

DRAFT: Fertility desires and the need for contraception among women living with HIV: The basis for a joint action agenda

Kiersten Johnson, ICF Macro/MEASURE DHS
Priscilla Akwara, UNICEF
Shea Rutstein, ICF Macro/MEASURE DHS
Stan Bernstein, UNFPA

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Background: From a reproductive health and rights-based perspective, all women should have access to methods that allow them to avoid unintended pregnancies. HIV-positive women have particular needs for contraception to avoid unwanted pregnancy: to protect their own health, and to eliminate the risk of transmitting HIV to an infant. In 2004, the UN described a four-element strategy that corresponds to four opportunities to prevent mother-to-child transmission (PMTCT); the prevention of unintended pregnancies among HIV-positive women constitutes one of the four elements. While all four elements are essential for meeting UNGASS goals, comparatively little programmatic or policy-related attention has been paid to issues around the prevention of unintended pregnancies among HIV-positive women, an intervention that requires close collaboration between practitioners and advocates in the fields of both reproductive health/family planning and HIV.

Data and Methods: This paper uses Demographic and Health Surveys data and bivariate and multivariate methods to assess the contribution of knowledge of own HIV serostatus (proxied by receipt of HIV test results in the past year) to women's fertility desires, their demand for contraception, and their contraceptive method choice for 4 high prevalence sub-Saharan African countries.

Results: Knowledge of one's own HIV-positive serostatus is significantly associated with a desire to have no more children. HIV-positive women who know their status are more likely to use contraception than HIV-negative women in all countries, but do not have higher levels of unmet need consistently across the four countries studied. HIV-positive women who know their status are significantly more likely than other women to choose a condom as their contraceptive method.

Conclusions: When HIV-positive women have full information about their serostatus, they exhibit fertility desires and contraceptive behaviors that are different from those among both HIV-negative women and HIV-positive women who are less likely to know their status. These differential fertility desires and behaviors have important implications for the prevention of HIV transmission, both from mother to child and between adult sexual partners: HIV-positive women who know their status are more likely than other women to make decisions around sexual health and reproduction that are preventive in nature. They also have important implications in terms of preserving women's right to control their fertility and to maintain their reproductive health. On the basis of the evidence presented, we echo recent advocacy for universal access to both HIV counseling and testing services and family planning and reproductive health services. Only when women are empowered with both knowledge of their HIV serostatus and unrestricted access to appropriate services can they implement fully informed decisions about their sexual and reproductive lives.

Introduction

From a reproductive health- and rights-based perspective, all women should have access to methods that allow them to avoid unintended pregnancies (United Nations 1995). Additionally, HIV-positive women have particular needs for contraception to avoid unintended pregnancy: to preserve their own health (van der Paal et al. 2007), and to eliminate the risk of transmitting HIV to an infant.

In the Glion Call to Action on Family Planning and HIV/AIDS in Women and Children (United Nations, 2004), a four-element strategy was described that corresponds to four opportunities to reduce mother-to-child transmission of HIV (MTCT): primary prevention of HIV infection, prevention of unintended pregnancies among HIV-positive women, prevention of HIV transmission from an infected mother to her child, and provision of care and support for HIV infected mothers, their infants, partners and families. While the Glion Call to Action states that all four elements are essential for meeting UNGASS goals, scant programmatic- or policy-related attention has been paid to the second element¹ of preventing unintended pregnancies among HIV-positive women.

Research attention at the population level has also been lacking: to the authors' knowledge, only one paper analyzing nationally-representative data on the fertility intentions and contraceptive needs of HIV-positive women has appeared in the peer-reviewed literature (Adair 2009). There is no consensus in the literature as to whether HIV-positive women who are aware of their status have different fertility desires. Some studies indicate that desire to limit fertility is near-universal among women who are HIV-positive and aware of their status, and also that levels of unmet need are very high in this population; however, these results are derived from studies of special populations (clinic-based) and therefore may not be representative of women who know that they are living with HIV (Homsy et al. 2009; Rochat et al. 2006). Some longitudinal studies also suggest that HIV-positive women do have a greater desire to limit their fertility, and that this desire may in fact increase over time (Taulo et al. 2009); however, these results might be confounded by an effect of observation, in terms of sensitizing respondents to their preferences. Other authors find that there is no practical difference in fertility desires among HIV-positive and HIV-negative women (Cooper 2009); an unpublished 2006 review of the literature also drew the same conclusions (Rutenberg et al., 2006). There does seem to be consensus around the finding that HIV-positive women who know their status are more likely to use condoms as a contraceptive, although again, several of these results are derived from studies of special populations (e.g., McCarraher et al. 2008, Mutiso et al. 2008).

