

Importance of Relationship Context in HIV Transmission: Results From a Qualitative Case-Control Study in Rakai, Uganda

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We present results from life history interviews with 60 young adults from southern Uganda. Using a novel qualitative case-control design, we compared newly HIV-positive cases with HIV-negative controls matched on age, gender, marital status, and place of residence. Relationship context was the most salient theme differentiating cases from controls. Compared with HIV-negative respondents, recent seroconverters described relationships marked by poorer communication, greater suspicion and mistrust, and larger and more transitory sexual networks. Results highlight the importance of dyadic approaches to HIV and possibly of couple-based interventions. Using HIV-matched pairs allowed additional understanding of the factors influencing transmission. This hybrid methodological approach holds promise for future studies of sexual health. (*Am J Public Health*. Published online ahead of print February 13, 2014: e1–e9. doi:10.2105/AJPH.2013.301670)

Thirty years into the HIV pandemic, a tremendous need remains to understand the factors shaping HIV transmission among youths, especially in settings in which HIV prevalence is high. Although the annual number of new HIV infections globally fell 21% between 1997 and 2010,¹ the shifting pandemic has been particularly burdensome to young adults. Among people of reproductive age across the world, 2 of 5 new HIV cases (40%) occur among those aged 15 to 24 years.² Of these cases, 63% live in Sub-Saharan Africa,³ and three quarters (76%) are young women.⁴ A similar pattern is found in Uganda. After significant declines in HIV prevalence in the 1990s,⁵ HIV prevalence has stalled and even risen slightly in the past decade,⁶ and significant gender disparities in HIV acquisition remain, with young women more than 3 times as likely to be infected as young men.^{7,8} Further progress in HIV prevention may benefit from a better understanding of the contextual factors influencing HIV transmission, particularly how young adults themselves understand and negotiate these HIV risk factors.

Mmari and Blum⁹ reviewed 61 articles on HIV risk and protective factors affecting adolescent health in developed countries. They noted the lack of contextual, ecological perspectives in these studies, arguing that research

must move beyond individual-level factors to address interpersonal, community, cultural, and structural influences. Recent epidemiological research with youths in Uganda, including our own quantitative research, has established important associations between HIV infection and biological and behavioral factors such as circumcision, multiple partnerships, symptoms of sexually transmitted infection, staying in school, and marital dissolution.^{8,10} Locating these individual-level factors in the relationships, cultural norms, and structural constraints that young adults navigate every day could produce important new insights.

Qualitative and ethnographic research methods have been very helpful in illustrating the contextual influences on HIV transmission, both in and beyond Uganda. In their recent review of qualitative research and HIV/AIDS in West Africa, Samuelsen et al.¹¹ emphasized the value of qualitative studies in understanding local situations—understanding that will enable broader translation and application of local clinical and epidemiological studies. Qualitative “thick description” of a human behavior aims to explain not just the behavior but its context, such that the behavior becomes meaningful to an outside observer, researcher, or policymaker.¹² By adding such thick description to biological and behavioral risk

factors surveyed in epidemiological studies, researchers have added nuance to unexplained or confusing quantitative findings. Qualitative studies across the globe have been helpful in explaining seemingly irrational behaviors such as the nonuse of condoms by young people facing considerable risk of HIV infection; such research has used the perspectives of gender and sexuality theory to explore the psychological, relational, and financial benefits of unsafe sex for people, especially young women.^{13–17}

Along these lines, qualitative methodologies may be especially useful in explaining the vital ways in which gendered power imbalances influence women’s and men’s sexual interactions, including multiple partnerships and opportunities for extramarital affairs,^{18,19} negotiation of condom and other contraceptive use, and sexual coercion and violence.^{20,21} In her ethnographic work on HIV risk among married couples in northern Uganda, Parikh²² found that men’s extramarital activities were ubiquitous, whereas local and national HIV prevention messages inadvertently increased the moral stigma of extramarital sex. Thus, prevention efforts intensified men’s motivations to keep these infidelities secret and thereby increased potential HIV risk to their wives. Likewise, qualitative work with young male motorbike taxi riders in southern Uganda has documented the ways in which local beliefs about ideal manhood are dependent on men’s sexual promiscuity, elevating the HIV risk of both these young men and their partners.²³ Finally, focus-group discussions and open-ended interviews with adolescent women in Rakai District revealed that sexual coercion is a common part of early sexual experiences and sexual partner relationships among young women in this region of Uganda.²¹

Despite the substantial benefits of qualitative research methods in contextualizing and elucidating HIV risk factors, few researchers have

explored recent HIV infection or compared HIV-negative young people with their recently infected peers. With a few exceptions,²⁴ when qualitative studies have attempted to collect data from HIV-infected respondents, such respondents have rarely been infected within the past few months; people who have seroconverted in recent months versus years are likely to have more accurate recall about the events and relationships surrounding transmission. Combining the deeper contextual nuances of qualitative research with the explanatory potential of case-control epidemiologic approaches stands to greatly benefit the field.

