43%) indicated

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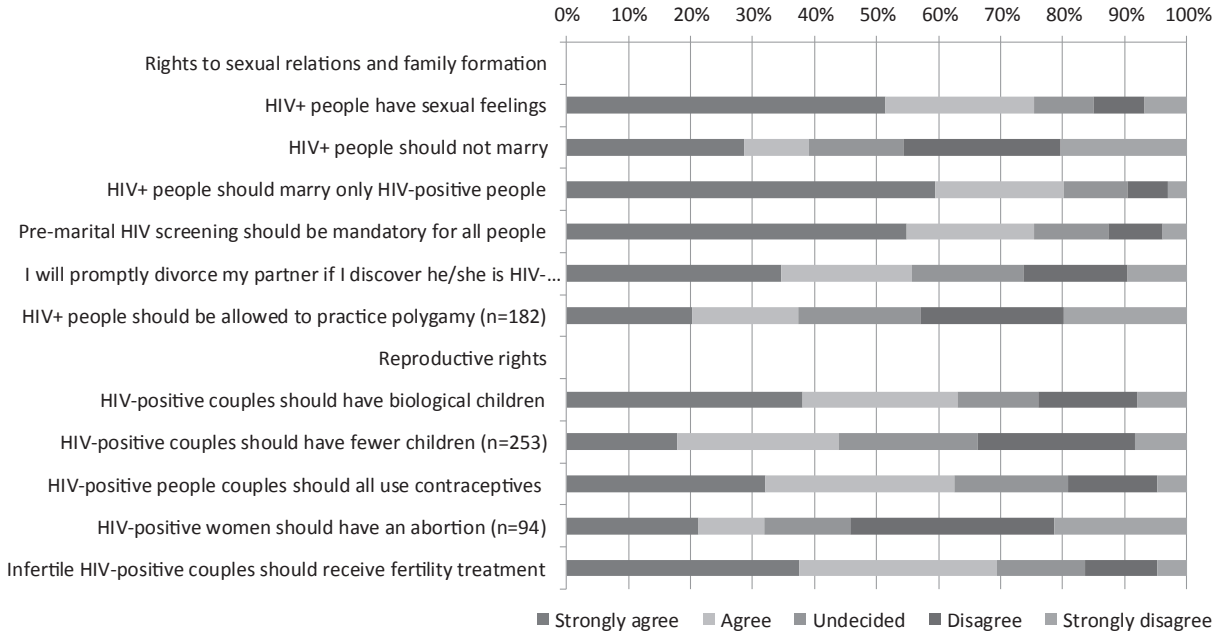

Figure 1. Attitudes toward sexual and reproductive rights of people living with HIV, Kano, Nigeria (N = 399, unless otherwise specified).

agreement with limiting the number of children PLWHA can have.

The proportion of respondents with basic knowledge of HIV/AIDS was similar to other survey findings.[13] However, misconceptions still abound, as earlier reported.[14] These gaps should be addressed through effective mass communication. The proportion of respondents who denied PLWHA's right to marry (24.0%) was lower than reports from southwest Nigeria (49.2%)[4] and India (61%).[15] Differences in levels of discrimination could be due to variations in study populations, methods, and timing of studies. The denial of marriage rights by a section of the respondents violates the internationally recognized right of PLWHA to personal autonomy for informed decisions about marriage, family formation, and childbearing.[16]

The support for mandatory premarital screening by the majority of our respondents (75.5%) concurs with the views of Christian clerics in Sokoto, northern Nigeria.[17] Although some African countries require informed consent for HIV testing, most churches in Burundi, Democratic Republic of the Congo, Ghana, Kenya, Nigeria, Tanzania, and Uganda require mandatory HIV-free certificates to formalize marriages. Similarly, mosques in Asia and the Middle East, less so in Nigeria and other African countries, require premarital HIV test results before conducting a marriage.[18]

Advocates of mandatory premarital HIV screening contend that mandatory screening will reduce incidences of HIV infection by confining the infection to people living with HIV.[19] Although this logic is practical from a public health perspective, it infringes on the rights of HIV-infected persons to autonomy, body integrity, and privacy.[20] A counterargument is that the right of individuals to refuse testing ignores the right of their prospective spouses to be informed of the health risks that they may be exposed to by marrying a HIV-infected partner. If, as the United Nations has declared, all persons have the right to decide freely and responsibly on matters relating to their sexual and reproductive health, then it can be argued that all persons should have the opportunity to know their HIV status and that of their prospective spouses and thereby be able to protect themselves and their partners from sexually transmitted infections.[21]