The purpose of this paper therefore is to contribute to filling the gaps in knowledge around the reproductive intentions and need for contraception among women living with HIV at the population level. If indeed knowledge of own serostatus is associated with differentiated fertility preferences and contraceptive practices, the implication is that women should have the right, as per the definition of reproductive rights articulated at the 1994 International Conference on Population and Development in Cairo (UN 1995), to simultaneous universal access to HIV testing services as well as to appropriate reproductive health and family planning services that are capable of addressing the special needs of HIV-positive women, so that women may make fully informed decisions about when and whether to have

¹ The second PMTCT element is described as follows: Prevention of unintended pregnancies among HIV-infected women. Reproductive health and family planning services should be improved and made widely available to all women, including those with HIV infection, to provide support and appropriate services to avoid unintended pregnancies. Increased availability of counseling and testing services would enable women to find out their serostatus and then obtain essential care and support services, including reproductive health and family planning services, and make informed decisions about their future reproductive lives (World Bank 2003).

children. The immeasurable added benefit of ensuring that women’s reproductive rights are upheld would be a significant reduction in the incidence of mother-to-child transmission, which contributes approximately 15 percent of all new infections each year (PMTCT High Level Global Partners Forum, Abuja, 2005).

Using nationally-representative data from women age 15-49 in four high-seroprevalence countries in sub-Saharan Africa, this paper assesses the contribution of knowledge of own HIV-positive serostatus – as proxied by the receipt of HIV test results in the past year – to women’s fertility desires. Based on the findings from that analysis – that HIV-positive women aware of their status do have significantly increased odds of wanting no more children – we then examine the association between knowledge of own HIV-positive status and unmet need for contraception among women with demand for contraception. Finally, we examine the association between knowledge of own serostatus and contraceptive method choice among all users of contraception, in order to discern the relative contribution to total contraceptive use of the condom, which both prevents HIV transmission and is compatible with ARV regimens. xx Shea’s part on estimating demand if all women knew their status xx

Data and methods

Data

The analyses presented in this report are based on data from the Demographic and Health Surveys program (DHS), which collects nationally-representative data on topics including fertility, reproductive health and family planning, mortality, nutrition, maternal and child health, and HIV. The data are from four high-prevalence countries that included HIV serostatus testing, with test results linked to the main body of demographic and health data: Zambia 2007, Swaziland 2006-07, Zimbabwe 2005 and Lesotho 2004.

Table 1 HIV seroprevalence, response rates, and sampling strategy for HIV testing in the DHS among women age 15-49 for high-prevalence sub-Saharan African countries included in analysis of fertility preferences and unmet need for family planning, Zambia 2007, Zimbabwe 2005-06, Swaziland 2006-07, and Lesotho 2004 DHS.

Country	HIV prevalence and HIV testing coverage			
	HIV sero-prevalence	Response rate for HIV testing in the DHS	Sampling strategy for HIV serostatus testing ¹	Percent of women ever tested for HIV ²
Zambia 2007	16.1	77.1	100.0	39.4
Swaziland 2006-07	31.1	82.7	50.0	40.7
Zimbabwe 2005-06	21.1	75.9	100.0	25.8
Lesotho 2004	26.3	80.7	50.0	14.5

¹ The percentage of households in the survey sample that were selected for the HIV testing module

² This percentage reflects whether ever tested irrespective of whether results from the test were received

These countries were selected both because the risk of MTCT is high in these settings, and because the data from these surveys are sufficient to support the analysis: women's response rates to the survey as a whole exceeded 90 percent for all countries, women's response to the HIV-testing component of the surveys exceeded 75 percent for each country (Table 1), and there were enough cases of HIV-positive women to support disaggregating them according to whether they had received HIV test results in the past year. Additionally, the data were collected after the Glion Call was articulated for all but one country (Lesotho), which increases the likelihood that programmatic and policy changes around PMTCT in the wake of the Glion Call will have had the chance to take effect and be observed in the data.

Data for all four surveys were collected from a representative probability sample selected using a stratified two-stage cluster design. All respondents eligible for the HIV testing component (either the entire sample of women eligible for interview or, for Swaziland and Lesotho, a 50 percent subsample of women eligible for interview) were asked to give their informed consent to be anonymously tested for HIV. Samples for HIV testing in the survey were obtained by collecting blood drops from a sterile fingerstick onto a filter paper card. Additional information on sampling and response rates for each survey is available in the final report for each country (Central Statistical Office et al. 2009 [Zambia], Central Statistical Office et al. 2008 [Swaziland], Central Statistical Office et al. 2007 [Zimbabwe], and Ministry of Health and Social Welfare [Lesotho] et al. 2005). Additional information about the standard HIV testing protocols in the DHS, including lab protocols and quality control, is available in a separate publication (Macro 2008).