In this study, we had the opportunity to recruit life history participants from an annual community cohort study and to adapt an epidemiologic case-control approach in creating our qualitative sampling frame. As such, we compared study participants who had seroconverted in the past year (cases) with HIV-negative controls matched on gender, marital status, age group, and place of residence. We collected rich life history data from these matched pairs to explore the contextual factors that helped explain why some young people had contracted HIV in the past year while others had remained virus-free.

METHODS

The Rakai Youth Project (2009–2014) uses mixed methods to explore changing patterns of HIV incidence among youths aged 15 to 24 years in Rakai, Uganda. Rakai, located in the southern part of Uganda near Lake Victoria, is a largely rural region with many peri-urban trading centers. A quantitative arm of the study analyzed Rakai community cohort data from approximately 7500 young adults over 9 years to explore changing behavioral, biological, and

demographic risk factors.⁸ In this article, we focus on the study's qualitative arm, in which we conducted life history interviews to situate young people's risk or protective factors within the context of their lives and relationships.

We selected life history participants from the Rakai Community Cohort Survey (RCCS), an ongoing longitudinal epidemiological investigation of Rakai residents aged 15 to 49 years.^{25,26} Investigators established the current 50-village RCCS in 1994–1995, based in part on an earlier, smaller cohort study launched in 1989. RCCS participants are surveyed annually in their villages, at which time they also receive HIV prevention education and provide biological specimens for HIV and sexually transmitted infection testing. Two separate enzyme-linked immunosorbent assay tests are used to determine HIV cases within the RCCS, and these results are confirmed by HIV-1 western blot.²⁷ RCCS participants with positive HIV test results receive follow-up visits, counseling, and referrals to antiretroviral therapy at the Rakai Health Sciences Program.

In recruiting life history participants, we created a nested qualitative case-control design. Using RCCS data, we located 30 young adults aged 15 to 24 years who had tested negative for HIV in the prior year's RCCS and positive in the latest RCCS. We then matched these 30 incident cases with 30 HIV-negative controls. Although respondents were interviewed separately, respondent pairs served as the unit of analysis. We created a sampling frame based on the variables most likely to affect HIV transmission: gender, marital status (never married, currently married, previously married), and age (15–19, 20–24 years). We also matched respondents by place of residence—small communities or clusters of villages within Rakai District with similar

socioeconomic and geographic characteristics (e.g., a rural vs a peri-urban setting). Rakai District consists of 11 communities that were originally designated and selected by researchers and health programmers at the Rakai Health Sciences Program. Incidence cases were located in 10 of the 11 communities. Our goal was to match HIV-positive and HIV-negative respondents while controlling for variables associated with HIV exposure. Although socioeconomic status is a strong correlate of HIV risk in many parts of the world, Rakai is relatively homogeneous in terms of socioeconomic status, and it has not emerged as a correlate of HIV incidence in the significant epidemiologic research in the region. Thus, we decided to stratify on the basis of variables more strongly associated with HIV incidence in Rakai—gender and marital status—while controlling for place of residence.

We made small changes to the sampling frame as participant recruitment ensued. For example, HIV incidence among adolescents had dropped in Rakai by the latest round of the RCCS²⁸; therefore, other than 2 respondents aged 19 years, we were unable to recruit anyone in the 15 to 19 years age range. Nor did many HIV incidence cases emerge among previously married young men. The final sample of 60 life history informants included 34 women and 26 men, half of whom were HIV-negative and approximately a third of whom fell into each marital category (Table 1).

Interview Procedures and Content

Once potential participants were selected from the RCCS, they were approached by members of the qualitative research team from the Rakai Health Sciences Program. To protect identities and reduce stigma, we informed all potential participants that we were interested in

TABLE 1—Respondent Sampling Frame (n = 60): Rakai Community Cohort Survey; Rakai, Uganda

Age, Years	HIV-Positive Young Women			HIV-Positive Young Men			HIV-Negative Young Women			HIV-Negative Young Men		
	Never Married	Married	Previously Married	Never Married	Married	Previously Married	Never Married	Married	Previously Married	Never Married	Married	Previously Married
15-19	2						2					
20-24	3	6	6	6	5	2	3	6	6	6	5	2
Total	5	6	6	6	5	2	5	6	6	6	5	2

learning more about young people's lives, relationships, and goals in light of HIV/AIDS in Uganda. Consent forms did not discuss the sampling method based on HIV serostatus. Interviewers were not told respondents' serostatus; only we had access to the master sampling frame (we did not conduct interviews ourselves). Reasons for keeping interviewers blind to respondent serostatus were primarily ethical. The Rakai Health Sciences Program does not force anyone to receive his or her HIV test results, and only specially trained counselors are permitted to disclose the results of such tests. If interviewers had been aware of respondents' serostatus, they might have inadvertently disclosed this information to the respondents, regardless of the respondents' desire for this information. An added reliability benefit was that interviewers were not tempted to ask specific questions of participants whom they knew to be HIV-positive; they followed the same interview guide for all respondents. If the respondent did acknowledge being HIV-positive, interviewers were trained to follow up not only with specific prompts (e.g., "Tell me how you think you became infected with HIV") but also with referrals to counseling and services as needed.

