AIDS PATIENT CARE and STDs
Volume 29, Number 12, 2015

DOI: 10.1089/apc.2015.0146

Relationship Dynamics and Sexual Risk Reduction Strategies Among Heterosexual Young Adults: A Qualitative Study of Sexually Transmitted Infection Clinic Attendees at an Urban Chicago Health Center

Anna L. Hotton, PhD, MPH,[1,4] Audrey L. French, MD,[1,2] Sybil G. Hosek, PhD,[3] Sabrina R. Kendrick, MD,[1,2] Diana Lemos, PhD, MPH,[3] Jennifer Brothers, MPH,[3] Stacey L. Kincaid, MPH,[1] and Supriya D. Mehta, PhD, MHS[4]

Abstract

Few studies have examined risk-reduction alternatives to consistent condom use for HIV prevention among heterosexual young adults. We used qualitative methodology to explore risk reduction strategies and contextual factors influencing attempts to reduce risk in an urban, high morbidity sexually transmitted infection (STI) clinic. Focus groups were conducted October–December 2014 with heterosexually identified men ($n = 13$) and women ($n = 20$) aged 18–29 seeking STI screening at an urban clinic. Groups were audio recorded, transcribed verbatim, and analyzed for thematic content using Atlas.ti software. Quantitative information included socio-demographics, HIV/STI testing history, and 6-month sexual behaviors. Among 33 predominantly African-American participants with a median age of 22, risk-reduction strategies included monogamy agreements, selective condom use with casual and high-risk partners, and frequent HIV/STI testing, though testing was commonly used as a post-hoc reassurance after risk exposure. Many men and women used implicit risk assessment strategies due to mistrust or difficulty communicating. Concurrency was common but rarely discussed within partnerships. Despite attempts to reduce risk, monogamy agreements were often poorly adhered to and not openly discussed. Alcohol and substance use frequently interfered with safer sexual decisions. Participants were aware of HIV/STI risk and commonly practiced risk-reduction strategies, but acknowledged faulty assumptions and poor adherence. This work provides insights into risk-reduction approaches that are already used and may be strengthened as part of effective HIV/STI prevention interventions.

Introduction

African-Americans represent approximately 14% of the United States population but accounted for 46% of all HIV diagnoses in 2010,[1] with disparities particularly pronounced among women.[2] Furthermore, persons aged 20–24 years account for the largest proportion of new HIV diagnoses and have the highest rate of infection than any other age group,[1] in addition to being disproportionately impacted by other STIs.[3]

In 2010, CDC estimated that 86% of new HIV infections among women were attributable to heterosexual contact,[1] and research indicates that transmission most frequently occurs from sexual contact with a primary partner.[4,5] This is likely due to a lower frequency of condom use with primary partners than with new or casual partners, as condom use decreases quickly over time within relationships,[6,7] potentially before establishing seroconcordance and/or safer sex agreements. Although consistent condom use has been a major focus of HIV/STI prevention interventions, within intimate relationships, factors such as a desire to express trust, love, and commitment, in addition to reproductive intentions, may all interfere with consistent condom use. Studies suggest that intimacy may play an important role in decision making around condom use in relationships, and is potentially inconsistent with intentions around STI/HIV prevention.[8–10]

Negotiated safety agreements have been described among men who have sex with men (MSM) as strategies for selectively practicing condomless anal intercourse (CAI) while

Departments of [1]Medicine and [3]Psychiatry, CORE Center/John Stroger Hospital of Cook County, Chicago, Illinois.
[2]Rush University Medical Center, Chicago, Illinois.
[4]Department of Epidemiology and Biostatistics, University of Illinois Chicago School of Public Health, Chicago, Illinois.

maintaining sexual pleasure and intimacy within relationships.[11–17] While intended to reduce HIV risk, such strategies may fail in practice due to factors such as inaccurate assessment of individual and partner serostatus, infrequent testing, failure to maintain the agreement, and lack of protection against STIs.[18–21] Shortcomings in assessing partner HIV risk have also been reported among heterosexuals. Research among STI clinic attendees has indicated that patients often misjudge their partners' past and current risk behavior[22] and sexual exclusivity.[23] Inaccurate assumptions about partner concurrency have also been associated with increased STI risk.[24]

However, the extent to which concurrency is discussed explicitly in the context of primary heterosexual relationships is relatively unknown. Little is known about the use of negotiated safety and other non-condom strategies among heterosexuals, though two recent studies suggest that monogamy agreements are practiced by some heterosexual couples as a form of HIV/STI risk reduction.[25,26]