Methods

The analysis uses bivariate and multivariate methods (Pearson's chi-square and logistic regression) to describe the contribution of a proxy variable for knowledge of own HIV-positive serostatus to three separate dependent variables: women's fertility desires, need for family planning, and contraceptive method choice. Women who did not have valid HIV biomarker data (nonrespondents) were excluded from all analysis.

Analysis of fertility desires

The variable reflecting fertility desires is defined by three categories for the bivariate analysis: wanting another child (regardless of when the birth is desired: soon or after some specified period of time), wanting no more children (including women who are sterilized), and a residual category comprised of "don't know" responses and declarations of infecundity. These data come from a standard question in the DHS instrument: "Now I have some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children?" The study sample for the bivariate analysis is comprised of all women age 15-49. For multivariate analysis, we restrict the study sample to women who have a declared preference for either wanting a/another child or wanting no more children; this results in a dichotomous dependent variable where women who want a/another child are coded with a 0 and women who want no more children are coded with a 1.

The independent variable of interest for all three of the analyses presented in this paper is the respondent's recent HIV testing history according to her current serostatus as measured with biological data collected in the survey (DHS does not collect self-reported data on HIV serostatus). This variable has three response categories in the bivariate analyses: HIV-negative serostatus, HIV-positive serostatus and no receipt of results of an HIV test in the past year, and HIV-positive serostatus with receipt of HIV test results in the past year. We don't disaggregate HIV-negative women according to testing status

because the primary focus of the bivariate analysis is on HIV-positive women. For the multivariate analyses, we also disaggregate HIV-negative women according to receipt of HIV test results in the past year. While this variable is not a direct measure of a woman's knowledge of her current serostatus, it is expected to be a reasonable proxy of a woman's knowledge of her current HIV serostatus; discussion of the caveats associated with this variable follows below.

Other independent variables in the multivariate analysis of desire to limit births include age (grouped), education (none, primary, secondary, and higher), residence (urban or rural), asset-based household wealth quintiles (for methodological details see Rutstein and Johnson 2004), exposure to the risk of pregnancy (never had sex, not in union but has had sex, in union with a coresident partner, and in union with a non-coresident partner), and number of living children (none, 1-2, and 3 or more). These variables all are expected to have an association between both the dependent variable and the independent variable of interest; controlling for their effects is expected to clarify the contribution of knowledge of own serostatus to the formation of a desire to limit births.

Analysis of need for family planning

The dependent variable for this analysis, need for family planning, is defined by three categories for the bivariate analysis: no need for family planning (women who want more children soon, who are not sexually active, or who have declared themselves infertile), unmet need for contraception (either for spacing or limiting), and met need for contraception (currently using a contraceptive method for either spacing or limiting). The need for family planning variable is a standard DHS recode variable comprised of numerous pieces of information collected with the DHS survey instrument; the complete DHS definition of need (unmet and met) for both spacing and limiting appears in the endnotes.ⁱ

For the multivariate analysis, the study sample is restricted to women who have a need for contraception according to the definition found in endnote 1. This produces a dichotomous dependent variable where women whose demand for contraception is met (contraceptive users) are coded with a 0 and women whose contraceptive needs remain unmet are coded with a 1.

The independent variable of interest is as described above (serostatus according to receipt of result in the past year). The other independent variables in the model include all of those listed for the analysis of fertility desires, plus a continuous composite variable reflecting the degree to which a respondent has difficulty in accessing health care for herself: the DHS asks about 8 common obstacles to accessing health care, and whether each is a big problem, a small problem, or not a problem for the respondent. To create the continuous variable on problems with access, each of the 8 items was dichotomized as being a big problem (1) or not (0), and the responses to the 8 items were summed. The resulting value is the respondent's score on this variable, with higher scores indicating greater difficulty in accessing health care services. A variable representing region of residence was initially included but later removed for lack of statistical significance and failure to improve the models.

For Lesotho only, it was possible to include a dichotomous variable reflecting the respondent's own approval of using a method to avoid getting pregnant; women who approve of the use of family planning methods were coded with a 0, while all others, including those with a "don't know" response, were coded with a 1. This variable was not available for any of the other three surveys included in the analysis, however. Although respondent approval of contraception was highly significant in the model, because inclusion of the variable did not change the associations among the other variables in the model, to ensure maximum comparability of the results across countries, the results presented in Table 5 for Lesotho do not include the model run with the approval of family planning variable.

