Unmet need for effective family planning in HIV-infected individuals: results from a survey in rural Uganda

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Abstract

Background and methodology This study determined the unmet need for family planning among HIV-positive and HIV-negative individuals living in western Uganda. Semi-structured interviews were conducted with individuals who were randomly selected from HIV testing lists. Of those individuals, further analysis was conducted on a subset of 206 participants who did not desire more children and were not using a highly effective method of contraception. Descriptive, bivariate and multivariate methods were performed to assess the relationship between HIV status and unmet need for effective family planning.

Results The unmet need for effective family planning was much greater in HIV-infected individuals compared to HIV-negative individuals [75.0% vs 33.8%, adjusted odds ratio (OR) 3.97, 95% confidence interval (CI) 1.97–8.03, $p<0.001$]. Females were more likely to report an unmet need compared to males (69.0% vs 49.5%; adjusted OR 1.94, 95% CI 0.94–4.00, $p=0.071$). Other predictors of unmet need for effective family planning were older age (adjusted OR 1.08 for each year of age, 95% CI 1.00–1.16, $p=0.018$) and single/cohabiting vs being married (OR 2.36, 95% CI 1.16–4.80, $p=0.036$). Being on antiretroviral therapy was not a predictor of having a lower unmet need for effective family planning methods.

Discussion and conclusions There is high unmet need for effective family planning in HIV-positive study participants in a region of western Uganda, which should be of concern. This suggests that HIV-infected individuals do not want to use family planning or encounter barriers to accessing and utilising family planning services. Family planning programmes and HIV care and prevention services have to work together more effectively to create services conducive to clients from both programmes.

Key message points

► In western Uganda the unmet need for effective family planning methods is significantly higher in HIV-infected persons compared to HIV-negative ones.

► Men reported to have a lower unmet need for effective family planning. HIV-positive men had a higher unmet need for effective family planning methods than HIV-negative men.

► Being on antiretroviral therapy for HIV infection was not a predictor of having a lower unmet need for effective family planning.

Introduction

The unmet need for family planning is defined as the number of women of reproductive age (15–49 years) who report not wanting any more children or wanting to delay the birth of their next child but who are not using contraceptives.[1] This is typically expressed as a proportion of all women of reproductive age who are married or in a union. One of the countries with a high unmet need for family planning is Uganda. The unmet need in Uganda (all methods) is reported to be 35%, which is the second highest after Haiti (40%).[2]

Recent research from Uganda and other sub-Saharan African countries has shown that the number of desired children in the future is lower for HIV-infected women than for HIV-negative women.[3–6] This indicates that the need for family planning in HIV-infected individuals may be greater than in those with an HIV-negative status. Few studies have examined this issue, and even fewer have compared HIV-infected and HIV-negative individuals, thus information on how family planning services are accessed and used by HIV-positive individuals is not readily available. Since Uganda has one of the highest fertility rates in the world, it is crucially important to assess the unmet need for family planning in HIV-infected women in Uganda.

The purpose of our study was (1) to determine the unmet need for effective family planning in HIV-positive individuals and compare it with HIV-negative individuals in a representative sample and (2) to describe gender differences in the unmet need for effective family planning based on the responses by male and female study participants. For the purpose of the study we defined the unmet need in family planning as the unmet need for modern and highly effective contraceptive methods. Highly effective contraceptives were defined as methods that have an effectiveness of greater than 95% for preventing pregnancy (e.g. oral contraceptive pills, hormonal injections, tubal ligation, intrauterine devices) and excluded less effective methods of birth control (i.e. male condom, natural family planning, withdrawal). The study was conducted from September to December 2006.

Methodology

Study design
Here we report the findings from a quantitative survey that was administered to participants who, in an earlier survey,[7] stated that they did not want more children, but were not using a highly effective method of contraception. A structured questionnaire was developed and administered by interviewing the study participants.

Study area
This study was conducted in the Kabarole and Kamwenge districts of western Uganda. Participants were recruited from government-run health centres located in the Rwimi and Kibiito subcounties in the Kabarole District and the Bigodi subcounty in the Kamwenge District. These health centres offer clinical and public health services including family planning, as well as voluntary testing and counselling (VCT) for HIV-infected individuals, and counselling to prevent mother-to-child transmission of HIV/AIDS.

Recruitment of participants
The study inclusion criteria were: age 18–44 years, married or cohabiting with a partner, having an HIV test result and a known village address. Individuals aged between 15 and 18 years were not included, as we would have had to obtain parental consent in respect of these participants since the age of consent in Uganda is 18 years. This was not feasible in the context of the study location. Individuals who were bedridden were excluded from the study. HIV-positive and HIV-negative individuals were selected from the VCT registries from two health centres using systematic sampling whereby all consecutive individuals who had been HIV tested were selected. In order to increase the sample size, all HIV-positive individuals in an HIV patient support group were also included in the study. Also, both HIV-positive individuals, those on antiretroviral therapy (ART) or those not on ART, were included in the study.