The interview guide consisted of 4 main parts: (1) key life events and goals, which captured participants' aspirations and experiences with schooling, employment, and other factors; (2) pregnancy and parenthood, which included pregnancy desires, pregnancy history, and family planning use; (3) HIV and reproductive health knowledge and attitudes, including self-assessment of personal HIV risk; and (4) sexual relationships, to explore participants' current relationship status and recent relationship history. Topics moved from less to more sensitive to enhance rapport and validity.

To both enhance rapport and cover all topics, life history interviews took place over the course of 2 meetings, with each half of the interview lasting around 1 hour. Interviewers requested permission to reinterview at the beginning and end of the first interview and again at the start of the second interview. Interviewers were the same gender as interviewees, and they conducted interviews in private settings in or near participants' homes or workplaces, out of earshot of acquaintances and family members. In keeping with other

research in the region, each participant received 3000 Ugandan shillings (approximately \$1.30) per interview, for a total of 6000 Ugandan shillings for the completed life history.

Interviews were conducted in Luganda and tape recorded for subsequent transcription. Interviewers wrote summaries of their reflections and observations in English immediately after each interview, and these summaries were included in the body of data analyzed. Interviewers translated their own verbatim transcripts from Luganda to English. We reviewed each transcript for clarity and accuracy.

Data Analysis

We developed a codebook based on the research questions of interest and preliminary transcript readings and discussions. The final list of 37 codes included axial umbrella categories such as life goals and transitions; relationships and marriage; HIV knowledge, attitudes, and behaviors; and multiple partners. The coding scheme also incorporated partner blocks so that we could label and subsequently examine codes on the basis of each of the sexual partnerships in which respondents were engaged (partner 1, partner 2, etc.).

To ensure consistent use of codes, we individually coded 4 different interview transcripts, then met as a group until we reached consensus for every single code and partner block. All transcripts were coded as pairs—that is, we coded the matched HIV-positive and HIV-negative respondents in sequence. Two team members coded each interview, then met to discuss the coding until they reached agreement on all codes and partner blocks. One analyst from each pair was assigned as lead and took responsibility for writing up a 2-page memo for each interview pair, summarizing the main narratives, notable themes, and similarities and differences between the HIV-positive and HIV-negative cases. We followed a similar quality-control process for the memos, reviewing the first 4 memos as a group to discuss and reach consensus on format. Each subsequent memo was closely reviewed and, if necessary, the lead analyst provided additional information or details to be consistent with other memos.

Matched-pair memos served as the primary focus of our analysis, though coding reports added nuance and detail when necessary. We

carefully read through the memos and took systematic summary notes on the contextual differences and similarities that could help explain HIV transmission among the HIV-positive respondents in each pair. We then constructed a series of data display matrices—tables that helped to organize and analyze qualitative data according to the research questions and comparison of interest. First, we used a magnitude-of-difference data display to track the degree of difference between the HIV-positive and HIV-negative cases. In many pairs, the HIV-positive respondent exhibited striking elevated contextual risk factors compared with the HIV-negative respondent, whereas in other cases, fewer differences emerged. We then created a data display matrix for each of the themes that surfaced during preliminary work with the memos; using the memos and transcripts, we selected quotations to help illustrate the depth and breadth of each theme. Matrices showcased the array of differences and similarities for that particular theme across all 30 HIV-positive–HIV-negative pairs, with separate rows for each gender and marital category to allow for comparisons across these categories as well. Coding reports and the interview transcripts themselves helped fill in details as needed.

