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Fertility Decision-Making Among Kenyan HIV-Serodiscordant Couples Who Recently Conceived: Implications for Safer Conception Planning

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Abstract

HIV-serodiscordant couples often choose to attempt pregnancy despite their HIV transmission risk. Optimizing delivery of HIV risk reduction strategies during peri-conception periods (i.e., safer conception) requires understanding how HIV-serodiscordant couples approach fertility decisions. We conducted 36 in-depth individual interviews with male and female partners of Kenyan heterosexual HIV-serodiscordant couples who recently conceived. Transcripts were analyzed by gender and HIV serostatus using open coding. Matrices were used to identify patterns and emerging themes. Most participants expressed acceptance of being in an HIV-serodiscordant couple and affirmed their resilience to live with serodiscordance and achieve their fertility goals. Overall, while the goal for childbearing was unchanged, conception became an urgent desire so that both partners could experience childrearing together while the HIV-infected partner was still healthy. Children also add value to the relationship, and multiple children were a commonly expressed desire. Couples' desires dominated those of individual partners in fertility decision-making, but male preferences were more influential when the individual desires differed. Values and preferences of the couple as a unit may mediate fertility decision-making in HIV-discordant couples. Thus, it is important that safer conception programs include both partners when appropriate and consider the relationship context during risk reduction counseling and when recommending risk reduction interventions.

Introduction

Fertility desires among HIV-serodiscordant couples are common, and strategies exist to reduce HIV transmission risk for couples desiring conception.[1–8] Yet in sub-Saharan Africa, where approximately 50% of couples with an HIV-infected partner are HIV-serodiscordant, these ''safer conception'' strategies are often unavailable or not discussed early enough with HIV-serodiscordant couples who desire children.[9,10] These couples would benefit from education and counseling about accessible and feasible safer conception strategies that protect HIV-uninfected partners during peri-conception (i.e., pregnancy attempts without condoms). For African HIV-serodiscordant couples in low resource settings, feasible peri-conception risk reduction strategies may include limiting condomless sex to peak fertility periods, antiretroviral pre-exposure prophylaxis (PrEP) taken by the HIV-uninfected partner, antiretroviral treatment (ART) to suppress viral load of the HIV-infected partner, treatment of sexually transmitted infections, infertility screening, and/or vaginal self-insemination when the woman is HIV-infected.[3,11–14]

Prior to widespread delivery of safer conception interventions and counseling, it is important to understand how HIV-serodiscordant couples approach fertility decisions in settings with high HIV prevalence. Safer conception interventions ideally involve both partners of an HIV-serodiscordant couple. However, most studies to date investigating fertility intentions and decisions among people affected by HIV focus on individual-level determinants rather than discourse of fertility decision-making of the couple as a unit.[15–17]

Crankshaw et al. (2012) developed a framework adapted from the Information-Motivation-Behavioral Skill Model of HIV Preventative Behavior describing elements of

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conception-related HIV risk behaviors among HIV-serodiscordant couples.[18] The framework outlines individual, couple, and structural-level domains that collectively shape peri-conception transmission risk for HIV-serodiscordant couples who wish to conceive. Further information on determinants of conception-related HIV risk behavior beyond individual-level factors is needed to elucidate the complex dynamics of fertility decision-making among HIV-serodiscordant couples and optimize delivery of safer conception strategies.

We previously reported data on fertility intentions and HIV risk perceptions using qualitative methods among HIV-serodiscordant couples experiencing pregnancy in Thika, Kenya.[19] We found that among individuals in HIV-serodiscordant couples, the desire for children outweighed HIV transmission risk, and men and women approached fertility differently. The objective of the present analysis was to identify and describe the fertility decision-making processes that precede pregnancy attempts and mediate HIV risk behaviors during peri-conception periods among both members of HIV-serodiscordant couples with a goal of informing safer conception programs.

Methods

Study population

This qualitative study was nested in a randomized clinical trial of pre-exposure prophylaxis (PrEP) for HIV-1 prevention in HIV-serodiscordant couples (the Partners PrEP Study).[11] Trial recruitment, eligibility and exclusion criteria, follow-up procedures, and detailed study participant characteristics have been previously described.[11,20] All couples received a comprehensive package of HIV prevention services, including individual and couples risk-reduction counseling, contraception, and condoms. All couples had mutually disclosed their HIV status and were followed prospectively for up to 36 months. HIV-uninfected women were counseled to delay pregnancy until participation in the clinical trial was completed, but they were able to continue follow-up without study drug if they became pregnant. Participants of this qualitative study resided near Thika, a peri-urban site 45 kilometers north of Nairobi, Kenya where Kikuyu culture is prominent.