Each participant was informed about the study with an information letter that was read to them and handed out. All participants signed a consent form.

Data collection and analysis
A questionnaire to collect sociodemographic characteristics and information on reproductive decision-making, HIV testing, HIV status and fertility desires, contraceptive use and methods of use, and attitude towards childbearing of HIV-infected women/couples was developed in consultation with local experts. Most of the questions were derived from published sources and had already been tested for their reliability and validity (e.g. the Demographic and Health Survey in Uganda, 2006[8]). The final questionnaire was translated into the local language, Rutooro, and translated back into English for linguistic reliability, after which it was pretested in the study area with 15 people who were not part of the study. The instrument's reliability was assessed through a test–retest exercise of 26 randomly selected participants 7 days after the questionnaire was first administered. The overall agreement obtained in the retest was 92.4% for all questions. For the most important question referring to the main study outcome variable "Do you want more children or not?" the agreement was 96.2% (for those participants who reported being pregnant at the time of the interview this question was phrased as "Do you want more children in addition to the current pregnancy?"). The study questionnaire was administered by trained interviewers in the local language to 421 participants. Each interview lasted approximately 40 minutes. Of those 421 individuals in the original study, an *ad hoc* analysis was conducted on a subset of 206 participants comprising those participants whose survey responses indicated that they wanted to stop childbearing but were not using an effective family planning method.

Data were entered into Microsoft Access and then transferred into STATA Statistical Software Release 11 (STATA Corporation, College Station, TX, USA) for statistical analysis. A value of $p < 0.05$ was considered to be statistically significant. Chi-square (χ^2) and independent samples *t*-tests were used for bivariate data analysis. Logistic regression was used to model the variable 'unmet need for effective family planning' with a binary outcome (yes/no) and the HIV serostatus as the main covariate of interest. Independent variables included demographic and socioeconomic characteristics as well as various HIV-related factors such as the HIV serostatus of the respondent's partner, experience of any AIDS-related symptoms or illness, and if the respondent was on highly active ART. All independent variables significant at $p < 0.2$ in bivariate analyses and confounding variables were selected and fitted into a multivariate model. Variables found to be statistically significant in the multivariate model ($p < 0.05$) and confounding variables were retained in the final model.

Table 1 Number (percentage) of study participants (*n* = 206) with unmet need for effective family planning (i.e. do not want more children but are not using highly effective family planning methods)

Variable	*n*	%	*p**
Gender			
Male	93	49.5	0.004
Female	113	69.0	
Marital status			
Married	128	52.3	0.004
Cohabiting/single	77	72.7	
Occupation			
Farmer/peasant	139	60.4	0.994
Business person	30	60.0	
Other	37	59.5	
Education			
None	34	64.7	0.765
Lower primary	63	63.5	
Upper primary	75	56.0	
Secondary and above	34	58.8	
Dwelling quality†			
Low	19	63.2	0.277
Medium	159	62.3	
High	28	46.4	
Ownership of radio			
No	45	71.1	0.091
Yes	161	57.1	
Ownership of land			
No	32	75.0	0.063
Yes	174	57.5	
Ownership of bicycle			
No	124	66.9	0.015
Yes	82	50.0	
Ownership of animals			
No	95	58.9	0.735
Yes	111	61.3	
Ownership of poultry			
No	69	63.7	0.457
Yes	137	55.4	
Religious affiliation			
Catholic	93	58.0	0.548
Protestant	74	58.1	
Muslim	10	60.0	
Other	29	72.4	
Ethnic group			
Mutooro	68	42.6	<0.001
Mukiga	100	79.0	
Other	38	42.1	
HIV-positive			
No	74	33.8	<0.001
Yes	132	75.0	
ART			
No	165	58.8	0.408
Yes	41	65.8	
AIDS death in family			
No	62	58.1	0.738
Yes	142	60.6	
AIDS death of child			
No	145	55.2	0.042
Yes	58	70.7	

Table 1 Continued

Variable	*n*	%	*p**
AIDS symptoms			
No	119	45.4	<0.001
Yes	87	80.5	

	Unmet need		
	Yes (*n*=124)	No (*n*=82)	
Age in years (mean±SD)	35.0±5.7	30.9±7.1	<0.001‡
Number of pregnancies (mean±SD)	5.4±2.9	4.0±2.6	<0.001‡
Number of living own children (mean±SD)	4.6±2.6	3.2±2.2	<0.001‡
Number of non-biological children (mean±SD)	1.3±1.2	1.0±1.2	0.052‡

*The *p* values are based on Chi-square (χ^2) test unless otherwise specified.
†Dwelling quality variable was divided into three categories as low, medium and high based on the house floor, wall and roof structure [low: mud floor, mud/thatched walls and grass/thatched roof; medium: mud floor, mud/thatched walls and metal roof; high: cement/concrete/wood floor, walls of permanent materials and metal roof or any two out of three (i.e. floor, walls and roof) of this structure].
‡Two independent sample *t*-test *p* value.
ART, antiretroviral therapy; SD, standard deviation.