RESULTS

We were surprised to find few notable differences between HIV-positive and HIV-negative respondents for 3 of the 4 main interview themes: (1) key life events and goals, (2) pregnancy and parenthood, and (3) HIV and reproductive health knowledge and attitudes. For example, we wondered whether young people with aspirations for advanced schooling might be comparatively protected against HIV. Yet both HIV-positive and HIV-negative respondents described life goals that had been truncated by factors such as death of a parent or lack of family financial resources and school fees. Both HIV-positive and HIV-negative young women described early pregnancies that led to school dropout. HIV-related knowledge also seemed remarkably consistent across serostatus. Perhaps in keeping with the widespread HIV educational activities in the area, virtually all respondents had relatively good knowledge of how HIV could be

transmitted and prevented. In terms of pregnancy and parenthood, HIV-positive and HIV-negative respondents did understandably differ in terms of their thoughts about having children in the future; however, this phenomenon seemed more related to postdiagnosis differences than pretransmission differences.²⁹

Sexual relationships were the only main interview theme that consistently highlighted differences between HIV-positive and HIV-negative matched respondents. In the overwhelming majority of matched pairs, at least some degree of difference existed in participants' reports of relationship communication, trust, and partnership number and type—even in those cases in which the HIV-positive respondent seemed unaware of her or his serostatus. Sexual partnerships of HIV-positive respondents seemed qualitatively unlike those of HIV-negative respondents along lines of communication, trust, and suspicion. HIV-positive respondents were also more likely to describe multiple partnerships, as well as relationships with shorter-term partners or with partners about whom they knew comparatively little.

However, these themes cannot be removed from the structural and cultural context in which they occurred. Undergirding these broad contrasts were even broader factors such as parental death or other early-life upheavals, resource scarcity, work-related migration, and gendered power dynamics. By gendered power dynamics, we mean pervasive societal characteristics that result in men's disproportionate power in society and their control over decision-making in a number of areas,³⁰ including the sexual arena and safe-sex negotiations.^{31–33}

In keeping with our qualitative case-control methodology, we present findings in pair form only; we never present a respondent example or quotation without a comparison example from the other member of the pair. In this way, we use the differences between paired respondents as evidence rather than the customary individual cases.

Relationship Communication about HIV

Compared with HIV-positive respondents, HIV-negative controls were more likely to report speaking with their partners about a number of issues, most strikingly HIV prevention. (HIV-negative respondents also seemed more likely to communicate about family planning

with their partners, which we explored in another analysis of these data.²⁸) In the most persistent difference across all 30 pairs in the study, HIV-negative respondents were more likely than their HIV-positive counterparts to have talked with their partners about HIV status and testing, to be familiar with their partners' testing history, and to have sought couples-based HIV testing together with their partners. For interpretation purposes, it is important to note that couples who perceived their HIV risk to be low may have felt it easier to discuss HIV than those who perceived their HIV risk to be elevated. Communication patterns could thus be both a cause and a consequence of HIV risk. However, communication patterns seemed distinct even across other topics such as family planning and even across relationships that began well before seroconversion may have occurred.

For example, the married women in 1 pair were similar in a number of ways: Both were in their early 20s; had been unable to fulfill their schooling and employment aspirations; reported stable relationships with their husbands, who traveled extensively for their jobs; and reported no condom use. However, the HIV-negative respondent and her spouse had tested for HIV before they got married, with both receiving negative results, whereas the HIV-positive respondent had been trying to get her husband to take an HIV test, but he kept saying he did not have the time because of work and travel. She said that even on the day of the interview, "He was supposed to go for HIV testing today but he was called early in the morning because they had finished loading the agricultural produce. He does not have time." Other HIV-positive women reported more blatant testing refusal from their partner, such as this previously married respondent:

[My ex-husband] cautioned me never to participate in Rakai project activities. He told me that I should never test for HIV with Rakai project. When he told me so, I asked myself why he has refused me [to test]. This showed me that he is the one who infected me with the virus.

At the time of the interview, this woman had not shared her positive results with her ex-husband. By comparison, her HIV-negative match reported that she and her spouse had received HIV tests separately and shared their (negative) results.

As a result of gender-based power dynamics, women were more likely than men to describe partner unwillingness to test for HIV. HIV-positive men also reported comparatively fewer HIV-related discussions than their HIV-negative matches, but this contrast usually took the form of simply not knowing a partner's status versus having asked for test results and been refused. For example, in 1 pair of married men, the HIV-positive respondent said he did not know his wife's HIV status, nor had he spoken with her about HIV. By contrast, the HIV-negative respondent had talked with his wife not only about HIV status and prevention but also about pregnancy prevention. In a pair of previously married men, the HIV-negative respondent related that his most recent partner sought an HIV test and shared her negative results with him. By comparison, the HIV-positive respondent in this pair did not discuss HIV with either of his partners in the past year, including the woman to whom he had been married for 5 months. As with female respondents, this pattern of greater reported communication among HIV-negative respondents' relationships seemed consistent across all 3 marital groups.