Analysis of contraceptive method choice

For the bivariate analysis of type of contraceptive method used among women who are currently using a method, the dependent variable has the following categories: users of condoms (male or female), users of other modern methods, and users of traditional or folkloric methods. This variable is crosstabulated with the variable on serostatus and receipt of test results to assess whether knowledge of HIV-positive serostatus is associated with contraceptive method choice.

A bivariate relationship between HIV serostatus and condom use could be spurious – e.g., women with higher-risk sexual behaviors may be both more likely to use condoms and also more likely to be HIV-positive, in which case condom use would be reflecting higher-risk sexual behavior rather than reflecting prevention-oriented behavior motivated by knowledge of own serostatus. To sort out the true relationship between knowledge of own serostatus and choice of condom as a method of contraception, we analyze the odds of using a condom versus any other method among HIV-positive women only. The independent variable of interest reflects HIV testing history: (0) never received HIV test results, (1) ever received test results but not in the past year, and (2) received test results in the past year. We control for number of lifetime partners to account for this key risk behavior, as well as age, education, residence, wealth, exposure to risk of pregnancy, and number of living children. This analysis was run for Zambia, Swaziland and Zimbabwe; data from Lesotho were insufficient for the analysis.

Analytical and data-related considerations

Several considerations must be kept in mind when interpreting the results presented here. The primary caveat involves the shortcomings of the proxy variable for knowledge of own serostatus. Receipt of test results in the past year is not 100% specific for knowledge of own serostatus: there will be some women who have seroconverted since they obtained their test result within the past year. Further, not receiving test results in the past year is not 100% specific for ignorance of own serostatus: there will be women who received an HIV-positive test result prior to the one-year reference period used in the analysis who do know their status but did not obtain a more recent test result in the past year. The larger the proportion of HIV-positive women who know their status from a test prior to one year before the survey (which presumably will correlate with the national level of VCT programming coverage prior to one year before the survey), the more the behaviors of that category of women can be expected to resemble those of women who received test results in the past year.

Additional considerations include the fact that this paper does not specifically address the need for family planning for spacing purposes. Because only about one third of HIV-positive women across all four countries expressed the desire to have a/another child the decision was made to constrain the focus of the analysis on the preference to limit. Additionally, this paper does not address the other half of the fertility preferences equation, that is, men and their fertility preferences in the context of being HIV-positive themselves or of having an HIV-positive partner. To maintain the focus of this paper, we analyze data only from women; however, a planned extension of these analyses is to look at corresponding data from men, and also from couples disaggregated by concordancy of serostatus.

Finally, it should be noted that Lesotho data were collected comparatively early in terms of programmatic rollout of PMTCT services; in all of the study countries except for Lesotho, between one third and two fifths of women who were tested in the past year reported that they obtained their HIV testing through ANC-based services designed to prevent MTCT. Lesotho did not ask women specifically

about receipt of HIV test results through their ANC care provider because PMTCT programs had not yet attained sufficient coverage. It is expected that PMTCT services are not only a key source of HIV testing services, but also of information about MTCT and how to prevent it.