Results

Demographic and socioeconomic characteristics of study participants

A total of 206 participants who declared that they did not want any more children but who did not use an effective family planning method comprised the data subset. Ninety-three (45.2%) were male and 113 (54.8%) were female. Seventy-four (35.9%) were HIV-negative while 132 (64.1%) were HIV-positive. Of the 206 participants, 124 (60.2%) stated that they had an unmet need for effective family planning. Other differences between those who had an unmet need for effective contraception and those who stated that they had not are shown in Table 1.

HIV-positive participants declared that they had a much higher unmet need compared to those who were HIV-negative (75.0% vs 33.8%, *p*<0.001). Also females, cohabiting couples, older participants, those with more children, as well as those supporting more non-biological children and those who reported having a child who previously died of AIDS reported a higher need for effective family planning in bivariate analysis. Of the 206 study participants, only 41 (19.9%) were on ART.

We examined the association between the unmet need for effective family planning as the dependent variable and the HIV status of the participants as the main covariate in bivariate analysis and a multivariate model. Bivariate and multivariate analysis results are reported in Table 2.

There was a very strong positive association in the multivariate model between the unmet need for effective family planning and being HIV-positive (OR 3.97, 95% CI 1.97–8.03). Other variables associated with an unmet need were older age, cohabiting without being married and female sex (which was only borderline statistically significant, *p*=0.071). Unmet need for family planning in HIV-positive participants on ART was higher for those who were not on ART (unadjusted OR 1.35, 95% CI 0.66–2.77, *p*=0.409), which was not statistically significant.

We also determined the main association between the unmet need for effective family planning and HIV status for male and female participants separately in a two different logistic regression submodels, where gender was the main covariate of interest and the unmet need for family planning was the dependent variable (Table 3).

The positive and elevated odds ratio (OR) of the unmet need for effective family planning and a positive HIV status were observed for both sexes. The adjusted OR of the association between the unmet need for effective family planning and a positive HIV status was stronger and statistically significant in females (OR 5.95, 95% CI 2.08–17.00, *p*<0.001) and borderline significant in males (OR 2.54, 95% CI 1.11–7.34, *p*=0.062). Predictors of the unmet need for effective family planning in men in the submodels was older age, and for women it was being single.

Discussion

Our findings indicate that the unmet need for effective family planning methods is significantly higher in HIV-positive individuals compared to those with a negative HIV status. We want to highlight three key messages based on our study results.

First, the unmet need for effective family planning methods was substantially higher in HIV-infected individuals compared to those who were HIV-negative. This is the most important finding of this study considering the huge difference in responses (75.0% of HIV-infected participants reported an unmet need for

Table 2 Odds ratio and 95% confidence interval for the dependent variable unmet need for effective family planning: logistic regression bivariate and multivariate analysis

Variable	Bivariate analysis		Multivariate analysis	
	OR (95% CI)	p	OR (95% CI)	p
HIV-positive				
No	1.00 (ref)	<0.001	1.00 (ref)	<0.001
Yes	5.88 (3.16–10.9)		3.97 (1.97–8.03)	
ART				
No	1.00 (ref)	0.409		
Yes	1.35 (0.66–2.77)			
AIDS death in family				
No	1.00 (ref)	0.738		
Yes	1.11 (0.60–2.03)			
AIDS death of child				
No	1.00 (ref)	0.044		
Yes	1.96 (1.01–3.77)			
AIDS symptoms				
No	1.00 (ref)	<0.001		
Yes	4.96 (2.61–9.41)			
Age in years	1.10 (1.05–1.16)	<0.001	1.08 (1.00–1.16)	0.036
Gender				
Male	1.00 (ref)	0.005	1.00 (ref)	0.071
Female	2.28 (1.29–4.02)		1.94 (0.94–4.00)	
Marital status				
Married	1.00 (ref)	0.004	1.00 (ref)	0.018
Cohabiting/single	2.43 (1.32–4.47)		2.36 (1.16–4.80)	
Occupation				
Farmer/peasant	1.00 (ref)			
Business person	0.98 (0.44–2.20)	0.965		
Other	0.96 (0.46–2.01)	0.914		
Education				
None	1.00 (ref)			
Lower primary	0.95 (0.40–2.27)	0.905		
Upper primary	0.69 (0.30–1.61)	0.393		
Secondary and above	0.78 (0.29–2.08)	0.618		
Ethnic group				
Mutooro	1.00 (ref)			
Mukiga	5.06 (2.56–9.99)	<0.001		
Other	0.98 (0.44–2.18)	0.957		
Religious affiliation				
Catholic	1.00 (ref)			
Protestant	1.00 (0.54–1.86)	0.995		
Muslim	1.08 (0.28–4.10)	0.906		
Other	1.90 (0.76–4.72)	0.169		
Dwelling quality*				
Low	1.00 (ref)			
Medium	0.96 (0.36–2.58)	0.939		
High	0.51 (0.15–1.66)	0.262		
Number of living own children	1.27 (1.12–1.45)	<0.001	1.15 (0.96–1.37)	0.132
Number of non-biological children				
0	1.00 (ref)			
1	3.52 (1.21–10.3)	0.021		
2	1.89 (0.88–4.04)	0.101		
3	1.90 (0.92–3.92)	0.083		