Couples were purposefully recruited for in-depth interviews (IDIs) from couples that became pregnant during follow-up in the Partners PrEP Study. IDIs were intended to capture individual experiences with becoming pregnant and were conducted separately for male and female partners. The purposive sampling strategy aimed at having a balance of couples with HIV-infected men and HIV-infected women.

Data collection and analysis

IDIs were conducted in Kiswahili or English between March 2011 and January 2012 by one member of the social science team at Thika site who was also a trained counselor. Partners were interviewed separately during IDIs and did not have contact between interviews to prevent couples from discussing responses. A semi-structured interview guide was used for IDIs to explore the following key topics: motivations for childbearing, fertility intentions and decision-making within couples, and knowledge/use of safer conception methods.

Audio-recorded interviews were transcribed and translated into English. All interview transcripts were thoroughly read by the first author to generate initial codes using an inductive approach and then loaded into ATLAS.ti (version 6.1.2, Berlin, Germany) to aid in organization and data management.[21,22] Two additional authors separately read and coded all transcripts. Coding was compared across coders to check for consistency of text interpretations. An interpretivist approach allowing for concepts to emerge without *a priori* determination was utilized for this study to account for the exploratory nature of the research question and limited previous data on this topic.

Using Glaser and Strauss' approach to open coding, free codes were generated.[23] Based on similarities, these free codes were then organized into related categories or themes. Emerging themes were organized into groups within the couple-level domain outlined by Crankshaw et al.[18] including gender power, how couples communicate with one another, and acceptance of partner's HIV status. Data were analyzed by gender and HIV serostatus using matrices to compare themes and codes across IDIs.

Results

A total of 18 HIV-serodiscordant couples (10 with an HIV-infected female partner and 8 with an HIV-infected male partner) participated in the 36 IDIs with demographic characteristics similar to those of all couples at the Thika site (Table 1).The average age was 27.5 (range, 21–35) years for female partners and 32.5 (range, 22–46) years for male partners. Most couples interviewed were married (94.4%) and had children together (77.8%) before becoming pregnant during their participation in the parent study. Some participants had children with another partner prior to study enrollment (38.9% of females, 22.2% of males). At the time of interview, 12 couples had a female partner that was currently pregnant. Among those pregnant, the average gestational age was 16 weeks (range, 5–29). Among postpartum couples, all infants were less than 10 months old. Three major themes emerged from the IDIs related to discourse of fertility decision-making within couples: realization and acceptance of HIV-serodiscordance, the meaning of children to the couple as a unit, and gender power dynamics.

Realizing HIV-serodiscordance

It was not uncommon for at least one member of the couple to struggle understanding the meaning of HIV-serodiscordance and that their serodiscordant HIV test results were accurate. Several couples explained that understanding and ''believing'' HIV-serodiscordance was a process that took time and effort from both partners. One HIV-infected participant described her partner's initial disbelief:

> *''We had stayed in the courtship for about 3 months and I told him the truth [that I was HIV-infected] but he didn't believe. We stayed [together] and I got pregnant. When I was 7 months pregnant, I thought he now had the same HIV status as me. When we went and tested, he was negative. He still has trouble believing [our HIV-serodiscordancy] until today. Maybe if I start things like those [ARVs], he may feel it is the truth.''* (HIV-infected female partner, age 28)

Accepting the reality of HIV-serodiscordance after learning discordant HIV statuses appeared to motivate the decision to

Table 1. Demographic Characteristics of Male and Female Study Participants

	Women (n = 18) n (%)		*Men (n = 18)* n (%)
Age, mean (range)	27.2 (21–35)		31.2 (22–46)
HIV-infected	10 (55.6%)		8 (44.4%)
Married	17 (94.4%)		17 (94.4%)
Pregnant at the time of the interview (vs postpartum)		12 (66.7%)	
Gestational age among pregnant women at the time of the interview, mean (weeks), mean (range)[a]		16 (5–29)	
Total number of children, prior to enrollment in the Partners PrEP Study, mean (range)	1.8 (0–3)		1.9 (0–4)
Number of children with study partner prior to enrollment in the Partners PrEP Study[b]			
0		4 (22.2%)	
1		8 (44.4%)	
2		3 (16.7%)	
3+		3 (16.7%)	
Any children with another partner, prior to enrollment in the Partners PrEP Study	7 (38.9%)		4 (22.2%)