Relationship Mistrust and Suspicion

In a less common but still pervasive theme, compared with HIV-positive respondents, HIV-negative respondents tended to express greater trust when describing their relationships with both primary and secondary partners. HIV-negative respondents often said they felt assured their main partner did not have other sexual partners. Far more frequently, HIV-positive respondents—particularly women—stated they did not trust their partners or know their partner's movements—a common term used to refer to sexual activity outside the realm of the primary relationship. Of course, this dynamic is hardly surprising—after all, people who recently discovered they were HIV-positive would be likely to feel mistrustful toward their recent partner or partners. However, this pattern occurred even when the HIV-positive respondent did not seem aware of her or his recent seroconversion.

To be sure, reflecting sexual opportunity structures that provide Ugandan men with more access to multiple partners, women more frequently expressed mistrust regarding

a partner's outside sexual relationships. Gender-based power dynamics meant that women often tolerated such suspicion to redeem the social and financial benefits of being in relationships with men. Yet even under the guise of widespread male sexual privilege, relationship quality and trust seemed particularly poor among HIV-positive respondents.

For example, in a pair of married women, both respondents reported mutual monogamy as their present HIV prevention strategy. However, the HIV-negative respondent reported feeling assured of her husband in this arrangement, whereas the HIV-positive respondent indicated she did not trust her partner to stick with 1 partner despite their discussions of mutual monogamy. The latter woman, who had not yet picked up her latest (positive) HIV test results, said, "I think I will acquire HIV" because "men are not reliable." Several interrelated contributing factors are important to note in this HIV-positive woman's life and relationship. Her husband, unlike her HIV-negative match partner's husband, traveled regularly for work from their home to Kampala, Uganda's urban capital several hours north of Rakai. She also reported experiencing sexual coercion with her husband, as well as having sex with him with the primary purpose of minimizing his interest in outside women. All of these factors may have understandably undermined her sense of confidence in her partner. Finally, a pair of never-married women illustrated not the lack of trust among HIV-positive respondents, but rather the presence of trust among some HIV-negative respondents. The HIV-negative member of 1 pair, who took an HIV test with her current partner at the beginning of their relationship, said, "We both trust each other so that HIV is no longer a big concern in our lives." Although her HIV-positive match did not speak directly about lack of relationship trust, she did indicate that she had neither tested nor discussed HIV status with any of her 3 partners in the past year.

Men also mentioned mistrust of their partners, though less frequently, and more so among HIV-positive versus HIV-negative respondents. As expected, such distrust was rarely connected to a man's experience of sexual coercion or having his partner refuse to use condoms. Although men certainly reported

lack of financial resources, they never described being unable to leave an unhealthy relationship because of lack of money or social support. Nonetheless, HIV-positive men in particular could report partner mistrust, especially regarding women's HIV status. For example, in 1 pair of married men, both respondents reported 1 additional partner in the past year in addition to their wives. That said, the HIV-positive respondent, who suspected he had seroconverted but had not yet confirmed his results, expressed suspicion about his outside partner. He had engaged in transactional sex with this woman, who had been visiting from out of town and who agreed to have sex with him after he gave her money. They used a condom during their first sexual encounter, but not during subsequent encounters. He then "separated from her because [he] suspected she was HIV-positive"; she allegedly had another sexual partner who the respondent surmised, because of weight loss, was also HIV-positive. By comparison, the HIV-negative respondent reported a lack of concern about HIV because he "trusts [his wife]" and reported consistent condom use with his other partner.

Partnership Type and Number

In keeping with companion quantitative research from this project⁸ as well as the pandemic more globally,³⁴⁻³⁶ HIV-positive respondents reported slightly more recent and concurrent partners than HIV-negative respondents. Some HIV-positive respondents' partners also appeared to have a greater number of outside partners. Finally, HIV-positive respondents were more likely than HIV-negative matches to report shorter term relationships and partners less well known to them rather than partners in ongoing, long-term relationships.

Across all marital groups, men were more likely than women to have had concurrent multiple partners in the past year, but a significant minority of women also reported 2 or more partners (though the overwhelming majority of women reported a primary partner, unlike some men). For example, in 1 married pair of women, the HIV-negative respondent reported 1 partner in the past year, whereas the HIV-positive respondent reported 3, 2 of whom were concurrent and 1 of whom may have had syphilis ("He used to fall sick and also

his penis would swell sometimes; he could even infect me with diseases like syphilis"). At the time of the interview, the HIV-positive respondent was married to a man with 3 other wives, and she did not know the HIV status of her husband or any of her cowives. "I suspect I have HIV," she said. "My husband has many wives, so I don't know—he may have started a relationship with me when he already had HIV."

Although, compared with women, men tended to report a larger overall number of prior and concurrent partners in the past year, the discrepancies between HIV-positive and HIV-negative respondents were very similar to those among women. For example, in 1 pair of married men, the HIV-negative respondent said he was faithful to his wife, and he emphasized the importance of staying with one's partner as an HIV risk reduction strategy. He said,

I have 1 sexual partner and I have to stick on her. The reason is: what is it I am going to get out of the extra sexual relationship that I cannot get with my primary partner? It is imperative for me to make my spouse look smart and more beautiful and nice as the one who I would admire outside my marriage.