Antagonists of premarital HIV testing argue that couples with negative premarital test results may have a false sense of security. A recent report from southeast Nigeria suggests that married women's greatest risk of contracting HIV is through sexual intercourse with their husbands. The implication

Table 2. Association Between Respondents' Sociodemographic Characteristics and Attitude Toward Reproduction Among People Living With HIV/AIDS

Characteristics	Negative Attitude No. (%)	Positive Attitude* No. (%)	*P*
Age group			
<20	25 (48.1)	27 (51.9)	
20-29	107 (37.9)	175 (62.1)	
≥30	15 (23.1)	50 (76.9)	.0061†
Sex			
Male	93 (41.7)	130 (58.3)	
Female	54 (30.7)	122 (69.3)	.031
Ethnicity			
Hausa	116 (37.5)	193 (62.5)	
Fulani	26 (32.9)	53 (67.1)	
Others	5 (45.5)	6 (54.5)	.63
Religion			
Islam	145 (36.8)	249 (63.2)	
Christianity	2 (40.0)	3 (60.0)	.61
Education			
No formal	31 (68.9)	13 (28.9)	
Primary/secondary	61 (43.0)	81 (57.0)	
Postsecondary	46 (21.7)	166 (78.3)	<.0001
Marital status			
Single	105 (39.8)	159 (60.2)	
Ever married	42 (31.1)	93 (68.9)	.11
Occupation			
Unemployed	53 (39.8)	80 (60.2)	
Trading	36 (42.9)	48 (57.1)	
Civil servant	17 (31.5)	37 (68.5)	
Homemaker	13 (30.2)	30 (69.8)	
Farming	4 (40.0)	6 (60.0)	
Others	24 (32.0)	51 (68.0)	.54

* With the statement "HIV-infected persons should have biological children."
† $\chi^2_{\text{trend}} = 7.51$.

is that men are acquiring HIV outside of marriage and infecting their wives.[22] In addition, concerns about stigma may lead at-risk persons to drastic measures to avoid testing, including procuring a fake test result or opting out of marriage altogether.[18,23] We therefore advocate for focused information, education, and communication interventions, women's empowerment, and access to voluntary HIV counseling and testing rather than mandatory premarital HIV testing. Individuals who propose to marry sero-discordant partners should be made aware of the risks involved and assisted in making informed decisions.[24]

The approval of polygamy among persons who support PLWHA's right to marry probably reflects the prevailing culture in the study area, which encourages polygamous marriages. The practice of polygamy, however, poses additional challenges for HIV control programs, especially if partners do not remain mutually faithful.[25]

The proportion of our respondents who denied the reproductive rights of PLWHA (24%) was a fraction of the figures reported from southwest Nigeria (52.7%), South Africa (87%), and India (80%). However, our numbers are similar to figures reported from Zambia (29%). Apart from variations in study populations, methodology, and measures, these differences could be attributed to differences in knowledge about the disease, effectiveness of ongoing PMTCT programs, and the high premium accorded childbearing in the study area.[8,14] In most developing countries, fertility is highly desired and couples who do not have children are ostracized.[26] HIV-infected couples therefore face the dilemma of choosing to fulfill societal and family expectations in the face of a highly effective PMTCT strategy (family planning).

A substantial proportion of our respondents (43.9%) supported restrictions in the number of children PLWHA should have. This sentiment echoes the findings among PLWHA themselves, where many report a downward adjustment in childbearing desires based on health concerns, transmission risk, and the burden of child care.[27] HIV-infected couples should have access to information, counseling, and services to enable them make informed decisions on whether, when, and how many children to have.

The pro-natalist posture of some study participants is similar to reports from Nigeria and Zambia, where respondents favored childbearing among HIV-infected women and had slightly higher support for induced abortion in scenarios where antiretroviral therapy was unavailable.[28] Therefore, increased access to effective HIV treatment and prevention programs appears to positively influence public attitudes toward the reproductive rights of PLWHA, even in settings similar to conservative northern Nigeria. From a sexual and reproductive health rights perspective, HIV-infected couples should have access to contraceptive counseling and be supported in their pregnancy decisions within existing local laws, because HIV infection alone should not be an indication for pregnancy termination.[29] Further, the antagonism of a proportion (16.3%) of participants toward fertility treatment for HIV-infected couples is a

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Table 3. Logistic Regression Model for Predictors of Positive Attitudes to Reproductive Rights of Persons Living With HIV/AIDS, Kano, Nigeria