For MSM and heterosexuals, the potential effectiveness of monogamy agreements or negotiated safety may depend on whether the agreement is explicit or assumed; adhered to by both partners; and whether condoms are re-introduced if risk occurs. Different types of agreements may offer different levels of protection, and may be modified by individual and couple-level characteristics, such as intimacy, partner-provided support, and health protective communication. Since the majority of new HIV infections are transmitted in the context of primary relationships,[4,5] understanding ways in which young people negotiate sexual safety within relationships is crucial for effective intervention development.[27,28]

An extension of the Information-Motivation-Behavioral Skills (IMB) model[29,30] serves as a useful theoretical framework for understanding sexual risk behavior within the context of relationships. In the traditional IMB model, HIV prevention information, motivation (as determined by attitudes and social norms to engage in behavior), and behavioral skills such as condom self-efficacy and health protective communication, are integral in predicting protective behavior.[29] However, in the context of intimate relationships, the influence of couple members' behaviors and beliefs on one another may have as much or more influence on the behavioral outcome than individual characteristics. In the relationship-oriented IMB model, within couples, behavioral skills are dependent on the frame of reference of the established relationship and safer sex negotiation skills are contextually dependent. Motivation to engage in safer sex behavior is related to shared social norms, beliefs, and attitudes within the couple rather than solely at the individual level.[31]

The goal of this study was to gain in-depth information on contextual and relationship-level influences on sexual decision making and use of risk-reduction strategies among heterosexual STI clinic patients. We conducted focus groups to gain perspectives on use and motivations for sexual agreements and other risk-reduction strategies and the role of relationship dynamics in negotiation of sexual risk among heterosexual young adults.

Methods

Sample and recruitment

Focus groups were conducted at the Ruth M. Rothstein CORE Center in Chicago, IL, from October through December 2014. Participants were recruited from the waiting room at the CORE Center STI Screening Clinic and were screened for eligibility by a trained research coordinator. Eligibility included being between the ages of 18 and 29, heterosexually self-identified, and having had a sexual relationship with a person of the opposite sex in the previous 6 months. Interested participants who met inclusion criteria were invited to participate and provided informed consent and contact information to receive reminder information prior to the groups.

Focus groups were stratified by gender (male, female) and lasted approximately 90 min. Participants received $40 in cash as compensation for participation. Focus group guides used a semi-structured format to collect in-depth information on participant perspectives on relationships and concurrency and how these perspectives and cultural and contextual factors influence sexual risk behavior. Focus groups were audio-recorded and transcribed verbatim by an external professional transcription service, and all groups were led by the same facilitator and moderator. Focus group questions were generated from prior formative work, in which semi-structured interviews were conducted with the target population at the clinic to refine content.

Only the results from the focus groups are presented here. Topics included types of relationships, discussion and practice of risk reduction strategies, including condom use and monogamy agreements, perspectives on monogamy and concurrency, and factors influencing decisions about condom use and other risk reduction practices. We also sought to determine whether and how use of different strategies varied according to contextual, partner, and relationship factors. Questions included, ''How do people decide to use or not use condoms?'' ''Are there things other than condom use that people do to protect themselves against HIV and STIs?'' and ''How do you and your friends decide you are going to be monogamous, or exclusive, with your sexual partners?''

Common definitions of concurrency and monogamy were specified prior to initiating discussion of these topics. For example, monogamy, or sexual exclusivity, was described as ''you and your partner only have sex with each other while you are together.'' Discussions around risk reduction were framed in terms of reducing risk from HIV and/or STIs as a composite endpoint given their common route of transmission. All study materials were approved by the Institutional Review Board of the Cook County Health and Hospitals System.

Quantitative survey

Participants filled out a brief, anonymous, quantitative survey prior to beginning the focus groups. Surveys collected information on sociodemographics, STI (including gonorrhea, Chlamydia, trichomoniasis, syphilis, genital herpes, or genital warts) and HIV testing history, and sexual behaviors in the past 6 months.

Data analysis

Focus group transcripts were reviewed for accuracy and analyzed using directed qualitative content analysis.[32,33] A coding guide containing codes and operational definitions was generated by the research team based on the topics listed above, prior literature, and themes that emerged from the

focus groups. The group moderator and facilitator met with the principal investigator after each focus group to discuss themes that emerged, and to identify and troubleshoot any issues that arose during the groups.