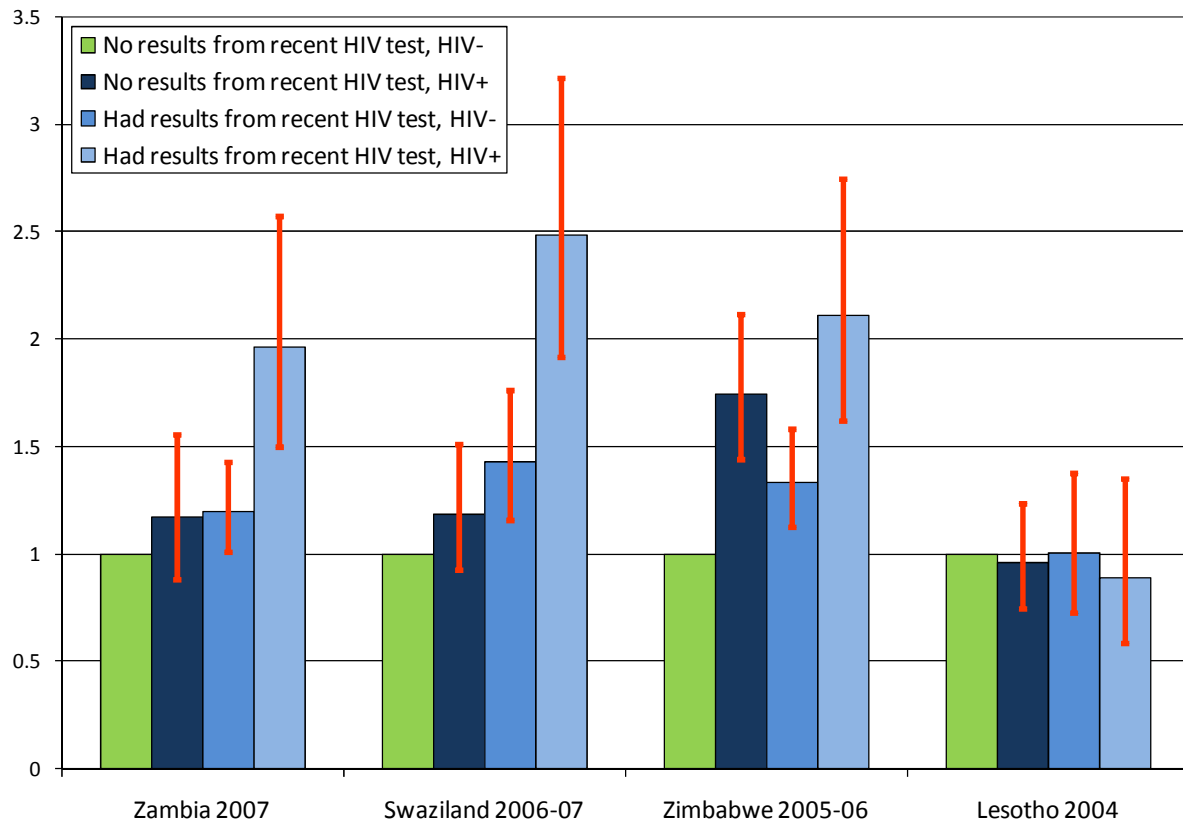
Results

Analysis of fertility desires

Table 2 shows the percent distributions of HIV-negative women and HIV-positive women who did and did not receive a recent HIV test result according to their fertility preferences; in all four countries, the Pearson's chi-square tests are significant at $p=0.001$ or less. For all four countries, women who received an HIV-positive test result in the past year are less likely than both HIV-negative as well as HIV-positive women without a recent test result to want to have a/another child. The differences among women's desires for more children according to serostatus are largest in countries where HIV testing coverage is greatest (Swaziland and Zimbabwe, with about 40 percent of women reporting that they have ever been tested; Table 1). Correspondingly, HIV-positive women who recently received an HIV test result were more likely than both of the other two categories of women to report that they wanted no more children in Zambia, Swaziland, Zimbabwe. For these three countries, HIV-positive women who did not receive a test result in the past year exhibit fertility desires that fall somewhere between those of HIV-negative women and HIV-positive women with a recent test result, suggesting that some proportion of women in this category received HIV-positive test results prior to the one-year reference period used in this analysis. In Lesotho there is no practical difference in desire to limit births between the two categories of HIV-positive women; however, HIV-positive women as a group are more likely report a desire to limit their births as compared with HIV-negative women. Taken together, these results strongly suggest that there is an effect of knowledge of one's own HIV-positive serostatus on future fertility desires.

To further elucidate the demonstrated bivariate associations, we control for confounding factors using a multivariate approach. The logistic regression results, presented in Table 3 and Figure 1, show that for all countries except Lesotho, both HIV-positive and HIV-negative women who recently received an HIV test result were more likely than HIV-negative women with no recent test result to report that they wanted no (more) children. This suggests that women who receive HIV test results in these contexts are a select population. However, the odds of desiring to limit births are considerably higher among HIV-positive women with a recent test result than among HIV-negative women with a recent test result. In both Zambia and Zimbabwe, recently tested HIV-negative women have 20-30 percent higher odds of desiring to limit their births, compared to the reference group; recently tested HIV-positive women are about twice as likely as the reference group to desire to limit their fertility. In Swaziland, recently tested HIV-negative women have 43 percent higher odds of desiring to limit their births compared to the reference group, while recently tested HIV-positive women are two and one half times as likely to want to limit their fertility compared with HIV-negative women with no recent test result. These results clearly demonstrate the effect of knowledge of one's own serostatus on the formation of future fertility desires: HIV-positive women who likely know their serostatus are significantly more likely than HIV-negative women without a recent test result to want no more children. The failure to find the expected associations in Lesotho may be due to the lack of information about MTCT as well as lack of PMTCT-related service coverage available in Lesotho at the time of the survey.