Characteristics	Strongly Agree or Agree* No. (%)	Crude Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)†	*P*
Age group				
<20	27 (51.9)	Ref	Ref	
20-29	175 (62.1)	1.51 (0.84-2.75)	0.94 (0.43-2.17)	.10
≥30	50 (76.9)	3.09 (1.39-6.82)	2.05 (0.92-4.72)	.07
Sex				
Male	130 (58.3)	Ref	Ref	
Female	122 (69.3)	1.62 (1.07-2.45)	1.43 (0.83-1.79)	.44
Education				
No formal	13 (28.9)	Ref	Ref	
Primary/secondary	81 (57.0)	3.3 (1.58-6.75)	1.77 (1.21-3.84)	.031‡
Postsecondary	166 (78.3)	8.8 (4.31-18.3)	2.26 (1.82-6.73)	.01‡
Awareness of PMTCT				
Aware	219 (64.8)	5.18 (2.81-9.55)	2.53 (1.92-5.37)	.024†
Not aware	16 (26.2)	Ref	Ref	

CI, confidence interval; PMTCT, prevention of mother-to-child transmission; Ref, reference group.
* With the statement "HIV-infected persons should have biological children."
† Logistic model includes the following variables: age group, sex, education, and awareness of PMTCT.
‡ Significant at $P < .05$.

manifestation of the discriminatory stance of some community members.

The key inference of our findings is that we have the responsibility to stimulate a broader dissemination of effective educational interventions that will address the prevailing misconceptions surrounding the reproductive rights of PLWHA in our conservative settings. Unfortunately, decades after the discovery of combination antiretroviral therapy, stigma, low educational attainment, and poor knowledge of HIV prevention continue to affect the perceptions of community members in certain parts of Africa regarding the rights of PLWHA to marry, conceive, and bear children. However, educational attainment and awareness of PMTCT programs appear to play an important role in shaping respondents' attitudes toward the sexual and reproductive rights of PLWHA. Our findings underscore the enduring role of education in shaping more informed perspectives and a greater understanding of other people.

The strengths of the study include the very high response rate, a paucity of similar research from conservative northern Nigeria, and our use of scientifically valid sampling methods. Our findings are, however, subject to a number of limitations. Actual behavior could differ from the opinions expressed during surveys, and opinions on sexual and reproductive matters are prone to social desirability bias. However, the use of same-sex interviewers from similar cultural backgrounds and assurance of confidentiality likely minimized such bias. In addition, our study design was cross-sectional in nature, thereby limiting the ability to make causal inferences.

Future research could examine the role of educational attainment in community member's attitudes toward PLWHA reproductive rights in similar settings. Qualitative study approaches such as focus groups and key informant interviews could provide more in-depth information on this relationship. An explanation regarding why age and sex appear to be important mediators of societal perceptions could be determined by a larger, more representative inquiry.

We advocate for sustained health education measures, policies, and services that will reinforce the reproductive rights of HIV-infected individuals. Interventions to enhance reproductive choices among HIV-infected individuals and effective services for the reduction of vertical transmission of HIV from mother to child are critical.[30,31] Simple but effective low-technology assisted reproduction technologies should also be made accessible to HIV-discordant couples in Nigeria and other parts of sub-Saharan Africa, where HIV is most prevalent.

