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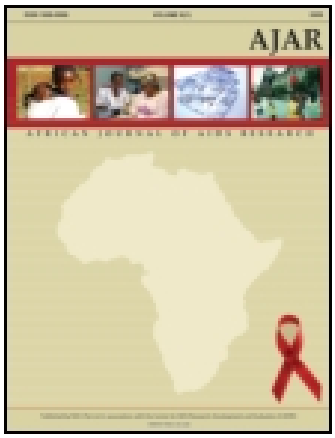

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Attitudes of women and men living with HIV and their healthcare providers towards pregnancy and abortion by HIV-positive women in Nigeria and Zambia

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Fertility decisions among people living with HIV/AIDS (PLWHA) are complicated by disease progression, the health of their existing children and possible antiretroviral therapy (ART) use, among other factors. Using a sample of HIV-positive women (*n* = 353) and men (*n* = 299) from Nigeria and Zambia and their healthcare providers (*n* = 179), we examined attitudes towards childbearing and abortion by HIV-positive women. To measure childbearing and abortion attitudes, we used individual indicators and a composite measure (an index). Support for an HIV-positive woman to have a child was greatest if she was nulliparous or if her desire to have a child was not conditioned on parity and lowest if she already had an HIV-positive child. Such support was found to be lower among HIV-positive women than among HIV-positive men, both of which were lower than reported support from their healthcare providers. There was wider variation in support for abortion depending on the measure than there was for support for childbearing. Half of all respondents indicated no or low support for abortion on the index measure while between 2 and 4 in 10 respondents were supportive of HIV-positive women being able to terminate a pregnancy. The overall low levels of support for abortion indicate that most respondents did not see HIV as a medical condition which justifies abortion. Respondents in Nigeria and those who live in urban areas were more likely to support HIV-positive women's childbearing. About a fifth of HIV-positive respondents reported being counselled to end childbearing after their diagnosis. In summary, respondents from both Nigeria and Zambia demonstrate tempered support of (continued) childbearing among HIV-positive women while anti-abortion attitudes remain strong. Access to ART did not impart a strong effect on these attitudes. Therefore, pronatalist attitudes remain in place in the face of HIV infection.

Keywords: attitudes towards childbearing and abortion, stigma scales against HIV-positive women's pregnancies, stigma scales against HIV-positive women having abortions, healthcare providers' attitudes about HIV-positive women's reproduction, HIV-positive individuals

Introduction

Sub-Saharan Africa holds the largest number of women living with HIV in the world, many of whom are in their reproductive years (UNAIDS 2013). Early interventions focused primarily on integrating HIV services and maternal and child health services were based on an assumption that women living with HIV would not want to conceive (Lush et al. 1999, Mayhew et al. 2000, Askew and Berer 2003). Many healthcare providers recommended that HIV-positive women cease childbearing altogether. A multi-country study in sub-Saharan Africa showed that 60% of providers in Rwanda compared to 17% of providers in South Africa told HIV-positive women not to become pregnant (Adamchak et al. 2010).

The advent of effective antiretroviral therapy (ART) has transformed HIV infection from a lethal disease to a chronic condition for those privileged enough to have access to the drugs. ART also enables seropositive women to bear children with far fewer risks to themselves and their children (MacCarthy et al. 2009). Accompanying this development in HIV treatment is the advent of new technologies that help serodiscordant couples conceive with minimal or no risk of infecting the HIV-negative partner: periconception ART use for the infected partner and pre-exposure prophylaxis (PrEP) for the uninfected partner combined with treatment for sexually transmitted infections; sex limited to peak fertility; and medical male circumcision and sperm washing so that the semen is removed from the sperm and the woman is artificially inseminated (either through intrauterine insemination or *in vitro* fertilisation) (Matthews et al. 2012, Savasi et al. 2013). Yet individuals on ART require timely access to the drugs around conception and for the rest of their lives. Access to ART may prove a challenge for individuals who depend on irregular drug supply chains, often funded by donors who have shifting funding priorities.

The availability of ART to prevent mother-to-child transmission of HIV (PMTCT) influences the effect of

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HIV on fertility preferences. Using data from the HIV and Achieving Fertility Desires project (the source of data for this paper), Bankole et al. (2014) found that knowledge about ART decreased childbearing desires among people living with HIV/AIDS (PLWHA) in Nigeria, while knowledge of PMTCT increased HIV-positive women's desire for more children in Zambia. Yet in many developing country settings, it is not possible for HIV-positive women to follow recommended medical protocols to safely carry a pregnancy to term and deliver a child. For example, in their work in Mozambique, Hayford and Agadjanian (2010) identified that even the basic instruction to consult with a doctor before becoming pregnant if one is HIV-positive is difficult if not impossible for most HIV-positive women due to lack of physicians. Furthermore, discontinuity of care due to lack of accessibility of providers meant that women were receiving piecemeal care with frequent interruptions and treatment by various healthcare providers who were giving possibly conflicting information and/or functioning without full information about the patient. The same study found that providers reported practical, financial and social barriers that HIV-positive clients experienced to follow medical protocols to prevent PMTCT (Hayford and Agadjanian 2010).

HIV-positive women who attempt to carry a pregnancy to term have a higher risk of ectopic pregnancy, miscarriage, and other forms of foetal loss than HIV-negative women (Brocklehurst and French 1998, Coley et al. 2001). Yet having children remains strongly associated with relationship stability, lineage continuity, gender role actualisation, personal fulfilment and social validation of both men and women in all sub-Saharan African cultures. Therefore, many PLWHA experience all the same social pressures to reproduce as the population at large (Emneyonu et al. 2008, Agadjanian and Hayford 2009, Wagner et al. 2012).

Previous studies have found that many PLWHA report wanting to have more children. In their systematic review of articles published between 1990 and 2008 on fertility desires and intentions among PLWHA, Nattabi et al. (2009) identified that depending on the time, place and population, between 20% and 53% of PLWHA desired more children. Factors found to be associated with a desire by HIV-positive women to have children in Nigeria and South Africa included younger age, having fewer children, non-disclosure of HIV status to one's partner, being on ART, and better physical health (Oladapo et al. 2005, Cooper et al. 2009). Desired fertility is of course a culturally-specific construct. Again using data from the HIV and Achieving Fertility Desires project, Bankole et al. (2014b) found that women with HIV in Nigeria were more likely to want more children than were women with HIV in Zambia.