Focus group transcripts were coded according to the coding guide and analyzed for thematic content based on an iterative inductive and deductive process [33] using ATLAS.ti version 7.1 for Windows (Scientific Software Development, GmbH, Berlin). Open coding was employed to identify themes not included in the original coding guide. After the initial analysis, coded transcripts were reviewed for consistency and codes were refined and grouped into themes and subthemes. Patterns in the data and frequency of codes were examined using the query tool in ATLAS.ti. Descriptive analyses of the quantitative survey data, including measures of central tendency and frequencies, were conducted using SAS software version 9.3 (SAS Institute, Cary, NC). Fisher's exact chi-square tests were used to compare sexual behaviors by relationship status and use of monogamy agreements.

Results

A total of seven groups (four female groups and three male groups) were conducted with 20 women and 13 men. The median age was 22 (IQR 21–25); 88% were African-American, and 46% had a history of STI. During the previous 6 months, participants reported median two sex partners (range 1–10); 67% sometimes or never used condoms, 39% reported individual or partner concurrency; 21% reported condomless vaginal or anal intercourse (CVAI) with a partner of unknown HIV status, and 39% reported CVAI under the influence of alcohol or other substances. Sixteen (48%) were currently in an exclusive relationship with a primary sexual partner, and of these, 9 (56%) had made an explicit monogamy agreement (Table 1). Compared to participants reporting no agreement or an open agreement, those who had made a monogamy agreement were less likely to report individual or partner concurrency in the past 6 months ($p < 0.05$) and somewhat less likely to report condomless vaginal or anal sex under the influence of substances, though this difference was not statistically significant (Table 2).

Several major themes emerged from the focus groups, including use of risk assessment and risk reduction strategies, difficulties communicating with partners, and influences on risk behavior and sexual safety. These themes and subthemes are discussed below.

Risk assessment and risk reduction strategies

Male and female participants expressed considerable concern about STIs and HIV, though several participants perceived themselves to be at greater risk for STIs than HIV, recognizing the higher relative prevalence of STIs in their community. Many participants discussed use of implicit assumptions about risk, including situational factors and partner characteristics, and some used these assumptions to make decisions about sexual behavior. As one female participant stated: ''I do this…crunch analysis in my head like how many partners do I think they have slept with… with my ex he hadn't slept with a lot of people and I believed that he was telling the truth. So I said oh he's less risky, okay, which is not smart. But that's what I did and do some sort of assessment of how risky this person is.''

Table 1. Participant Characteristics (N = 33)

	n	%
Age, median (IQR)	22 (20–25)	
Race/ethnicity		
White	3	9.1
Black/African-American	29	87.9
Hispanic/Latino	1	3.0
Gender		
Male	13	39.4
Female	20	60.6
STI diagnosis ever	15	45.5
STI diagnosis in past year	5	15.2
Current relationship status		
Primary relationship, no outside partners	16	48.5
Primary relationship, with outside partners	6	18.2
Not in a relationship	11	33.3
Sexual behaviors in last 6 months		
Total no. of sex partners, median (IQR)	2 (1–3.5)	
CVAI under the influence of alcohol	10	30.3
CVAI under the influence of marijuana/other drugs	9	27.3
Sex with >1 partner within 1 month	12	36.4
Concurrent sexual partners	8	24.2
Known or suspected partner concurrency	8	24.2
CVAI with partner of unknown HIV status	7	21.2
CVAI with HIV positive partner	1	3.0
Any CVAI	22	66.7
Sexual agreement in past 6 months		
Yes, agreed to be exclusive	10	30.3
Yes, agreed to have an open relationship	1	3.0
No agreement	22	66.7

CVAI, condomless vaginal or anal intercourse; IQR, interqartile range; STI, sexually transmitted infection.

Assessment of partner's risk was not always straightforward, and the directness of the discussion varied according to the type of relationship. Many reported not wanting to get into a discussion of sexual history with partners until they knew them better, opting to just use condoms with casual partners or one-night-stands, although some felt it was important to have these discussions with all partners at the beginning of the relationship.