*Dwelling quality variable was divided into three categories as low, medium and high based on the house floor, wall and roof structure [low: mud floor, mud/thatched walls and grass/thatched roof; medium: mud floor, mud/thatched walls and metal roof; high: cement/concrete/wood floor, walls of permanent materials and metal roof or any two out of three (i.e. floor, walls and roof) of this structure].
ART, antiretroviral therapy; CI, confidence interval: OR, odds ratio; ref, reference.

Table 3 Odds ratio and 95% confidence interval for the dependent variable unmet need for effective family planning: logistic regression multivariate analysis for male and female participants presented separately

Variable	Males		Females	
	OR (95% CI)	*p*	OR (95% CI)	*p*
HIV-positive				
No	1.00 (ref)	0.062	1.00 (ref)	<0.001
Yes	2.54 (0.95–6.74)		5.95 (2.08–17.0)	
Age in years	1.15 (1.02–1.28)	0.017	1.05 (0.94–1.16)	0.371
Marital status				
Married	1.00 (ref)	0.146	1.00 (ref)	0.029
Cohabiting/single	2.42 (0.74–7.95)		2.86 (1.11–7.34)	
Number of living own children	1.25 (0.98–1.61)	0.078	1.08 (0.81–1.45)	0.605

CI, confidence interval: OR, odds ratio; ref, reference.

family planning compared to 33.8% of those who were not HIV-positive). This is a statistically highly significant difference ($p<0.001$). Our main explanation for this difference is that HIV-infected individuals/couples are not regularly and systematically counselled on contraceptive choices when they are tested for HIV infection or when they are initiated on ART. The unmet need for effective family planning in our female participants is higher (60.2%) than the unmet need for family planning in females found in other parts of Uganda. The unmet need for family planning among HIV-infected women reported in the literature from Kenya, Ethiopia and Lesotho was 30%, 34% and 33%, respectively, which is much lower compared to what is reported here.[4 9 10]

Second, men reported having a lower unmet need for effective family planning, as this was true in both the univariate and in the multivariate logistic regression model, which was not surprising (Table 2). What was surprising to us was the finding in the gender-stratified analysis in Table 3 where HIV-positive men reported a higher unmet need for family planning in comparison to HIV-negative men, though the difference was statistically only borderline significant. The effect size of the positive association between unmet need and a positive HIV status was smaller in men compared to women (i.e. HIV-positive men were 2.54 times more likely to report an unmet need while women were 5.95 times more likely to state this).

Third, ART for HIV infection was not a predictor of having a lower unmet need for effective family planning. The dramatic decrease in HIV transmission from mother-to-child for mothers successful on ART has been reported from most parts of the world including sub-Saharan Africa.[11–15] Therefore, we expected that HIV-positive individuals on ART would likely want children, as information from the study area clearly indicated that the major reason for HIV-infected individuals/couples not wanting more children was the perceived high risk for the mother-to-child transmission of HIV.[7] The results from our study suggests that our

respondents either did not know or overestimated the risk of vertical transmission of HIV when ART is provided (data not shown). This is likely a consequence of inadequate counselling by health care workers/counsellors to HIV-positive women/couples on the benefits of ART in reducing vertical transmission of HIV.

Study limitations

The ORs were based on cross-sectional data, which precludes assessing the causality of the associations described. Social desirability bias in responses cannot be excluded as the information collected was sensitive. However, our study used trained and experienced interviewers to minimise this bias. We were not able to evaluate clinical parameters for assessing HIV disease progression in the study participants. As some participants may have been at a more advanced clinical stage of HIV than others, they may have had a lower unmet need for contraception due to their reduced physical health status. This may have been somewhat mitigated, since we did not interview very sick and/or bedridden participants.

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