Compared to HIV-negative women, HIV-positive women in many sub-Saharan African countries are less likely to want more children (Bankole et al. 2011). Factors related to not wanting more children in Mozambique included poor health, negative provider attitudes towards PLWHA having children, community disapproval and stigma, and fear of the child becoming an orphan (Agadjanian and Hayford 2009). Lower fertility desires among PLWHA demonstrate a greater need for family planning than among HIV-negative individuals (Bongaarts 1978). Without greater access to and use of family planning, because they desire fewer children, HIV-positive women are at greater risk for an unintended pregnancy than HIV-negative women.

HIV-positive women who become pregnant and have wished to terminate their pregnancies have reported conditional access to safe abortion regardless of the legal status of abortion in that context. Some experienced greater access to abortion because of their HIV status, as was the case in South Africa, where abortion is legal on demand up through the 20th week of pregnancy (Cooper et al. 2009, Orner et al. 2011). In Namibia, where abortion is highly restricted, HIV-positive women have been offered abortion only if they undergo sterilisation (ICW-Namibia 2009).

Other HIV-positive women report less access to abortion because of their HIV status (Gender AIDS Forum 2005). Some healthcare providers in South Africa are hesitant to provide pregnancy termination to women with HIV because it is deemed an invasive surgical procedure and to perform such a procedure on a woman already weakened by disease was not seen as wise (Cooper et al. 2007). In Uganda, HIV-positive women who wanted an abortion were persuaded against doing so by their providers because the procedure was perceived to be dangerous (Moore et al. 2006).

Not much is known about the attitudes of people living with HIV and their healthcare providers towards HIV-positive women regarding childbearing and abortion in light of increasing access to ART in sub-Saharan African countries. In another paper using data from the HIV and Achieving Fertility Desires project, examining the same attitudinal questions gathered at the household level included in this analysis, Kavanaugh et al. (2013) used a relative stigma framework which identified that when given a choice between childbearing and abortion, community based respondents overwhelmingly favoured childbearing for HIV-positive women but that support for abortion was higher in scenarios in which ART was unavailable. Zambian women held more stigmatising attitudes towards abortion for HIV-positive women than Nigerian women and women in both countries held more stigmatising attitudes towards abortion than men, particularly in Zambia (Kavanaugh et al. 2013).

This study seeks to provide new insight into attitudes of HIV-positive individuals and their healthcare providers towards HIV-positive women bearing children and having abortions in Nigeria and Zambia, two countries with generalised HIV epidemics. Nigeria has an HIV-positive prevalence rate of 4.1% and the HIV-positive prevalence rate in Zambia was 14.3% (CSO et al. 2009, Federal Ministry of Health of Nigeria 2012). The average desired family size is high in Nigeria (6.1 among women) while Zambia has a comparatively moderate desired family size (4.6 among women); Nigeria has high unmet need for modern contraception (20%) compared to moderate unmet need in Zambia (14%) (Bankole et al. 2006, CSO et al. 2009, NPC & ICF Macro 2009). As of 2011 Nigeria had the second-largest ART programme in sub-Saharan Africa (behind South Africa) with almost 400 000 people on treatment (NACA 2012) yet only 73.4% of them are still on treatment 12 months after initiation of ART (NACA 2012). National guidelines specify that HIV-positive individuals

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are referred to services to help them notify their partners regarding their HIV serostatus and to encourage their spouse to access counselling and testing. Prevention with Positives (PwP) includes behavioural counselling to reduce high-risk behaviours, provision of condoms, and screening and treatment for sexually transmitted infections at every contact with a healthcare provider. Zambia has free and universal access to ART. In 2010 about two-thirds (67.3%) of health facilities were offering HIV counselling, testing and treatment. While over 90% of HIV-positive patients 15 years and older access ART in Zambia (Republic of Zambia, National AIDS Council 2012), only a third of Nigerians (29.8%) eligible for ART currently receive ART of whom 63% are female (FMOH 2012, NACA 2012).

Nigeria has had PMTCT guidelines in place since 2001, most recently revised in 2010. Highly active antiretroviral therapy (HAART) is the preferred regime with the option of an azidothymidine (AZT)-based regime for facilities that do not have the capacity to administer triple therapy (FMOH 2010). The guidelines encourage breastfeeding as the preferred infant feeding option with ART taken either by the mother or by the baby. ART should begin by 14 weeks gestation and last throughout the duration of breastfeeding (FMOH 2010). 'Female clients who are pregnant or of childbearing age should receive or be referred for reproductive health services. HIV-infected pregnant women will require the provision of education, prevention counselling and PMTCT services according to national guidelines' (FMOH 2010: 65). Zambia subscribes to the guidelines of the World Health Organization (WHO) to reduce mother-to-child transmission (MTCT). PMTCT guidelines in Zambia specify the elimination of MTCT, eliminating the use of nevirapine and a substantial reduction in AIDS-related maternal deaths by 2015 (Republic of Zambia, National AIDS Council 2012). The per cent of pregnant women on ART increased from 62% in 2008 to 85% in 2011, and 88.6% of these women were receiving dual or triple (more effective) prophylaxis (Republic of Zambia, National AIDS Council 2012).

Nigeria has two laws on abortion: one for the northern states and one for the southern states. In the entire country, abortion is allowed to save the life of the woman while in the southern states, abortion is also allowed to preserve a woman's physical and mental health (United Nations Department of Economic and Social Affairs 2013). In Zambia, since 1972, abortions are allowed when continuing the pregnancy would endanger the pregnant woman's life, risk injury to the physical or mental health of the pregnant woman, or risk injury to the physical or mental health of any existing children of the pregnant woman; or there is a substantial risk that if the child were born, it would suffer from physical or mental abnormalities 'as to be severely handicapped' (Zambia 1972). However, access to abortion is extremely difficult in both countries with providers and women misinformed about the law (Bankole et al. 2006, Likwa et al. 2009). Examining attitudes of both HIV-positive individuals and their healthcare providers towards pregnancy and abortion by HIV-positive women in the two countries provides new insights into the environment in which HIV-positive women are making childbearing decisions and whether people's attitudes differ according to the situations surrounding HIV-positive women's lives.

Sources of data and method of analysis

The data for this study come from a multi-centre facility-based study conducted in Nigeria and Zambia which was part of a larger study called HIV and Achieving Fertility Desires carried out in the two countries. Two of the three survey instruments used in that project are examined here: 1) a survey of PLWHA attending health facilities for monitoring or care; and 2) a survey of healthcare providers working at those health facilities providing HIV care, family planning, and/or maternal care. The facilities were selected from four states in Nigeria (Benue, Enugu, Kaduna and Lagos) and three provinces in Zambia (Lusaka, Northern and Southern). The states and provinces were deliberately chosen to gather data from different ethnic groups and from regions with varying HIV-prevalence and fertility levels within each country in an attempt to capture greater representativeness. Within each province/state, enumeration areas (EAs) were selected to capture rural and urban variation. And within each EA, health facilities were randomly selected. The facilities were public and private health facilities[1] selected from registration lists of facilities that provide both ART treatment and family planning services where the administrator gave permission for the facility to be included in the study. The study was approved by the Guttmacher Institute's Institutional Review Board (IRB), University of Ibadan/University College Hospital IRB, and the University of Zambia Biomedical Research Ethics Committee. Fieldwork took place from late 2009 to mid-2010.