By contrast, the HIV-positive respondent in this pair reported 4 concurrent partners in the past year, including his wife. Because of her work in another community, his wife came to his house only on the weekends, and his other partners lived both in and out of his community. He said he had not discussed HIV prevention or status with his wife or outside partners. HIV-positive respondents were more likely to describe relationships that were more transitory in nature. Discussions about HIV were also less likely to occur in such relationships.

Two Pair Case Studies

We share 4 case studies from 2 respondent pairs, both to illustrate the interconnectedness of relationship-related themes and to situate them in their lived cultural and structural contexts.

The first case study captures a pair of previously married women, aged 24 and 23 years, both of whom had 2 children. As a child, the HIV-negative respondent had hoped to become a nurse but had to leave school in her

early adolescence because she lacked school fees. She “ran away from home and got married” at age 14 years. Although she experienced domestic violence in this marriage, including a murder attempt, she managed to leave the relationship and create income for herself by running a small food shop. At the time of the interview, she was in a much stronger, far less tumultuous relationship with another man. “We are used to each other and we trust each other,” she said. “He is like my husband now.” Because she had “not yet earned enough to support a child,” she and her partner agreed to prevent pregnancy for the time being, and she was using injectable contraception. She and her partner had also sought couples-based HIV testing: “Before we started a relationship we first tested for HIV and we were told that we are HIV-negative. After that we started our relationship.” She admitted she did not know whether he had outside partners, but she expressed neither suspicion nor knowledge of damning rumors. She reported they were both concerned about HIV and committed to preventing pregnancy, indicating some degree of shared responsibility. Although this respondent had experienced financial scarcity, subsequent school dropout and early marriage, and gender-based violence, her current financial situation and partnership quality appeared to nurture a context in which she could remain free of HIV and unintended pregnancy.

Like her HIV-negative match, the HIV-positive respondent in this pair had also wanted to study nursing, but she, too, had dropped out of school in senior 1 (around age 16 years). Her father had died when she was aged 5 years, and her mother could not continue paying school fees. “There is nothing else but [lack of] money,” she said; “The problem was [lack of] money.” Her goal at the time of the interview was to make enough money to purchase land and build a house for her children, but in part because of her recent diagnosis with HIV, she said, “Time is running out.” She reported 2 nonconcurrent partners in the past year. Both men lived in neighboring communities about 25 kilometers away, both had jobs that involved travel, and both had provided her with living expenses and accommodations. She said she did not know the HIV status of either man.

Even though she had recently received HIV-positive test results, she had not shared these results with her current partner. “I tried to ask him [about HIV testing],” she said, and he refused to test, accusing her of thinking he was “sick.” Condom negotiations with this partner had also failed. “I tried to ask him [to use a condom] and he told me that he does not know how to put it on,” she reported. “Then I asked him whether I should help him to put it on and he said ‘no.’ He refused.” When asked how many partners this man may have had in the past year, the respondent sighed audibly and said, “There are many. . . . There are about 15 or 20.” At the time of the interview, she was using intrauterine contraception without her partner’s knowledge; although he wanted her to become pregnant, she wanted to avoid passing HIV on to a child. Compared with the partnership of her HIV-negative match, this respondent’s partnership was marked by covert family planning use, a much larger suspected sexual network (15–20 vs 0 suspected outside partners), condom refusal, and a lack of HIV-related communication. This woman also appeared to be more financially dependent on her partner than her HIV-negative counterpart.

The second case study was a pair of never-married men. The HIV-negative respondent, a technical school student aged 22 years, lived with his mother and reported a strong family network as well as his academic aspirations and successes. He was 1 of the few respondents currently in school; almost all of the other participants had dropped out as a result of lack of school fees or (if female) early and unplanned pregnancies. At the time of his interview, the HIV-negative respondent was not in a relationship by choice, “because I am focused on school and a child would dramatically interfere with my studies.” He reported being influenced by the guidance of his mother and teachers, who consistently advised him to abstain from sexual relationships, both for pregnancy and HIV prevention purposes, but primarily to keep him focused on and successful in his studies.

I still get ideas about getting a girlfriend these days, but I don’t give them a lot of attention because I know there is nothing good in such ideas. . . . One might contract AIDS or even get someone’s daughter pregnant when you have no financial support and you have to find a job to earn money.

In the past year, he had had a sexual relationship with a young woman from his school; he said he “used [his] leadership influence to get a girlfriend.” But they reportedly used condoms without fail, and he said he “knew she was low risk [for HIV] because she was a school girl.” Family support, money for school fees, and a promising academic trajectory all seemed to protect this young man from the kinds of relationships and sexual networks that might heighten his risk for HIV.