Figure 1. Among women age 15-49 with a stated fertility preference, the odds of wanting no more children according to current HIV serostatus and whether HIV test results were received in the past year, with bars for 95 percent confidence intervals, Zambia 2007, Swaziland 2006-07, Zimbabwe 2005-06 and Lesotho 2004 DHS.



Analysis of need for family planning

Table 4 shows the percent distributions of HIV-negative women and HIV-positive women who did and did not receive a recent HIV test result according to need for contraception; in all four countries, the Pearson's chi-square tests are significant at $p < 0.000$. For all countries except Lesotho, HIV-positive women who received a test result in the past year are more likely than HIV-negative women to have a demand for contraception. In terms of method use, in Zambia, HIV-positive women with recent test results are more likely than other women to be using a contraceptive method; they are also more likely to have an unmet need for contraception, although the difference compared with HIV-negative women is small. In both Swaziland and Lesotho, levels of current use of contraception are about the same for both categories of HIV-positive women, and are considerably higher than among HIV-negative women, again suggesting that some proportion of HIV-positive women without a recent test result did receive HIV-positive test results prior to the one-year reference period used in this analysis. In Zimbabwe, there is no practical difference in contraceptive use across the three category HIV serostatus variable; however, there is a significantly higher level of unmet need for contraception among HIV-positive

women with a recent test result (19 percent) as compared with other women (8 percent). In Lesotho, HIV-positive women with a recent test result are the least likely of the three groups to have an unmet need for contraception.

Corresponding with the first analysis on the association between knowledge of HIV serostatus and desire to limit births, the results in Table 4 indicate that HIV-positive women, particularly those who likely know their serostatus, both have a greater need for contraception, and greater use. However, the correlation of unmet need with the serostatus variable is inconsistent across countries, suggesting that country-specific variations in programmatic rollout and efficacy may be playing a role. Taken in sum, these bivariate results again strongly suggest that there is an effect of knowledge of one's own HIV-positive serostatus on demand for and use of contraception.

Addressing the question of whether knowledge of own serostatus influences the need for and uptake of a contraceptive method from a multivariate perspective, we conducted logistic regression analyses both with the study sample stratified by HIV serostatus, as well as unstratified. Because the results were similar for all three models, only the results for the unstratified analysis are presented (Table 5). Women in union are at the highest risk of having an unmet need for contraception, regardless of whether or not the spouse or partner is coresident. Additionally, unmet need is consistently associated with indicators of socioeconomic status, specifically education and household wealth: improved levels of wealth and education are associated with lower odds of experiencing an unmet need for contraception. In Zambia and Zimbabwe, the continuous variable reflecting problems with access to health services is significant in the expected direction: for every unit increase in difficulty accessing services, there is an increase of 6-8 percent (Zimbabwe and Zambia, respectively) in the odds of experiencing an unmet need for contraception. In Lesotho and Zambia, women with more children have significantly higher odds of experiencing unmet need. With regard to the independent variable of interest, in Swaziland and Lesotho, it seems to better reflect access to health services than an influence of women's knowledge of her serostatus: both HIV-negative and HIV-positive women who have obtained an HIV test in the past year are significantly less likely to have an unmet contraceptive need compared to the reference category. In Zimbabwe, HIV-positive women with a recent HIV test result have twice the odds of having an unmet need for contraception compared with HIV-negative women without a recent test result. In Zambia, HIV-negative women with a recent test result are most likely to have an unmet need for contraception.

The multivariate results correspond to the heterogeneous findings of the bivariate analysis: in two countries, HIV-positive women with recent test results have significantly lower odds than the reference group of having an unmet need, in one country, there is no difference, and in one country they have significantly higher odds of having an unmet need.

Analysis of contraceptive method choice

Table 6 shows the percent distributions of HIV-negative women and HIV-positive women who did and did not receive a recent HIV test result and who are using a contraceptive method according to type of method used. In all four countries except for Lesotho, the Pearson's chi-square tests are significant at $p=0.001$ or less; Lesotho did not have enough HIV-positive women who both had a recent test result and are using contraception for analysis.

Condom use as a proportion of total contraceptive use in these countries is variable: Swaziland has the highest proportion of contraceptive users who are using a condom at 36 percent, while Zimbabwe has the lowest at 5 percent, and Zambia and Lesotho are in the middle with 17 and 20 percent, respectively.