Selection and training of fieldworkers

In Nigeria the field teams were selected by first identifying research collaborators in the selected states. The collaborators were briefed on the study and invited to participate in pre-fieldwork training. The research collaborators subsequently worked as the field supervisors for the interviewers. The interviewers were all graduates of disciplines in the humanities, nursing or medicine with experience conducting similar fieldwork. In Zambia the interviewers were hired through an open call for the positions which was posted in two daily newspapers. The applicants were screened, a shortlist was created and those individuals were interviewed. All individuals who were hired had experience in administering cross-sectional surveys. Almost all of them had completed the equivalent of an undergraduate education.

All interviewers (15 in Zambia and 24 in Nigeria) received a week-long training in which they were taught the objectives of the study, good interviewer technique, how to administer the consent form, and reviewed the questionnaires in detail with the assistance of a manual. They were provided intensive training in confidentiality and medical interviewing. They also had an opportunity to conduct mock interviews with one another and to pilot interviews with individuals similar to the respondents. Community mapping, creating household listings and other field logistics were also covered.

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Accessing the health facilities

In Nigeria one rural and one urban local government area (LGA) were randomly selected from each of the four selected states. Ten rural and 20 urban EAs were then systematically selected. Within each EA, one health facility providing HIV services was selected. Where there was more than such facility in the EA, one facility was randomly selected. In Zambia a census of facilities located in proximity to household clusters for another component of the fieldwork (a household survey which is not analysed here) was taken. Proximity means that interviewers were able to reach the health facility within two hours of travelling from the household cluster. This census of health facilities was put into a frame. The number of facilities included in the census varied depending on the terrain. The facilities were sampled at random to achieve the desired sample size.

To gain access to a facility, the field supervisor and appropriate interviewers approached the administrator of the health facility for permission to recruit and interview six to eight HIV-positive clients and relevant healthcare providers at the health facility.

Selection of the HIV-positive respondents

Once the approval of the administrator was secured, the interviewers were introduced to the head of the HIV unit. The interviewers described the study and explained what it was seeking to accomplish at that facility. The interviewers identified one counsellor who worked with HIV-positive people on ARTs and with HIV-positive people not on ARTs. The interviewers described the study to the counsellor, and requested assistance in recruiting respondents from the patients coming to the clinic.

The study aimed to select 300 women and men living with HIV from each country using a convenience sample of clients from facilities that provide HIV care and reproductive health services. The interviewers worked with the healthcare providers to recruit the target number of patients. The selection criteria for inclusion were identical at each health facility in the two countries. All HIV-positive women aged 18–49 years and men aged 18–59 years who came to the selected health facilities for either a monitoring check and were not on ART or for ART (and not emergency care) were eligible for recruitment. Specific effort was made to divide the sample of respondents between those not on ART and those on ART, and between respondents with 0–1 children and respondents with 2+ children. Currently pregnant respondents were included.

Healthcare providers were asked to assess eligibility (age, sex, whether the patient was on ART, and number of living children) before briefly describing the study to potential respondents to assess patient interest in participation. If a patient met the criteria for inclusion in the study and indicated that s/he was interested to learn more about the study, the counsellor introduced the patient to an interviewer who was on-site for the duration of the fieldwork so that the interviewer could provide further information about the study. Interested patients were administered the informed consent form which was read out in a language respondents understood in the presence of the respondent's HIV counsellor. The consenting respondents signed, thumb-printed or marked the consent form in some other way in the presence of their counsellors to indicate consent to participate. Respondents were subsequently interviewed in a designated private room to ensure confidentiality and privacy. The final combined sample size for Nigeria and Zambia was 353 women and 299 men.

Selection of the healthcare providers

The healthcare providers were selected from the same facilities where the HIV-positive respondents were recruited. The survey for providers contained four unique modules and was designed to collect information in each facility from the facility administrator and from one healthcare provider from units providing ART, family planning and maternal and child health services, if the facility had such a unit. When administering the modules, where there was more than one eligible healthcare provider in the relevant units, the most senior one was interviewed. In some cases, the senior health-care provider delegated another eligible staff member to respond to the questionnaire. Where a facility administrator was also responsible for any of the three relevant units, s/he was interviewed both as the administrator and the healthcare provider in charge of that unit. Similarly, when a healthcare provider was responsible for more than one unit, s/he was interviewed about each of the units s/he ran. If the same respondent answered more than one module, the attitudinal questions examined in this analysis were only administered once. All of the healthcare providers spoke English. Some facilities contributed one respondent. At most, one facility could contribute four respondents. The final sample was 179 healthcare providers (individuals, not modules) from 93 facilities in Nigeria and 43 facilities in Zambia.

Questionnaire content and analysis

The questionnaire administered to HIV-positive respondents included close-ended questions on the respondents' individual and household socio-demographic characteristics, HIV-related questions including the respondent's HIV treatment, and attitudes about childbearing and abortion. The questionnaire administered to healthcare providers included questions on the facility's characteristics, the provider's qualifications, the types of services offered, the care and treatment protocol at that facility and attitudinal questions about reproductive decision-making among people who are HIV-positive.

The questionnaires were developed in English and translated into four local languages in Nigeria (Yoruba, Igbo, Hausa and Tiv) and three local languages in Zambia (Tonga, Nyanja and Bemba). Translated questionnaires were pilot tested in each country and corrections were made to the translations where necessary to ensure the content remained consistent across the various languages. Relevant for this paper were the questions which asked about attitudes towards childbearing and abortion by HIV-positive women included in the questionnaire administered to PLWHA and each of the four healthcare provider modules. The data were double-entered into CSPro and then exported into SPSS for cleaning and analysis.