The HIV-positive respondent in this case, a peasant farmer aged 24 years, was orphaned at a young age and therefore did not enjoy the same family support or financial resources as his HIV-negative counterpart. He recalled scrambling for school money as a young boy: “I had to come back from school every evening and look for money, and at times I had to miss school because I had no pens. I had to look for an activity to earn money to buy pens.” This resource scarcity shaped not only his (in)ability to stay in school, but also his choice of partners. He could not afford stable, long-term girlfriends, who would cost him money and gifts.

I wanted to get an official marriage, but because I lacked money I failed to get the kind of marriage I wanted. I have only been able to get partners just for a night. . . . I wanted to marry a woman who had taken an HIV test but still I realize you need to have money. It is still a problem.

He described several brief relationships in the past year with women whose status he did not know and who often did not share HIV test results. He wondered in hindsight whether the partner who declined testing was also taking antiretroviral therapy pills—he knew she was taking medicine during their relationship, but he did not recognize the medicine as HIV-specific at the time.

At the time of the interview, his partner had recently learned she was (unexpectedly) pregnant. Although he “felt a lot of happiness” when he realized she would be having a baby, he worried about supporting the young woman and child-to-be. In contrast to his HIV-negative match, this respondent reported never using condoms—perhaps because he did not have the same motivation to avoid pregnancy given his comparative schooling opportunities (or lack thereof). This case helps illustrate some of the ways in which poverty and masculinity could heighten HIV risk through partnership type

and quality. Male respondents spoke frequently of not being able to afford long-term girlfriends, who could require significant financial upkeep. The HIV-positive respondent in this pair thus turned to more affordable, shorter-term partners, few of whom communicated openly with him about HIV.

These case studies illustrate that although relationship communication, trust, and partnership number and type often emerged as the central proximal risk factors for HIV transmission, such relationship factors were immersed in more distal contexts of resource scarcity, gendered power dynamics, and other cultural and structural influences. They also suggest the tremendous interconnectness of various themes relating to relationship factors.

DISCUSSION

Young adults make up a significant proportion of HIV-infected people globally,² and the overwhelming majority of those young adults who are infected live in Sub-Saharan Africa.³ A need exists for more contextual research on the factors leading to—or discouraging—HIV transmission, particularly of how young adults themselves understand and negotiate these factors. In this study of HIV transmission among young adults, our ethnographic case-control methodology accentuated notable contextual differences between HIV-positive and HIV-negative respondents, which overwhelmingly pertained in some way to relationships factors. Compared with HIV-negative life history informants, respondents who had seroconverted in the past year described relationships marked by poorer HIV-related communication, greater suspicion and mistrust, and larger and more transitory sexual networks. However, in the spirit of the multilayered context of qualitative research, we cannot extricate these relationship differences from other underlying factors that help explain seroconversion. Scarcity of financial and social resources and asymmetrical gendered power dynamics in particular seemed to fuel poorer relationship quality and different types of sexual partners. So although this study emphasized the importance of relational, dyadic approaches to HIV transmission, such relationship issues undoubtedly work in conjunction with cultural and structural factors.

We found that using pairs of demographically similar HIV-positive and HIV-negative respondents as the unit of analysis helped underscore differences to a far greater degree than if we had analyzed respondents individually. This hybrid methodological approach may hold promise for future studies of HIV transmission, unintended pregnancy, or other sexual health issues. Qualitative case-control studies may also serve as a useful meeting ground for otherwise methodologically distinct health professionals—for example, epidemiologists and anthropologists or health economists and qualitative sociologists.

The study's thematic contributions are closely related to its methodological contributions. Results highlight the importance of dyadic approaches to HIV—namely, that relationship contexts appear to be strongly linked to HIV-related communication, testing, and prevention practices. Our study is hardly the first to find associations among relationships, communication, and sexual health among young people.^{37–41} A significant body of research has also examined how gendered power dynamics and financial scarcity can all elevate HIV risk, particularly for women. Moreover, our findings add to the growing literature examining the ways in which masculinity and sexual partnerships can increase men's HIV risk,^{22,23} particularly when combined with men's experiences of financial scarcity, social disadvantage, or other structural factors.^{42–44} However, our findings take on new shape when placed within the methodological framework of our study. Given our unique sampling frame of HIV incident cases and demographically similar HIV-negative matches, these relationship differences do appear to be associated with seroconversion among some young adults but not others.