Use of risk reduction strategies varied according to the type of partner and the relationship, and included selective condom use with casual partners and those perceived to be higher risk, and frequent HIV and STI testing. Men and women were much more likely to report condom use with casual partners, one-night stands, and ''high-risk'' partners than with primary partners. As one female participant stated, ''…If we are both each others' booty calls on the side too, so in my mind I'm thinking I'm at risk….I just assume it [that

Table 2. Past 6 Month Sexual Behaviors by Relationship Status and Agreement Type

	n	*Any CVAI,* n *(%)*	*Any CVAI under the influence of alcohol/substances* n *(%)*	*Individual or partner concurrency,* n *(%)*
Current relationship status				
Primary relationship, no outside partners	16	8 (50.0)	4 (25.0)	1 (6.3)[a]
Primary relationship, with outside partners	6	5 (83.3)	3 (50.0)	4 (66.7)
Not in a relationship	11	9 (81.8)	6 (54.6)	8 (72.7)
Sexual agreement in past 6 months				
Exclusive/monogamy agreement	10	6 (60.0)	3 (30.0)	1 (10.0)[b]
No agreement/open agreement	23	16 (69.6)	10 (43.5)	12 (52.2)

CVAI, condomless vaginal or anal intercourse.
[a]$p<0.01$; [b]$p<0.05$.

the partner is higher risk], no need to ask, which automatically means protection.'' However, condom use was quickly abandoned as relationships progressed, after which many participants used frequent testing to reassure themselves that their partner had not cheated. Frequent testing was used even in committed relationships, and was often related to lack of trust in one's partner. ''Yeah, if I am in a committed relationship, I don't use condoms, but then my partner and I are always getting tested together'' (female participant).

Lack of trust in partners' behavior, even in committed relationships was a common theme, as one woman described: ''Because even though you have the relationships where you committed and you decided not to use protection they might have that side stuff going on and I don't want to catch nothing….'' Women also expressed recognition that they could get STIs or HIV from someone that they trusted, that ''letting your guard down'' could be dangerous.

Consistent with other studies, concurrency was very common for both men and women, although there were gender differences in how concurrency was viewed. As one woman stated, ''I think it's more so that we, generally speaking, as women don't highlight it. But men, they will talk about it all day and night, it will be a TV show and they will be applauded; men they will get praised having multiple women…'' Men also felt it was more accepted to have multiple partners. ''In our society I guess it's more generally accepted for a guy to have a lot of women than a girl to have a lot of guys'' (male participant).

Several participants, particularly those in committed relationships, reported monogamy agreements with their sexual partners, though these were often defined and viewed differently depending on the context, and agreements were more commonly reported by women than by men. Some assumed monogamy as part of certain types of relationships. For instance, some participants, particularly women, felt that boyfriend/girlfriend relationships implied monogamy. One female participant discussed dating in this way: ''Yeah we just are dating each other, there are no outsiders because we both have an understanding ….''

However, there was often a transition to monogamous relationships that happened over the course of a relationship: many began with dating relationships and maintained other relationships until they were sure of their commitment. In some cases, dating was thought to be a casual type of relationship that did not imply exclusivity, and was often a precursor to the more serious boyfriend/girlfriend status. Participants varied in the extent to which they believed monogamy was actually occurring. Several women distinguished between the ''ideal'' relationship, which they typically considered to be a monogamous relationship, and the ''reality'' of what was going on. As one women stated: ''…. I think the end game is to be in a relationship, …, but it's [cheating, concurrency] something that you know that happens.''

Both men and women identified a need for clear discussion and establishing expectations about exclusivity within relationships, though this was often difficult to actualize for these young adults. As one woman explained, ''I don't think hook ups, as long as they are being safe, is a bad thing. I think what makes them bad is there are expectations on both sides, and the expectations weren't clear.''

Women also described frustration with lack of honesty in defining the relationship. ''It's either just going to be me or don't do it with anyone else, you know. I always tell them let's get tested together because if this is what we are going to do and call it a booty call let's call it what it is, like it's fine. You know. But you have some people that want to keep it a secret…'' (female participant). Women and men also discussed having sex outside the relationship as revenge against their partners: ''No, it's something like he do it, she found out. Then she go and do it. It's like a sequence of like what she saying, you gotta be honest. They ain't being honest about their relationships'' (female participant).

Several women described waiting for a better relationship, while not wanting to be alone or give up the benefits of their current relationship, and thus accepting non-monogamy despite wanting a monogamous relationship. Both men and women described benefits of different types of relationships, and many maintained several relationships because they got different benefits from each, such as money, sex, cars, and friendships. As one male participant stated ''… she could be just for being around just as a friend, she might just have good sex, and the other one she probably got some money. So it all depends on what this person have.''