We constructed the childbearing and abortion attitude indices using factor analysis to identify the interrelationship between 11 attitudinal variables:

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1. If a woman has the AIDS virus and has no children, it is okay for her to have a child.
2. If a woman has the AIDS virus and already has children, it is not ok for her to have another child.
3. If a woman has the AIDS virus and wants to have a child, she should be able to have the child.
4. If a woman has the AIDS virus and gives birth to a child who has the virus, it is okay for her to have another child.
5. If a woman has the AIDS virus and has children, she cannot adequately care for existing and future children.
6. If I knew that a woman with the AIDS virus became pregnant, I would think poorly of her.
7. If a woman has the AIDS virus and she becomes pregnant, it is better for her to have the child than for her to end the pregnancy.
8. If a woman has the AIDS virus and she becomes pregnant, she should be able to end the pregnancy if she wants to.
9. If a woman has the AIDS virus and gives birth to a child with the virus, it is okay for her to end her next pregnancy.
10. If a mother with the AIDS virus gets pregnant again, she is making a responsible choice for her children when she ends the new pregnancy.
11. If I knew a woman had ended her pregnancy, I would think less poorly of her if she had the AIDS virus than if she did not have the AIDS virus.

We used the terminology 'the AIDS virus' because many people do not know that HIV can be chronic. In both countries, the messaging is about AIDS, not HIV, i.e. 'you will get infected with something that causes AIDS'. If we had only asked about HIV, there was the potential that the HIV/AIDS connection would have been lost on our respondents. Furthermore, this is the same terminology that the demographic and health surveys use (ICF International 2011).

The analysis identified two constructs: one for support for childbearing and the other for support for abortion by HIV-positive women. Three variables with factor loadings ranging from 0.60 to 0.70 measured childbearing attitudes towards HIV-positive women (numbers 1, 3 and 4) and variables with factor loadings ranging from 0.70 to 0.74 measured abortion attitudes (numbers 8, 9 and 10). The six variables were recoded with values 0 through 2, with 0 meaning low support and 2 meaning high support. The three variables that measured each construct were then summed resulting in a scale of 0 through 6. The final indices were created by recoding these sums into categories of support — no/low (0–1), moderate (2–4), high support (5–6). The summary measure depicts the strength of the attitudes towards the behaviour (childbearing or abortion) by HIV-positive women. An index was only constructed for a respondent if they answered all three questions within each construct (HIV-positive women: 327 = complete data on both indices, 4 = data on childbearing attitudes only, 22 = data on abortion attitudes only; HIV-positive men: 290 = complete data on both indices, 5 = data on childbearing attitudes only, 4 = data on abortion attitudes only; providers: 176 = complete data on both indices, 2 = data on childbearing attitudes only, 1 = data on abortion attitudes only).

While it is possible that some healthcare providers may have been HIV-positive themselves, for this analysis, we refer to our three groups of respondents as HIV-positive women, HIV-positive men, and healthcare providers. We compared the responses of the HIV-positive patients (women and men separately) and the healthcare providers on both the individual indicators of attitudes to childbearing and abortion and on the summary measures to examine whether the HIV-positive patients and their providers differed in their attitudes towards these two reproductive behaviours by HIV-positive women. To assess the level and correlates of the attitudes of individuals living with HIV and healthcare providers to HIV-positive women having children or an abortion, we also undertook univariate analysis to see how demographic characteristics were related to attitudes held by the respondents. We did not conduct multivariate analysis because we were not predicting behaviour, but rather examining correlates of attitudes. Furthermore, multivariate analyses would not have yielded stable results with the small sample sizes in this study.

Results

Most HIV-positive women were between 25 and 34 years of age (52%), urban residents (76%), married (54%), had at least secondary school education (65%) and were Protestant or Evangelical Christians (59%). About one in six was nulliparous and one-fifth had given birth to five or more children. About 22% had no living children, almost 40% had 1–2 living children, and 12% had 5 or more living children. Almost one-third had been diagnosed with HIV in the last year while close to 30% had been diagnosed 1–2 years before the survey (Table 1). The HIV-positive men in the sample were different from the women on several of these characteristics. They were older (half were aged 35–49), more likely than women to be married (66%), better educated (73% had a secondary education or more) and more likely to report 5 or more live births (34% compared to 20% for women). They were also more likely to have 5 or more living children (25%) than women in our sample (12%). The reported length of time since diagnosis was slightly longer for men than women (34% of men and 29% of women had been diagnosed 3 or more years before the survey). The providers were predominantly female (61%) and most of them were 40–49 years of age (43%). They were also predominantly urban residents and most were nurses and doctors with over 15 years of experience (Table 2).

Comparing the attitudes of HIV-positive women and men and healthcare providers towards HIV-positive women having a/another child showed a high level of support for childbearing by HIV-positive women. However, this support is nuanced for each group. Analysis of each of the three indicators of this construct showed that HIV-positive women, men and providers were most supportive of nulliparous HIV-positive women having a child. However, even in this scenario about 1 in 10 women and providers and about 2 in 10 men expressed little or no support (Table 3). Support dropped by 10 percentage points among

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HIV-positive individuals, but not among providers, in a scenario where parity was not considered. There was least support for an HIV-positive woman to have another child if she already had an HIV-positive child. In such a scenario, just over 40% of HIV-positive individuals and just about 70% of providers remained supportive. Analysis of the index of support for childbearing derived from the three indicators showed that HIV-positive women were less likely than HIV-positive men and providers to support HIV-positive women bearing children: 47% of women, 62% of men and 70% of providers expressed high support.

Table 1: Demographic characteristics of HIV-positive respondents, HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

Demographic characteristics	Women		Men	
	Freq	%	Freq	%
Country				
Nigeria	202	57.2	154	51.5
Zambia	151	42.8	145	48.5
Age				
<25	50	14.2	13	4.3
25–34	185	52.4	101	33.8
35–49	118	33.4	148	49.5
50–59	--	--	37	12.4
Residence				
Rural	84	23.8	99	33.1
Urban	269	76.2	200	66.9
Marital status				
Married	191	54.1	197	65.9
Formerly in union	103	29.2	34	11.4
Never married	59	16.7	68	22.7
Highest level of education attended				
No education	29	8.2	15	5.0
Primary	93	26.3	67	22.4
Secondary & higher	230	65.2	217	72.6
Unknown	1	0.3	0	.0
Religion				
Catholic	105	29.7	93	31.1
Protestant or Evangelical	209	59.2	174	58.2
Muslim	32	9.1	25	8.4
Other*	7	2.0	7	2.3
Number of live births				
0	62	17.6	50	16.7
1–2	121	34.3	78	26.1
3–4	100	28.3	69	23.1
5+	70	19.8	102	34.1
Number of living children				
0	79	22.4	69	23.0
1–2	139	39.4	92	30.8
3–4	93	26.3	63	21.1
5+	42	11.9	75	25.1
Length of time since diagnosis				
Within past 12 months	115	32.6	99	33.1
1–2 years	102	28.9	82	27.4
3–4 years	54	15.3	54	18.1
4+ years	49	13.9	48	16.1
Undetermined	33	9.3	16	5.4
TOTAL	353	100.0	299	100.0

Imputations were necessary for men on age, marital status and number of living children.
*Includes traditional religion, no religion, and 'other'.