In terms of condom use according to serostatus, in the three countries where analysis is possible, HIV-positive women with a recent test result are significantly more likely to be using a condom, compared with HIV-negative women. In Zambia, condom use is twice as high among HIV-positive women with recent test results as compared to HIV-negative women; in Zimbabwe, it is over three times as high. This can be compared with Swaziland, where not only are overall levels of condom use higher, but condom use is only 37 percent higher among HIV-positive women with a recent test result (44 percent use condoms) as compared with HIV-negative women (32 percent use condoms). Regarding other findings in the table, only Zambia is remarkable for its high levels of traditional method use (18 percent of all reported contraception use consists of traditional methods).

Because the bivariate association between condom use and HIV serostatus may be confounded by sexual risk behaviors, we conducted a multivariate analysis of condom use among HIV-positive women to again try to discern an effect of knowledge of own serostatus on condom use. We find that HIV-positive women who received an HIV test result in the past year remain significantly more likely to choose a condom as their method of contraception. In Swaziland, HIV-positive women with a recent test result were 77 percent more likely than HIV-positive women who had never received a test result to report that they were using condoms as their contraceptive method ($p=0.006$); in Zimbabwe, women with a recent test result were more than 3 times as likely to choose condoms compared to those who had never received a test result ($p=0.005$). In Zambia, women with a recent test result were 87 percent more likely to choose condoms than women with no test result ($p=0.10$). These results, particularly those from Zimbabwe and Swaziland, clearly demonstrate the effect of knowledge of serostatus on choice of contraceptive method.

Discussion

Results from the multivariate analyses presented here indicate that women who know they are HIV-positive (as determined by our proxy variable of receipt of HIV test results in the past year) are more likely than other women to desire to limit their childbearing except in Lesotho. Corresponding results from bivariate analysis demonstrate that women who know they are HIV-positive are more likely than other women to be using a contraceptive method in Zimbabwe, Zambia and Swaziland; in Lesotho, HIV-positive women as a whole are more likely to use a method of contraception than HIV-negative women.

With regard to unmet need for contraception, our multivariate analyses have demonstrated that HIV-positive women with a recent test result have significantly greater unmet need only in Zimbabwe, where the level of unmet need is very high and suggests that special attention should be given to the contraceptive needs of HIV-positive women living under conditions of political or economic crisis. In Swaziland and Lesotho, HIV-positive women with a recent test result are significantly less likely than the reference category to have an unmet need for contraception, suggesting that FP/RH services in these countries are doing a better job of meeting women's needs.

Regarding contraceptive method choice, women who know they are HIV-positive are more likely than both HIV-negative women and other HIV-positive women (those less likely to know their serostatus) to choose condoms as their method of contraception in all countries save Lesotho, where data were insufficient to analyze this question. Data on condom use in Swaziland – such that the levels of condom among both infected and uninfected women were high – were the most impressive, suggesting that the idea that “everyone is at risk” has been more widely accepted and understood by the population in Swaziland than anywhere else. In this regard, Swaziland is a model country.

Interestingly, the findings on fertility preferences among HIV-positive women who are likely to know their status correspond well with more recent research from smaller-scale (usually community- or clinic-based) studies, but less well with earlier research on fertility preferences. This suggests the possibility that as PMTCT programming has rolled out in several high-prevalence countries, women are learning in more detail about MTCT and basing their decisionmaking on more complete information. It remains to be seen, however, as HIV-positive women live longer and healthier lives on ART and have improved access to PMTCT services, whether their fertility preferences will eventually become indistinguishable from those of HIV-negative women.

Conclusions

Knowledge of own HIV-positive serostatus is associated with greater desire to limit childbearing and increased contraceptive use, especially condoms. These findings therefore imply that women have the right, as per the definition of reproductive rights articulated at the 1994 ICPD (UN 1995), to simultaneous universal access to HIV testing services and appropriate reproductive health and family planning services, so that all women may make fully informed decisions about when and whether to have children. Concomitantly, ensuring that women’s reproductive rights are universally upheld would significantly reduce the level of unintended pregnancy among HIV-positive women, which in turn would reduce the incidence of mother-to-child transmission. The propensity for contracepting HIV-positive women to choose condoms demonstrates an additional preventive benefit of ensuring universal access to both HIV testing and FP/RH services.

The analyses presented here add to the empirical evidence of the need for coordinated policy and programmatic action to ensure universal access to both HIV testing services and to reproductive health and family planning services that can help all women, including those living with HIV, to implement their fertility desires in the healthiest and most appropriate way. This position can be argued from a reproductive rights-based perspective, and also from an epidemiological perspective.