REFERENCES

1. Rutenberg N, Kaufman CE, Macintyre K, et al. Pregnant or positive: adolescent childbearing and HIV risk in KwaZulu Natal, South Africa. Reprod Health Matters 2003;11:122–33.
2. Chen JL, Philips KA, Kanouse DE, et al. Fertility desires and intentions of HIV-positive men and women. Fam Plann Perspect 2001;33:144–52.
3. MacCarthy S, Laher F, Nduna M, et al. Responding to her question: a review of the influence of pregnancy on HIV disease progression in the context of expanded access to HAART in sub-Saharan Africa. AIDS Behav 2009;13(Suppl 1): 66–71.
4. Asekun-Olarinmoye EO, Asekun-Olarinmoye IO, Adebimpe WO, et al. Community attitude towards the reproductive rights and sexual life of people living with HIV/AIDS in Olorunda Local Government Area, Osogbo, Nigeria. HIV AIDS (Auckl) 2013;5:131–6.
5. UNFPA. Report of the International Conference on Population and Development—Cairo, 5-13 September 1994. New York, NY: United Nations; 1995:1-193. Available at: http://www.unfpa.org/public/site/global/publications/pid/1973. Accessed June 18, 2016.
6. World Health Organization (WHO). Sexual and Reproductive Rights. Defining Sexual Rights. Geneva, Switzerland: WHO. Available at: http://www.who.int/reproductivehealth/topics/sexual_health/sh_definitions/en/ Accessed February 12, 2014.
7. Cooper D, Moodley J, Zweigenthal V, et al. Fertility intentions and reproductive health care needs of people living with HIV in Cape Town, South Africa: implications for integrating reproductive health and HIV care services. AIDS Behav 2009;13:38–46.
8. Izugbara CO, Ezeh AC. Women and high fertility in Islamic Northern Nigeria. Stud Fam Plann 2010;41: 193–204.
9. Federal Republic of Nigeria. Legal notice on publication of the details of the breakdown of the national and state totals 2006 census. 94. Abuja, Federal Capital Territory/Nigeria: Federal Republic of Nigeria Official Gazette; 2007:178–98.
10. World Health Organization (WHO). Sample size determination in health studies: a practical manual. Geneva, Switzerland: WHO. Available at: http://apps.who.int/iris/bitstream/10665/40062/1/9241544058_(p1-p22).pdf; 1991. Accessed March 14, 2016.
11. Wood W. Attitude change: persuasion and social influence. Annu Rev Psychol 2000;51:539–70.
12. IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.
13. National Population Commission. Nigeria Demographic and Health Survey (NDHS) 2013. Abuja, Nigeria: NPC and ICF International; 2014.
14. Iliyasu Z, Abubakar IS, Kabir M, Aliyu MH. Knowledge of HIV/AIDS and attitude towards voluntary counseling and testing among adults. J Natl Med Assoc 2006;98: 1917–22.
15. Mahendra VS, Gilborn L, Bharat S, et al. Understanding and measuring AIDS-related stigma in health care settings: a developing country perspective. SAHARA J 2007;4:616–25.
16. Wilcher R, Cates W. Reproductive choices for women with HIV. Bull World Health Organ 2009;87: 833–9.
17. Sambo AU, Oche MO. Knowledge of HIV/AIDS and use of mandatory premarital HIV testing as a prerequisite for marriages among religious leaders in Sokoto, North Western Nigeria. Pan Afr Med J 2012;11:27.
18. Open Society Institute. Mandatory Premarital HIV Testing: An Overview. New York, NY: Open Society Institute. Available at: https://www.opensocietyfoundations.org/sites/default/files/mandatory-premarital-hiv-testing-20100513.pdf. Accessed April 16, 2015.
19. Luginaah IN, Yiridoe EK, Taabazuing MM. From mandatory to voluntary testing; balancing human rights, religions and cultural values, and HIV/AIDS prevention in Ghana. Soc Sci Med 2005;61:1689–700.
20. Malhotra R, Malhotra C, Sharma N. Should there be mandatory testing for HIV prior to marriage in India? Indian J Med Ethics 2008;5:70–4.
21. Dixon-Mueller R. The sexual ethics of HIV testing and the rights and responsibilities of partners. Stud Fam Plann 2007;38:284–96.
22. Smith DJ. Modern marriage, men's extramarital sex, and HIV risk in southeastern Nigeria. Am J Public Health 2007;97:997–1005.
23. Durojaye E, Balogun V. Human rights implications of mandatory premarital HIV testing in Nigeria. Int J Law Policy Family 2010;24: 245–65.
24. Uneke CJ, Alo M, Ogbu O. Mandatory premarital HIV testing in Nigeria: the public health and social implications. AIDS Care 2007;19: 116–21.
25. Reniers G, Tfaily R. Polygyny, partnership concurrency, and HIV transmission in sub-Saharan Africa. Demography 2012;49:1075–101.
26. Breitnauer BT, Mmeje O, Njoroge B, et al. Community perceptions of childbearing and use of safer conception strategies among HIV-discordant couples in Kisumu, Kenya. J Int AIDS Soc 2015;18:19972.
27. Berhan Y, Berhan A. Meta-analyses of fertility desires of people living with HIV. BMC Public Health 2013;13:409.
28. Kavanaugh ML, Moore AM, Akinyemi O, et al. Community attitudes toward childbearing and abortion among HIV-positive women in Nigeria and Zambia. Cult Health Sex 2013;15:160–74.
29. MacCarthy S, Rasanathan JJK, Crawford-Roberts A, et al. Contemplating abortion: HIV-positive women's decision to terminate pregnancy. Cult Health Sex 2014;16:190–201.
30. Myer L, Morroni C, Cooper D. Community attitudes towards sexual activity and childbearing by HIV-positive people in South Africa. AIDS Care 2006;18:772–6.
31. Dunlap J, Foderingham N, Bussell S, et al. Male involvement for the prevention of mother-to-child HIV transmission: a brief review of initiatives in East, West, and Central Africa. Curr HIV/AIDS Rep 2014;11:109–18.