Analysis of the attitudes of HIV-positive women, men and healthcare providers towards abortion shows that support is generally low (Table 4). Healthcare providers' support for HIV-positive women having an abortion does not differ noticeably from that of HIV-positive individuals. The only exception is in the case when the pregnant HIV-positive woman has an HIV-positive child: 38% of providers compared to 24–28% of HIV-positive individuals expressed support for abortion under that condition. Analysis of the index of support for abortion shows that slightly over half of each group expressed no/low support for abortion by HIV-positive women: 47–50% expressed at least moderate support. However, HIV-positive women were somewhat more likely to express high support than the other two groups: 13% as compared to 8–9% of HIV-positive men and providers.

To explore whether a respondents' ART use possibly affected their attitudes towards childbearing and abortion,

Table 2: Characteristics of providers (percentages), HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

Characteristics	%
Country	
Nigeria	60.9
Zambia	39.1
Sex	
Male	39.1
Female	60.9
Age	
<30	8.0
30–39	28.4
40–49	42.6
50+	21.0
Residence	
Urban	72.6
Rural	27.4
Primary profession	
Doctor/clinical officer	26.8
Nurse/midwife	59.2
Auxiliary health care staff*	6.7
Other health worker**	7.3
Responsibilities	
Director	33.5
Family Planning	16.8
Maternal & Child Health	1.1
Antiretrovial therapy (ART)	36.3
Multiple responsibilities	12.3
Years of experience in field	
Mean years of experience	15.9
< 5 years	15.6
5–9	16.2
10–14	15.6
15+	52.5
Years of experience at facility	
Mean years of experience	5.9
<5 years	52.0
5–9	29.1
10+	19.0
TOTAL (%)	100.0
N	179

*Counsellors/community health workers/educator.
**Pharmacist: Nigeria (*n* = 4), Zambia (*n* = 1); Administrator: Nigeria (*n* = 3), Zambia (*n* = 3); Unspecified: Nigeria (*n* = 1), Zambia (*n* = 1).

Table 3: Attitudes among HIV-positive women, men and providers towards childbearing by HIV-positive women (percentages), HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

Indices	Women (*n* = 333)	Men (*n* = 296)	Providers (*n* = 179)
Per cent who agreed with the following statements expressing support for childbearing among HIV-positive women*			
If a woman has the AIDS virus and has no children, it is okay for her to have a child	87.7	81.7	89.9
If a woman has the AIDS virus and wants to have a child, she should be able to have the child if she wants to	77.7	72.0	88.3
If a woman has the AIDS virus and gives birth to a child who has the virus, it is okay for her to have another child	43.4	42.2	68.5
Support for continued childbearing among HIV-positive women on a scale of 0-6 **	Women (*n* = 331)	Men (*n* = 295)	Providers (*n* = 178)
No–low support	6.9	3.4	1.7
Moderate support	45.9	34.2	28.1
High support	47.1	62.4	70.2

*Support measured as answering 'Agree' to the above statements.
**The index was only created for those respondents that answered all of the component variables above. As a result, *N* is smaller here than on the individual measures.

Table 4: Attitudes of HIV-positive women, men and providers towards abortion by HIV-positive women (percentages), HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

Indices	Women (*n* = 350)	Men (*n* = 297)	Providers (*n* = 178)
Per cent who agreed with the following statements expressing support for abortion among HIV-positive women*			
If a woman has the AIDS virus [is HIV-positive] and she becomes pregnant, she should be able to end the pregnancy if she wants to	28.0	23.9	37.9
If a woman has the AIDS virus [is HIV-positive] and gives birth to a child with the virus, it is okay for her to end her next pregnancy	23.4	22.6	16.3
If a mother with the AIDS virus [is HIV-positive] gets pregnant again, she is making a responsible choice for her children when she ends the new pregnancy	22.9	24.3	23.6
Support for abortion among HIV-positive women on a scale of 0–6**	Women (*n* = 349)	Men (*n* = 294)	Providers (*n* = 177)
No–low support	52.1	53.4	50.3
Moderate support	35.2	38.8	41.2
High support	12.6	7.8	8.5

*Support measured as answering 'Agree' to the above statements
**The index was only created for those respondents who answered all of the component variables above. As a result, *N* is smaller here than on the individual measures.

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we examined stated attitudes according to whether or not the respondent was on ART. As is typically the case in resource poor countries, being on ART in this sample indicated further progression of the disease. Whether or not HIV-positive individuals were on ART did not make a noticeable difference on their attitudes towards HIV-positive women bearing children or having an abortion (data not shown).

We examined associations between respondents' characteristics and the indices of their attitudes towards childbearing and abortion by HIV-positive women. For HIV-positive women, characteristics which were significantly associated with support for childbearing were country, residence (urban/rural), marital status (dichotomised as married/not married), and length of time since diagnosis. Nigerian women were much more likely to express high support (66%) for HIV-positive women having a/another child as compared to Zambian women (24%). Fifty-four per cent of urban women expressed high support compared to 33% of rural women. Married women were more likely to demonstrate high support compared to unmarried women. Fifty-four per cent of those diagnosed 1–2 years ago were highly supportive while only 34% of women who had been diagnosed 4+ years ago were (Table 5). Among, women with HIV, no demographic factors were significantly associated with attitudes towards HIV-positive women having an abortion.

For HIV-positive men, country and residence demonstrated a significant relationship with support for HIV-positive women bearing children. Nigerian men and men who lived in urban areas were more likely to support HIV-positive women having a/another child than Zambian men and men in rural areas (Table 6). Seventy-four per cent of Nigerian men as compared to 51% of Zambian

Table 5: Support for HIV-positive women childbearing and having an abortion among HIV-positive women according to respondents' characteristics, HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