Reproductive rights-based perspective

All women, including those living with HIV, need access to reliable contraception so that they can have only the number of children that they desire. Women with HIV who want to have a child have the right to do so with full support and access to PMTCT services to minimize the chances of mother-to-child transmission; women living with HIV also have the right to safe, confidential, and non-discriminatory abortion services if that is the most appropriate option for their situation (de Bruyn 2003). There may be change over time in levels of desire to limit childbearing, as HIV-positive women become more aware of and able to access quality, comprehensive PMTCT services. However, there is clearly a need for attention to be paid to the current fertility desires and contraceptive needs of this population of women.

The self-reported fertility preferences of HIV-positive women who do know their status, and the actions they take to implement those preferences in terms of contraceptive use and particularly condom use, are bellwethers of the progress that could be made in preventing vertical transmission if all women were aware of their HIV serostatus. Depending on self-reported fertility preferences and measures of unmet need for contraception, rather than measures of contraceptive prevalence, is critical for ensuring that the reproductive rights of HIV-positive women are respected.

Epidemiological perspective

Ensuring that HIV-positive women who want to prevent pregnancy have access to the supplies and services to achieve that outcome has demonstrated benefits for preventing mother-to-child transmission of HIV (Reynolds et al. 2006, 2008). Preventing unwanted pregnancy among HIV-positive women is also cost effective: reducing unintended pregnancy among HIV-infected women by just 16 percent would yield a reduction in infant cases equivalent to that achieved through the use of nevirapine-based prophylactic strategies (Sweat 2004). Avoiding unwanted pregnancies allows women living with HIV to maximally preserve their own health (van der Paal et al. 2007), and eliminates unnecessary reproductive health risks commonly associated with pregnancy and childbirth in the general population including maternal mortality and various maternal morbidities (Filippi et al. 2006). In Swaziland and Zambia, 29 and 26 percent, respectively, of respondents of reproductive age received an HIV test result in the year prior to the survey; only about 10 percent of women in Zimbabwe and Lesotho did. These numbers highlight critical missed opportunities to minimize the contribution of new infections to the epidemic – and to preclude the suffering associated with infant exposure to or infection with HIV.

Joining the two perspectives

Preventing unwanted pregnancy among HIV-positive women is an intervention located at the intersection between reproductive health concerns and those related to HIV. It can serve as the basis of a joint, rights-based agenda for advocacy and action with and on behalf of all women, including those living with HIV, that is long past due.

There is a delicate balance to be struck if RH/FP and HIV prevention agendas are to merge for effective collaboration. Ensuring trust is crucial. A good working relationship between the two constituencies, through ensuring universal access of all women to HIV testing and RH/FP services, will reduce maternal morbidity among all women, help all women have only the children they want, and reduce MTCT significantly without stigmatizing HIV-positive women or implying that HIV-positive women should be targeted for fertility control. It must also be recognized that women function within a social, gendered ecological system where the ability to negotiate fertility and contraceptive use outcomes is often contingent upon the cooperation of others in her immediate environment. Ensuring universal provision of these services by itself will not provide a complete solution to the problem of unintended pregnancy, but it is an essential element of a rights-based approach to eliminating transmission of HIV from mother to child.

We therefore hope that the results presented here contribute to building the evidence base for such a joint agenda between HIV/AIDS and RH/FP advocates to ensure universal access to both HIV counseling and testing services and family planning and reproductive health services. Only when women know their HIV serostatus and have unrestricted access to appropriate reproductive health and family planning services are they empowered to make fully informed decisions about childbearing. We have seen that such informed decisionmaking results in behaviors that prevent transmission of HIV, and as such have the potential to change the epidemic itself.

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ⁱ Unmet need for spacing includes pregnant women whose pregnancy was mistimed; amenorrhoeic women who are not using family planning and whose last birth was mistimed, or whose last birth was unwanted but now say they want more children; and fecund women who are neither pregnant nor amenorrhoeic, who are not using any method of family planning, and say they want to wait 2 or more years for their next birth. Also included in unmet need for spacing are fecund women who are not using any method of family planning and say they are unsure whether they want another child or who want another child but are unsure when to have the birth. Unmet need for limiting refers to pregnant women whose pregnancy was unwanted; amenorrhoeic women who are not using family planning, whose last child was unwanted and who do not want any more children; and fecund women who are neither pregnant nor amenorrhoeic, who are not using any method of family planning, and who want no more children. Using for spacing is defined as women who are using some method of family planning and say they want

to have another child or are undecided whether to have another. Using for limiting is defined as women who are using and who want no more children. Note that the specific methods used are not taken into account here.