Difficulty with communication

Both men and women reported substantial difficulty communicating with partners. Several women brought up the issue of feeling uncomfortable being proactive about asking their partners about sexual history and condom use. Men and women also reported waiting for the other person to start the conversation, and assuming that the other partner would bring up any issues if necessary. Many of these conversations, when they did occur, happened directly before or during the sexual

encounter, as one woman explained: ''They'll ask at the last minute, like you got tested right?? Or I have to be like you got tested…'' As one man stated, ''…Nine times out of ten as a man you feel like if she don't say nothin, I ain't gonna say nothing and sometimes you gonna try to persuade her that you don't use them [condoms]…''

Female participants identified a need for better tools for communicating and boundary setting, and for alternative strategies for condom use and safer sex negotiation when their partner did not respond the way they expected. Several women described fear of the partner leaving as a reason for staying in a non-monogamous relationship or not using condoms, and expressed a desire for ''..a program to encourage women, for example, if that person doesn't want to use a condom and they leave then that's okay'' (female participant). Women also worried about making their partner mad or losing the relationship as reasons for not insisting on safer sex if their partner didn't want to use condoms. ''I don't want to have this tension…in a general situation of something I don't want to do, it's like I don't want to cause a rift here. I don't want to have someone mad at me'' (female participant).

Influences on risk behavior and sexual safety

Alcohol and substance use. Many cited alcohol and substance use as factors that interfered with safer sexual decisions, as a male participant described: ''I think one thing… is having sex after you drunk or you smoke, because that impairs judgment, it's hard to make a wise decision.'' Emotions, lust, or getting ''caught up in the moment'' made it difficult to bring up condom use, and many did not discuss condoms ahead of their sexual encounters. ''By the time you are in your right mind the deed is already over with, the act is already done. Now you gotta come to the clinic to make sure you didn't think you didn't use your better judgment.''

Societal/environmental influences. Both men and women discussed the importance of fitting in with peers, and the influence of the social environment in endorsing norms about sexual behavior and risk. Some men also discussed the role of media and music in shaping youth culture around sex. One man stated ''I think music influences decisions in how people act too, people probably have idols and role models in the music industry, as far as hip hop, and they follow them and follow their lifestyle.'' One man described the role of the social environment in shaping expectations around sexual norms for both genders: ''The environment or your peers, everyone want to try and fit in…from both genders there is an expectation.''

Women also described the role of the social environment in shaping sexual behavior ''Everybody doing this because everybody, because this stuff cuz your environment, and also generation. I grew up seeing my brother or sisters do this. I thought it was cool to have one, two, or three boyfriends and so they try to sneak around. It's just something that I see.'' For both men and women, sociocultural expectations played a large role in their sexual behaviors and negotiation of risk within partnerships.

Discussion

Men and women in our study recognized risk and attempted to employ risk-reduction strategies, including making agreements around exclusivity, selective condom use, and frequent HIV/STI testing. However, they often used implicit risk assessment strategies because of mistrust or difficulty with communication. Sexual concurrency was viewed as common but was rarely discussed within partnerships. Overall, there was a disconnect between knowledge, intentions, and behavior. Participants distinguished between ideal relationships and reality, and partners often met monetary and emotional needs; desire to have someone to come home to and fear of being alone were cited by several participants as reasons for staying with a partner even when the partner was unfaithful. Having sex under the influence of alcohol and substances and emotions often interfered with making safer sexual decisions, highlighting the importance of substance use counseling as a component of sexual risk reduction interventions.

Despite attempts to reduce risk, monogamy agreements were often not openly discussed, and intentions to practice sexual safety were not necessarily reflected in sexual behaviors. Given these findings, risk reduction interventions that incorporate dyadic communication and negotiation of sexual safety within the context of existing relationships may be useful. Developing effective behavioral interventions for STI clinic patients remains a challenge but is urgently needed given the high burden of infection in this population.

A recent behavioral risk reduction intervention, based on the Project RESPECT framework, found no impact of patient-centered individual level behavioral risk reduction counseling on risk of subsequent STI among heterosexual men and women receiving HIV testing and counseling.[34] While individually tailored to address patient-specific HIV/STI risk behavior and negotiation of achievable risk reduction steps, the intervention focused primarily on individual-level risk behavior. Incorporating dyadic and psychosocial influences may be areas of focus for future intervention development.

There has been little research to date on the use of risk-reduction practices other than condom use among heterosexual youth. In a study of heterosexual couples aged 18–25 in an unintended pregnancy intervention, 52% had an explicit monogamy agreement and 71% sustained the agreement, although there were high levels of within-couple discordance on the presence and type of agreement.[26]

In our study, among those who were in an exclusive relationship (about half the sample), 56% reported making a monogamy agreement, and 89% said that they had kept the agreement, though we did not collect details on the types or length of relationships in which the agreements occurred. In a qualitative study among 25 high-risk heterosexual couples, negotiated safety strategies other than condom use, including agreements to be monogamous and HIV/STI testing were common, though often poorly adhered to.[25] The thoroughness with which participants assessed risk also varied and was often not explicit; several participants reported assumptions of safety based on partner characteristics such as 'looking healthy' or 'carrying condoms', or relied on their partners' word that they had tested negative for HIV in the past. These findings are consistent with reports from our study.