	HIV-positive women (*n* = 353)											
	Support for childbearing						Support for abortion					
	No/Low support	Medium support	High support	*N*	χ^2	*p*	No/Low support	Medium support	High support	*N*	χ^2	*p*
Total	6.9	45.9	47.1	331			52.1	35.2	12.6	349		
Country												
Nigeria	1.7	32.0	66.3	181	63.98	0.000***	47.2	37.2	15.6	199	5.879	0.053
Zambia	13.3	62.7	24.0	150			58.7	32.7	8.7	150		
Age												
Mean	34.7	32.2	32.1				32.3	31.8	31.9			
<25	2.2	55.6	42.2	45	5.23	0.26	42.9	38.8	18.4	49	3.35	0.50
25–34	6.5	42.4	51.2	170			53.8	35.7	10.4	182		
35+	9.5	47.4	43.1	116			53.4	33.1	13.6	118		
Residence												
Rural	9.9	56.8	33.3	81	8.41	0.02*	59.0	28.9	12.0	83	2.26	0.32
Urban	6.0	42.4	51.6	250			50.0	37.2	12.8	266		
Marital status												
Married	3.9	43.6	52.5	179	8.04	0.02*	52.9	36.0	11.1	189	0.84	0.66
Not married	10.5	48.7	40.8	152			51.3	34.4	14.4	160		
Highest level of education attended												
No education/unknown	3.8	30.8	65.4	26	8.06	0.23	53.6	39.3	7.1	29	3.78	0.71
Primary	8.9	53.3	37.8	90			47.3	40.9	11.8	93		
Secondary & higher	6.5	44.9	48.6	214			53.7	32.6	13.7	227		
Religion												
Catholic	3.0	47.5	49.5	99	8.01	0.24	55.8	30.8	13.5	104	6.28	0.39
Protestant/Evangelical	9.5	46.8	43.8	201			49.0	37.4	13.6	206		
Muslim	4.0	32.0	64.0	25			53.1	40.6	6.3	32		
Other†	0.0	50.0	50.0	6			85.7	14.3	0.0	7		
				331								
Number of live births												
Mean	2.9	3.0	2.9				2.9	2.7	3.2			
0	3.6	38.2	58.2	55	8.34	0.21	43.3	38.3	18.3	60	5.00	0.54
1–2	7.0	51.8	41.2	114			56.3	35.3	8.4	119		
3–4	10.9	45.7	43.5	92			53.0	33.0	14.0	100		
5+	4.3	42.9	52.9	70			51.4	35.7	12.9	70		
Length of time since diagnosis												
Within past 12 months	7.1	51.3	41.6	113	16.9	0.03*	56.8	28.8	14.4	111	9.502	0.30
1–2 years	5.3	41.1	53.7	95			41.2	43.3	15.5	97		
3–4 years	7.4	48.1	44.4	54			57.4	35.2	7.4	54		
4+ years	13.6	52.3	34.1	44			60.0	31.1	8.9	45		
Undetermined	0.0	24.0	76.0	25			50.0	38.1	11.9	42		

†Includes traditional religion, no religion, and 'other'
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

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men were highly supportive of childbearing by HIV-positive women. Urban men (67%) were highly supportive of HIV-positive women's childbearing as compared to 54% of rural men. Nigerian men were also significantly more likely to express high support for abortion (11%) as compared to 4% among Zambian men. Surprisingly, rural residents were significantly more likely to express high support for abortion (16%) versus 4% of urban residents. And Muslims were more likely to express high support for abortion than Protestants and Evangelicals. Neither number of children ever born nor education had a significant association with women's or men's attitudes towards childbearing or abortion by HIV-positive women.

Among providers, country and residence were significantly related to support for childbearing. Eighty per cent of Nigerian providers were highly supportive of childbearing by HIV-positive women compared to 56% of Zambian providers. Similarly, 72% of urban residents compared to 65% of rural residents expressed high support for childbearing by HIV-positive women. Providers' age and primary profession demonstrated significant associations with support for HIV-positive women having an abortion. Providers aged 25–34 years were much more likely to express high support for abortion as compared to providers 35+ years of age. Counsellors/community health workers and educators were also significantly more likely to express high support for abortion by HIV-positive women than other types of providers (Table 7).

Lastly, we analysed the childbearing-related counselling the HIV-positive respondents reportedly had with healthcare

Table 6: Support for HIV-positive bearing children and having an abortion among HIV-positive men according to respondents' characteristics, HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

	HIV-positive men (n = 299)											
	Support for childbearing						Support for abortion					
	No/low support	Medium support	High support	N	χ^2	p	No/low support	Medium support	High support	N	χ^2	p
Total	3.4	34.2	62.4	295			53.4	38.8	7.8	294		
Country												
Nigeria	1.3	25.2	73.5	151	17.5	0.000***	47.1	41.8	11.1	153	7.6	0.023*
Zambia	5.6	43.8	50.7	144			60.3	35.5	4.3	141		
Age												
Mean	40.8	37.4	38.1				38.2	37.5	39.2			
<25	0.0	53.8	46.2	13	6.01	0.42	53.8	46.2	0.0	13	4.06	0.67
25–34	3.0	33.0	64.0	100			51.5	42.3	6.2	97		
35–49	2.8	32.4	64.8	145			55.8	36.1	8.2	147		
50–59	8.1	37.8	54.1	37			48.6	37.8	13.5	37		
Residence												
Rural	7.2	39.2	53.6	198	9.05	0.011*	45.4	39.2	15.5	197	12.56	0.002**
Urban	1.5	31.8	66.7	97			57.4	38.6	4.1	97		
Marital status												
Married	3.6	35.4	61.0	119	0.46	0.80	56.7	36.1	7.2	100	2.50	0.29
Not married	3.0	32.0	65.0	65			47.0	44.0	9.0	194		
Highest level of education attended												
No education/unknown	0.0	53.3	46.7	15	8.66	0.70	46.7	46.7	6.7	15	3.37	0.50
Primary	7.8	37.5	54.7	64			55.4	32.3	12.3	65		
Secondary & higher	2.3	31.9	65.7	216			53.3	40.2	6.5	214		
Religion												
Catholic	4.3	31.2	64.5	93	5.24	0.51	61.5	28.6	9.9	91	16.23	0.013*
Protestant/Evangelical	3.5	38.0	58.5	171			53.8	40.4	5.8	171		
Muslim	0.0	20.8	79.2	24			36.0	52.0	12.0	25		
Others†	0.0	28.6	71.4	7			0.0	85.7	14.3	7		
Number of live births												
Mean	4.8	4.1	3.7				3.9	3.7	4.1			
0	2.0	30.0	68.0	50	3.101	0.80	49.0	36.7	14.3	49	5.94	0.43
1–2	1.3	35.5	63.2	76			53.9	42.1	3.9	76		
3–4	4.5	32.8	62.7	67			51.5	42.6	5.9	68		
5+	4.9	36.3	58.8	102			56.4	34.7	8.9	101		
Length of time since diagnosis												
Within past 12 months	5.1	33.7	61.2	98	5.0	7.6	55.6	34.3	10.1	99	6.3	0.6
1–2 years	1.2	40.2	58.5	82			51.2	42.3	6.4	78		
3–4 years	3.8	28.8	67.3	52			53.7	38.9	7.4	47		
4+ years	4.2	29.2	66.7	48			59.6	34.0	6.4	47		
Undetermined	0.0	40.0	60.0	15			31.3	62.5	6.3	16		

†Includes traditional religion, no religion, and 'other'
*p < 0.05, **p < 0.01, ***p < 0.001

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providers. In response to the question, 'After the results of your [HIV] test, were you advised not to have (more) children?' 17% of women and 22% of men said 'yes' (Table 8). With respect to other types of counselling, both men and women living with HIV reported receiving counselling on 'medicine to prevent transmission of the AIDS virus to the baby' (approximately 90% of women and 83% of men); 'exclusive breastfeeding' (90% of women and 72% of men) and 'how to prepare formula correctly for feeding a baby' (84% of women and 36% of men). Although the sample sizes were small on these final three variables (because these questions were only asked of individuals who had received pregnancy-related care since finding out they had HIV), the findings are indicative of the experiences of HIV-positive individuals in these respects.