[a]Among couples with pregnant female partner.
[b]Number of children within couple as reported by the female partner.

conceive while both partners were healthy; importantly, HIV-serodiscordance was not seen as an immediate barrier to conception. Most participants perceived that it was more desirable to conceive soon after learning of their HIV-serodiscordance, while at least one parent was HIV-uninfected rather than in the uncertain future when health statuses could change. One HIV-infected participant reported:

> *''We became motivated to have a baby because we preferred to conceive now [after learning] that I am HIV positive. We thought I am supposed to get a child before I get so weak.''* (HIV-infected female, age 25)

Many HIV-uninfected participants also expressed the desire to conceive while their HIV-infected partner was healthy so that the unborn child could experience both parents alive. One participant reported:

> *''…it happened at a time when she is still strong. We know now this fetus, we will bring her up, she will know this is the mum and this is the dad…she will experience the love from both parents, rather than bringing a kid to this world and you find that one is passing away leaving the other.''* (HIV-uninfected male, age 24)

Almost all participants expressed desire for children despite HIV-serodiscordance. Participants explained they had previously agreed to have children with their partner and that learning of their HIV-serodiscordance did not alter this decision. Although participants affirmed their fertility intentions with their partners, many women ''fell'' or had ''gotten'' pregnant ''one day'' without clear planning for conception from either partner.

Learning how to remain ''healthy'' or ''strong'' or to ''live like [HIV] negative people'' provided confidence to HIV-infected participants that fertility desires could be realized despite their HIV status. Additionally, knowledge of prevention of mother-to-child transmission (PMTCT) programs provided assurance that an HIV-serodiscordant couple could produce a healthy child:

> *''I thought the children I would have [would] also be sick…I didn't think I could get a baby who doesn't have the virus because I have given birth to him when I am having that virus…I was told of the method I can use to get a child that doesn't have the virus. I have gained strength, I can give birth. And I can give birth to a child who doesn't have the virus.''* (HIV-infected female, age 26)

Most HIV-uninfected partners expressed resounding acceptance of their partner's status. Knowledge and awareness of HIV as well as love and respect for their partner influenced HIV-uninfected partners' willingness to ''go on with life'' and ''accept each other'' following disclosure. Acceptance and support took on different forms, from ''being there'' to ''encourage,'' and ''advise'' to more tangible support, such as going together for counseling or providing food and clothing. Many participants described the process of accepting their partner's status—and the challenges that come from being in an HIV-serodiscordant relationship—as paramount to staying together and moving forward as a cohesive unit, as explained by one participant:

> *''She went for testing and found how our status[es] were different, she started crying. But I told her not to think that I would be separated from her because she is like that [HIV-infected]… I only exercise the love that has kept us together. I removed the sickness [HIV] and replaced it with love.''* (HIV-uninfected male, age 36)

In many instances, participants described the act of disclosure and acceptance of HIV-serodiscordance as an affirmation of commitment to one another and their future plans as a couple. Many expressed the couple's bond could not be ''removed'' by HIV-serodiscordance and their relationship would ''persevere'' or ''continue'' through this obstacle. Some participants expressed that discovering their partner's HIV status meant that ''we have HIV'', signifying solidarity as a HIV-serodiscordant couple. Even in cases where participants were initially scared or frustrated by serodiscordance, they resolved to stay together and work through

life as an HIV-serodiscordant couple. One participant shared his experience of accepting his wife's HIV status:

> *''I wondered should I leave her or what should I do because my heart loved her. It came to a time that I said there was no need, if it is dying let us die together, so now we sat and up to now we have been there, we have not had any disagreements.''* (HIV-uninfected male, age 24)

Meaning of children to the couple

Children were perceived as a means of ensuring validity and security of couples, solidifying the partnership. Relationships, specifically marriages, were believed to be more valuable or legitimate if the couple produced a biological child. The desire for additional children was more acute if either partner had entered the marriage with a child from a previous relationship:

> *''…like me, she is in a second marriage and I have other kids… To her, it [having a child together] was somehow what she needed to have a sense of belonging here.''* (HIV-uninfected male, age 46)

A couple's value to their extended family seemed to appreciate with each additional child as multiple children pleased the larger extended family and created a sense of ''belonging'' with in-laws. Children reportedly brought intimacy to relationships and established a family as a legitimate ''home.'' Children were also believed to be an important lasting legacy for the couple. Many participants perceived children as a solution to their worries about the future or uncertainty over what would happen after their own and their partner's death. Some HIV-infected individuals described children as a way of being remembered by their partner if they succumbed to their illness, as one participant described:

> *''If you die and you don't have a child, you will leave your husband [alone]…There is something that you can leave him with that he will be remembering you by, so I decided to have a baby.''* (HIV-infected female, age 21)

Gender power dynamics

Despite the nature of relationships being described as accepting and supportive in terms of HIV-serodiscordance, a theme of unequal power in fertility decisions between male and female partners emerged. Even though men and women reported desires for children, many participants expressed some level of male authority in the decision of how and when to conceive. Male influence over fertility decision-making within couples, regardless of HIV status, was described in different capacities ranging from using ''force'' when women ''refused'' to more passive coercion. Many women described situations where they felt pressured by their male partner to conceive while fearing HIV transmission, even if the man's preference was not aggressively forced.

Some women decided to conceive because they felt that conception would bring happiness to their male partner or demonstrate support as an ally to their HIV-infected partner. One participant said:

> *''…He was satisfied when I told him I had gotten a child. I was not planning to get, I wanted to take care of the two [children I already had] only…you, who doesn't have the virus, uplift him and show him that he is somebody [by giving him a child]…I would like to give birth for him because he is not a bad person.''* (HIV-uninfected female, age 30)

In some cases, women did not initially want to become pregnant at the time when their partner intended and expressed uncertainty about conception. These feelings arose from concerns about peri-conception HIV risk among HIV-uninfected women and health maintenance during pregnancy among those HIV-infected. Some women also perceived the couples' current resources to be too limited to ''manage'' and ''support'' the ''cost'' of multiple children. Despite raising these concerns, male partners' fertility desires steered the couples' fertility decision-making because the man was valued as the ''head'' of the couple and women ''had to accept.'' In these situations, the reasons for desiring conception among male partners appeared to be a result of factors extrinsic to the couple as expressed by one male participant:

> *''…I am the one [in our marriage] who felt that I should have another child now because I was growing old and my peers, all of them, had children and I was the only one left [without multiple children]. You know what it is like when you only have one eye, and something pierces it…you don't remain with any. So you should have two eyes. So I think we should have at least 2 children now.''* (HIV-uninfected male, age 29)

Discussion

Fertility decisions are complex among HIV-serodiscordant couples who have to weigh HIV transmission risk with their desires for children. In this qualitative study among HIV-serodiscordant couples who recently conceived in Kenya, three major themes emerged related to fertility decision-making: timing preferences for children were more urgent once a couple fully accepted their HIV-serodiscordant status, the value of children to the couple's partnership, and gender power dynamics. Our results describe couple-level determinants not previously reported in this population that influence fertility decision-making within the environment of high HIV risk and the desire for children.[24] This study expands on the relationship context presented by the Crankshaw et al.[18] framework to include values and preferences of the couple as a unit that challenge or supersede individual-level motivations and intentions. Our results add to data informing safer conception programs by identifying factors for providers to consider when counseling HIV-serodiscordant couples desiring conception.

In this study, participants reported that children add substantial value to their relationship by providing the partnership with legitimacy and legacy, which was extremely influential on fertility decision-making. Consistent with other studies, we found participants wanted to maintain their relationship and have a child or children together despite their or their partner's HIV status.[25–30]

In our study, fully accepting the reality of being in a HIV-serodiscordant couple was an important contextual element influencing fertility decision-making and timing of conception. Couples commonly wanted to have children in the near future when both partners were expected to be healthier and able to partake in childrearing. This finding could have implications for safer conception strategies that include antiretroviral therapy use by the HIV-infected partner, which requires $\sim$3–6 months to achieve viral suppression.[31] The urgency to conceive, particularly soon after discovery of

serodiscordant status, is important to recognize and counseling about delaying pregnancy attempts should be incorporated into safer conception counseling, especially for couples with an asymptomatic HIV-infected partner who is not currently using ART.[32]