Because of the multilayered contextual nature of the study findings (i.e., dyadic, cultural, and structural), we must approach potential implications cautiously. For example, programs that focus on couple-based testing or communication may serve an important purpose for some couples—and such programs are in keeping with efforts in both Rakai District and many other parts of the world.^{45,46} However, dual testing is more likely to be an outgrowth than a root cause of lowered HIV risk; those couples who share test results or seek testing

together are already more protected by communication skills, negotiation abilities, and joint prevention practices. Furthermore, for couples who already experience mistrust and gender-based differentials, couple-based testing could heighten women's risk of abuse or abandonment.⁴⁷ Moreover, although HIV testing services are important, they are not a reliable prevention mechanism. A significant proportion of people who receive voluntary HIV counseling and testing never pick up their results,⁴⁵ and several studies have found no association between HIV testing and a reduction in risk behaviors or HIV incidence.^{46,48} Similarly, communication programs may do little to address fundamental issues such as gendered power dynamics that may exacerbate poor communication to begin with.

Thus, any couple-based programs must be conducted hand in hand with structural efforts such as educational reform, alleviation of poverty, and reduction of gender inequality, including financial independence of women. Indeed, Wight et al. have suggested that the lackluster results of many sexual health interventions are because they do not operate sufficiently at a structural level, nor do they often address underlying cultural factors such as gender roles and sexual norms.⁴⁹ Some programs have shown promise in using such cultural and structural approaches, including microfinance efforts,⁵⁰ cash transfer programs,⁵¹ and gender-focused interventions such as South Africa's Men as Partners program⁵² and "One Man Can" campaign,^{53,54} both of which work to create more equitable gender norms, reduce violence against women, and lessen both men's and women's HIV risks. Finally, the Medical Research Council in South Africa implemented and evaluated an HIV prevention effort involving women and men called Stepping Stones, which was centrally focused on gender equity, HIV prevention, and antiviolence work.⁵⁵ The intervention reduced both domestic violence and herpes acquisition, and men who participated in the intervention reported fewer partners, more frequent condom use, less transactional sex, less substance abuse, and less perpetration of intimate partner violence.⁵⁶ Such programs suggest the promise of broader approaches that address cultural and structural norms in the larger community.

Limitations and Directions for Future Research

Findings and potential implications must be considered in light of study limitations. For example, in the case of HIV-positive respondents who were aware of their serostatus, reports about their relationships may have been negatively influenced by their feelings toward a partner who may have infected them, thus exaggerating potential relationship differences between HIV-positive and HIV-negative members of a pair. Respondents who were aware of their recent seroconversion may have “performed” relationship narratives in a systematically different way than HIV-negative respondents (e.g., by speaking poorly about the alleged partner who was the source of the infection). However, we noticed relationship contrasts even among pairs for whom the HIV-positive respondent did not appear to know her or his latest serostatus, suggesting that relationship differences were not only the result of differences in these performance narratives.

Despite the methodological innovation of the study, another potential limitation may have been our persistence in finding differences between cases and controls. Using pairs as the unit of analysis could have led to possible exaggeration of contrasts between matched respondents in some cases. We attenuated this limitation by noting when the difference between the pair was highly pronounced, notable, or minimal or even counterintuitive and then making sure that a sufficient number of highly pronounced differences could support our findings.

A final limitation pertains to our focus on sexual partnership dynamics versus other underlying factors or relationships. For example, because we were interested in the contexts of seroconversion, our interview guide prioritized recent relationship dynamics over family of origin dynamics. Yet family background may also play a central role in young people’s current sexual partnerships, given that people often replicate relationship patterns experienced in their families of origin. Along these lines, the case studies we shared suggest that family dynamics such as household socioeconomic status, parental loss, and family structure might be important in guiding young people’s entry into sexual activity and sexual partnerships. Future researchers would be wise to more deeply attend to family relationships and background.

Conclusions

This study highlights the importance of relational approaches to HIV transmission for young adults. The majority of differences between HIV-positive and HIV-negative respondents in our study pertained in some way to relationship communication, (mis)trust, and partnership number and type, which in turn were connected to gendered power dynamics and resource scarcity. Results suggest the potential utility of dual-testing programs, communication skill building, or both, although such programs must occur in conjunction with larger efforts to alleviate poverty and transform gender relations. Finally, the methodological combination of qualitative interviews with an adapted case-control approach may have great utility in understanding HIV transmission and other behavioral health issues. ■

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Contributors

J. S. Santelli, F. Nalugoda, J. A. Higgins, and S. Mathur developed and executed the study design. With supervision from J. A. Higgins and N. Nakyanjo, R. Sekamwa, J. Namatovu, W. Ddaaki, R. Nakubulwa, and S. Namakula collected the data and offered feedback throughout the study design and analysis process. J. A. Higgins, S. Mathur, E. Eckel, and L. Kelly analyzed the data and discussed preliminary findings. J. A. Higgins completed the analysis and wrote the article. All authors provided feedback on or approval of the final article.

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