Discussion

The findings from this study suggest that HIV-positive women, men and healthcare providers in Nigeria and Zambia demonstrate tempered support for (continued) childbearing by HIV-positive women while the vast majority remain unsupportive of HIV-positive women having an abortion. These HIV-positive respondents have more permissive attitudes towards childbearing among PLWHA than does a community based sample from the same countries (Kavanaugh et al. 2013) although Nigerian community based respondents in the Kavanaugh et al. (2013) analysis were much more supportive of HIV-positive women having abortions than respondents in this sample. The attitudes of the Zambian community based

Table 7: Support for HIV-positive women bearing children and having an abortion among health providers according to respondents' characteristics, HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

	Providers (n = 179)											
	Support for childbearing						Support for abortion					
	No/low support	Medium support	High support	N	χ^2	p	No/low support	Medium support	High support	N	χ^2	p
Total	1.7	28.1	70.2	178			50.3	41.2	8.5	177		
Country												
Nigeria	0.0	20.4	79.6	108	13.91	0.001***	50.5	43.9	5.6	107	3.098	0.21
Zambia	4.3	40.0	55.7	70			50.0	37.1	12.9	70		
Sex												
Female	0.9	27.5	71.6	109	1.09	0.58	50.9	41.7	7.4	108	1.087	0.58
Male	2.9	29.0	68.1	69			49.3	40.6	10.1	69		
Age												
Mean	41.0	41.0	42.5				42.5	42.3	38.5			
<25	0.0	50.0	50.0	2	1.14	0.89	0.0	100.0	0.0	2	12.1	0.017*
25–34	3.1	31.3	65.6	32			37.5	40.6	21.9	32		
35+	1.4	27.7	70.9	141			53.6	40.7	5.7	140		
Residence												
Urban	0.0	27.9	72.1	129	8.14	0.02	45.3	44.5	10.2	128	5.027	0.08
Rural	6.1	28.6	65.3	49			63.3	32.7	4.1	49		
Primary profession												
Doctor/clinical officer	0.0	19.1	80.9	47	8.23	0.22	51.1	40.4	8.5	47	13.76	0.032*
Nurse/midwife	1.9	33.0	65.1	106			50.5	44.8	4.8	105		
Counsellors/CHW/educator	0.0	16.7	83.3	12			33.3	33.3	33.3	12		
Other health worker	7.7	30.8	61.5	13			61.5	23.1	15.4	13		
Responsibilities												
Director	3.3	23.3	73.3	60	7.76	0.46	46.7	45.0	8.3	60	10.42	0.24
Family Planning	0.0	23.3	76.7	30			44.8	41.4	13.8	29		
Maternal & Child Health	0.0	0.0	100	2			50.0	0.0	50.0	2		
ART	0.0	31.3	68.8	64			50.8	44.6	4.6	65		
Multiple responsibilities	4.5	40.9	54.5	22			66.7	23.8	9.5	21		
Years of experience in field												
Mean	14.3	14.3	16.5				16.1	16.3	13.0			
<5 years	3.6	25.0	71.4	28	3.93	0.42	32.1	46.4	21.4	28	9.049	0.06
5–9	0.0	41.4	58.6	29			51.7	41.4	6.9	29		
10+	1.7	25.6	72.7	121			54.2	40.0	5.8	120		
Years of experience at facility												
Mean	6.3	7.0	5.4				5.6	6.2	7.0			
<5 years	1.1	23.7	75.3	93	3.46	0.48	50.5	39.6	9.9	91	0.91	0.92
5–9	2.0	29.4	68.6	51			51.9	42.3	5.8	52		
10+	2.9	38.2	58.8	34			47.1	44.1	8.8	34		

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

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Table 8: Counselling and HIV support services as reported by HIV-positive women and men (per cent), HIV and Achieving Fertility Desires, Nigeria and Zambia, 2009–2010

	Women	Men
After the results of your test, were you advised not to have (more) children?	n = 332	n = 288
Yes	17.2	21.5
No	82.8	78.5
Did you receive counselling about taking medicine to prevent transmission of the AIDS virus to the baby?*	n = 95	n = 57
Yes	89.5	82.5
No	10.5	17.5
Did you receive counselling about exclusive breastfeeding when a baby is very young as a way to reduce transmission of the AIDS virus to the baby?*	n = 90	n = 57
Yes	90.0	71.9
No	10.0	28.1
Did you receive counselling about how to prepare formula correctly for feeding a baby?*	n = 92	n = 55
Yes	83.7	36.4
No	16.3	63.6

*Only asked of individuals who have received pregnancy-related care since finding out they were HIV-positive

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sample towards abortion were very similar to those of the HIV-positive respondents (Kavanaugh et al. 2013).

Support for PLWHA bearing children was lower among HIV-positive women than among HIV-positive men, both of whose support was lower than support from providers. This difference was most stark on the question about whether it is okay for a woman who has given birth to a child with the virus to have another child. Healthcare providers are likely to have better knowledge than others that a subsequent child can avoid prenatal infection with HIV even if his/her sibling was infected. Alternatively, providers' greater support for continued childbearing may be the result of their overall higher education level and greater awareness, perhaps, of the reproductive rights of HIV-positive individuals to make their own childbearing decisions (Harries et al. 2007). HIV-positive women may have expressed less support for childbearing than HIV-positive men because they could be thinking more about the burden of raising an HIV-positive child already in the family, making it difficult to support the idea of adding more responsibilities to that mother — their attitude may be born out of compassion for the woman. Another hypothesis is that women may be more likely to be thinking about the perceived adverse effects of the pregnancy on HIV-positive women's health that either they themselves feel they have experienced or possibly have been warned about. The fact that time since diagnosis was negatively correlated with high support for childbearing possibly supports this explanation. Additionally, women may have been more likely to witness first-hand negative consequences of childbearing by HIV-positive women, including perceived or experienced stigma given that some of them have had children since their diagnosis. Although healthcare providers tend to offer more support for HIV-positive women having children than the HIV-positive respondents, the fact that providers' level of support is not remarkably different from that expressed by HIV-positive individuals may be indicative of the strong influence of societal norms around this issue. The influence of societal norms was apparent in that country (Nigeria/Zambia) was significantly correlated with attitudinal differences in four of the six indices. The extent to which social norms may shape healthcare providers' attitudes and practice requires further exploration.