Consistent with our prior work, we also found that the economy of power in couples often favored male partners which, in scenarios reported by our study population, resulted in fertility decisions with male authority. The key role of men in peri-conception decisions has been highlighted in previous studies reporting that pregnancies unintended by women were often desired by male partners.[16,25,29,33–36] In our study, fertility decision-making was characterized by most women as having joint participation and not primarily an expression of male dominance. However, some scenarios were indicative of imbalanced gender power because women were motivated to conceive in order to please male partners. Gender power dynamics likely also impact HIV risk behaviors independently of individual motivation and behavior.[18,37–39]

Our findings suggested that women gained power in the relationship by having children, perhaps by legitimizing the union with biological children desired by male partners. Women uncertain about conception described raising concerns regarding pregnancy and HIV risk with their partners, but ultimately the couples' decision to conceive conceded to the male partners' desires. This level of gender power imbalance suggests a more subtle form of male authority in fertility decisions than previously described underscoring that early male engagement in safer conception intervention delivery is important.

Women's report of discussing their concerns with male partners reveals a potential entry point for providers to intervene by counseling couples on how to effectively communicate fertility concerns with one another. Even in relationships that lack male partner support or HIV status disclosure, knowledge and awareness of safer conception options among women who are motivated to protect their future baby may facilitate discussions about safer conception and use of safer conception strategies.[40–42]

Both HIV-infected men and women with serodiscordant partners have been receptive to safer conception counseling as part of routine HIV care.[43] Integration of safer conception counseling and discussion of fertility desires into routine HIV care provides opportunities to introduce safer conception strategies prior to pregnancy attempts, especially to HIV-infected men who are already established in HIV care and may not otherwise receive information on safer conception.[44,45]

Other studies have reported that although HIV-serodiscordant couples desired children, conception was rarely planned and advice was only sought after pregnancy.[46] Discussion of safer conception strategies with providers early in HIV care with male participation may reduce potential HIV transmission risk from these missed opportunities.[17] Couples with HIV-infected men need to be counseled on safer conception strategies that support fertility goals of both partners while minimizing HIV risk to the woman. Provider-initiated safer conception counseling for HIV-serodiscordant couples may also provide an important entry point for addressing other issues in this population, such as male involvement in antenatal care and PMTCT.[47,48] Models aiming to improve male involvement in PMTCT through counseling and cognitive behavioral sessions for both male and female partners on issues like partner communication, gender dynamics, and sexual risk reduction are relevant and may also inform delivery models for safer conception programs.[49]

This study has limitations that should be considered. Participants were purposively sampled from one community to learn about the experiences of HIV-serodiscordant couples that had recently conceived, and as such, the findings indicate only the experience of HIV-serodiscordant couples in that community who were willing to participant in the parent clinical trial. Additionally, the couples in this sampling frame were all mutually disclosed and receiving regular counseling as part of routine participation in the parent study. Therefore, the results cannot be generalized to all HIV-serodiscordant couples in sub-Saharan Africa. Data collection for this study was not designed to juxtapose within-couple male and female responses. Future work could include content analyses comparing how each member of a couple perceives fertility decision-making. This analysis also focused explicitly on the most recent pregnancy of couples and cannot describe the totality of all fertility decision-making experienced by the couple.

In our study, couple-level determinants dominated the path from individual fertility desires to actual fertility decision-making by HIV-serodiscordant couples. The economy of gender power, ability to accept HIV-serodiscordance, and the meaning of children within couples influenced fertility decision-making downstream of individual-level determinants. These couple-level determinants may mediate individual HIV risk behavior and should be considered by healthcare providers counseling HIV-serodiscordant couples on safer conception. Even in situations where HIV-affected individuals seek pre-conception counseling without their sexual partner, our findings imply that couples-based counseling could be encouraged among these individuals in order to optimize pre-pregnancy health.

Our findings also support the integration of couples-based safer conception counseling into HIV care as an entry point for addressing important issues affecting HIV-serodiscordant couples in addition to HIV risk reduction during peri-conception. Safer conception interventions must consider values and preferences of couples and complex dynamics of fertility decision-making beyond the individual-level in order to maximize the potential for a healthy pregnancy without HIV transmission to the uninfected partners or unborn baby.

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