The overall low levels of support for HIV-positive women having an abortion indicate that living with HIV does not seem to qualify as a medical condition which increases support for abortion in these two contexts. This seems evident from other studies as well: abortion was more stigmatised than HIV, even in South Africa (Orner et al. 2012). Healthcare providers expressed the most support for the statement that an HIV-positive woman 'should be able to end the pregnancy if she wants to' and the least support for abortion in situations where a woman already has had an HIV-positive child. The reason healthcare providers may be least supportive of termination if a woman has already given birth to an HIV-positive child may be the same reason that they are more supportive of childbearing than HIV-positive respondents under the same scenario: They have better information than HIV-positive respondents on the availability of treatment. However, the finding also implies that providers are less supportive of HIV-positive women's decision to choose an abortion as a means of resolving an unintended pregnancy than HIV-positive respondents. In general, it is not surprising that support for HIV-positive woman having an abortion is low among all three groups given the strong legal and/or social sanctions against the procedure in both countries (Bankole et al. 2006, Likwa et al. 2009). We do not know if healthcare provider opposition is ideological or due to (mis)information about the legality of abortion or the perceived danger of abortion. Another reason for providers' stated attitudes is that they may fear that expressing support could be construed as promoting abortion under (perceived) restrictive abortion laws. Future work should seek to clarify what is informing healthcare providers' attitudes towards abortion among their HIV-positive patients. There is also a need to explore how these attitudes influence their treatment of HIV-positive women who experience an unintended pregnancy.

Nigerian respondents in this sample were clearly more supportive of HIV-positive women continuing childbearing, compared to Zambian respondents. This is interesting when one compares the HIV rates and ART availability of the two countries. Zambia's HIV rate is more than three times that of Nigeria's and ART was already almost universally available in Zambia at the time of data collection, while ART accessibility is only increasing now in Nigeria. Perhaps this could be attributed to Nigeria's higher fertility preferences.

Other characteristics that predicted supportive attitudes on the dimensions measured were rural/urban location and type of healthcare provider. In general, urban HIV-positive residents were more supportive of childbearing as well as abortion by HIV-positive women. What is surprising is that rural men were more supportive of abortion. One possible reason for this could be that men in rural areas may have been more likely to have seen HIV-positive women suffer with unintended pregnancies. A similar logic may explain why counsellors, community health workers and educators expressed more support for abortion by HIV-positive women: These health providers may have been trained to be empathic towards their patients and to care and counsel them through unintended pregnancies. Furthermore, women might be more likely to confide in lower level staff about difficulties with an unintended pregnancy because they may have more time with them and/or feel more comfortable with them (Simmonds and Likis 2011). An alternative explanation is that lower level providers may be less likely to know the law on abortion, may be less sensitive to the consequences of being thought to be 'promoting' abortion or may be more sympathetic to the desires of HIV-positive women, including a woman's desire to terminate an unintended pregnancy.

In both countries, women related receiving more counselling than men on ways to reduce MTCT. It is not surprising that in a patriarchal society, men are not expected to be as involved in child rearing, even though they are vital gatekeepers to health care as well as potential allies in the home who could help support women in reducing the risk of HIV transmission to a baby. However, the sample size on these measures was very low.

Findings from this study point to some needed public health interventions. PLWHA, like all individuals, should be given the support and counselling they need to make

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the best decisions they can to achieve their fertility desires. Childbearing counselling for the HIV-positive should include general information about the risks and benefits of contraceptive use while on ART, pregnancy risks for HIV-positive women, and education about available safe termination options (Desclaux and Alfieri 2009). Addressing stigma towards childbearing decisions by HIV-positive women is an area that deserves further attention if we are to achieve an AIDS-free generation.

Social attitudes are challenging to address as they are formed through diffuse networks of individual experiences, observations, religious influences and other social influences. Changes to social attitudes will likely take longer than changes within the medical community which should be informed by scientific evidence. The less supportive attitudes towards women to be able to exercise their full reproductive rights expressed by healthcare providers in this sample should be addressed. The danger is that provider bias might influence the information and counselling imparted to their HIV-positive patients. Addressing less supportive attitudes could be done in a targeted manner through reaching out to healthcare providers who exhibited the least supportive attitudes as identified by our logistic regression.

Limitations of this research include that the data presented here come only from subsamples within two countries. Therefore, the results may be influenced by where the data were collected and may not represent the complete situation in either country. The fact that the sample sizes were relatively small made it difficult to do subgroup analyses. For example, there were not enough pregnant respondents to conduct a separate analysis of them (n = 44). The measures captured on the survey only measured attitudes towards HIV-positive women, simplifying the complex couple dynamic that is at play in many childbearing decisions; the data do not allow us to examine attitudes towards HIV-positive men's reproductive behaviour. Another limitation is that we do not know if the attitudes captured in this paper were attitudes that the PLWHA held for themselves, attitudes that they projected on to other HIV-positive individuals, or perhaps both. Additionally, being a quantitative study, we were not in a position to investigate the 'whys' and reasons behind these answers. Lastly, these attitudes are not conditionalised on whether or not the woman had disclosed her HIV status to her partner so we were unable to capture how that may have changed the respondents' opinions.

Conclusion

As HIV services and reproductive health services (both family planning and maternal and child care) are critical for HIV-positive individuals to be able to reproduce under the safest circumstances possible, continued efforts to further integrate services will likely help meet the needs of this at-risk population. Yet integrating HIV and reproductive health services remains challenging. Many service integration efforts have failed to assess the challenges women confront when they are attempting to make autonomous reproductive decisions (Hirsch, 2007). Increased access to ART and knowledge about its ability to help women reproduce without passing the virus on to their children may increase support for childbearing by HIV-positive women while providers, as gatekeepers, must be supportive of women, but perhaps especially HIV-positive women, pursuing all legal reproductive health services to help women meet their family planning goals.

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Notes

[1] Private facilities, those run by missions, non-governmental organisations or other private entities play a relatively small role in providing ART in Nigeria and Zambia compared to the public sector.

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