Emotional needs often took precedence over health concerns,[25] findings consistent with data from MSM suggesting that motivations for sexual agreements are driven more by a desire to express trust and intimacy than concerns about HIV/STI prevention,[35,36] and reports from women in our study

about desire for closeness and not wanting to upset one's partner or appear mistrustful. Encouraging young women to identify alternative ways to satisfy unmet psychosocial needs outside of their sexual relationships, such as through social support from friends or other mentors, may help to empower them to more effectively negotiate safer sex within their romantic relationships. Furthermore, providing women with alternative support systems and skills to apply in such situations to accept undesirable outcomes, such as the partner leaving or being angry, may help them to more effectively manage tension related to negotiation of condom use and thereby reduce their vulnerability.

Both men and women identified social norms and peers as important influences sexual behavior. Understanding which specific aspects of the social environment have the most impact on sexual behaviors, whether positive or negative, warrants further research. STI stigma and shame have been associated with lower odds of STI testing and lower likelihood of informing non-main partners and providing partner delivered therapy among African-American men.[37] The role of stigma and other social influences warrants further study.

Limitations

Limitations to the study include the small sample size and single recruitment site, which may limit the generalizability of the findings. Participants were recruited from an STI clinic, and were thus at higher risk for HIV and STIs relative to the general population. They may also be more cognizant of their risk, given that they were seeking testing, though we purposely targeted individuals who would be candidates for future HIV/STI prevention interventions due to their risk behavior. Frequent testing as a risk reduction strategy may not be used by participants recruited from other settings.

Transcripts were coded and analyzed by a single coder and were not validated across multiple coders, which could have introduced bias in interpretation of the results. The sensitive nature of the information collected and group setting may have made participants less likely to report certain behaviors, though results were consistent with prior work by our group and other published literature.

The need for interventions that focus on dyad-level factors and relationship dynamics is increasingly recognized.[27,28] While the few couple-based HIV/STI prevention interventions that have been developed to date have shown promise in reducing unprotected sex within couples and with outside partners,[38–42] a number of gaps in the literature exist, including a need for testing of interventions with theoretical frameworks to identify potential mediators,[28] greater focus on adolescents and young adults, primary prevention among at-risk seroconcordant negative couples,[28] and measurement of biological outcomes.[27,28]

Results from our study suggest that among STI clinic attendees, men and women recognize and attempt to minimize risk, though current strategies may be ineffective. Additional research is needed to further characterize monogamy agreements and other risk reduction strategies and to quantify associations between these strategies and STI risk, both for people in long-term relationships and those with casual partnerships. Future intervention design should focus and capitalize on existing risk perception, and already-occurring risk-reduction behaviors among at-risk men and women. Leveraging organically-occurring perceptions and strategies may be used to optimize the efficacy of newer biomedical interventions such as pre-exposure prophylaxis for HIV and increase the likelihood that behavioral and combination prevention strategies are maximally effective.

Acknowledgments

This research was supported by the Chicago Developmental Center for AIDS Research (D-CFAR), an NIH funded program (P30 AI 082151), which is supported by the following NIH Institutes and Centers (NIAID, NCI, NIMH, NIDA, NICHD, NHLBI, and NCCAM).

Author Disclosure Statement

The authors have no conflicting financial interests.

References

1. Centers for Disease Control and Prevention. HIV Surveillance Report, 2010 March 2012 2012.
2. Centers for Disease Control and Prevention. HIV Among Women [Fact Sheet]. Altanta U.S. Department of Health and Human Services, 2011.
3. Centers for Disease Control and Prevention. Sexually Transmitted Diseases Surveillance 2013. Atlanta: U.S. Department of Health and Human Services, 2014.
4. Higgins JA, Hoffman S, Dworkin SL. Rethinking gender, heterosexual men, and women's vulnerability to HIV/AIDS. Am J Public Health 2010;100:435–445.
5. Sullivan PS, Salazar L, Buchbinder S, Sanchez TH. Estimating the proportion of HIV transmissions from main sex partners among men who have sex with men in five US cities. AIDS 2009;23:1153–1162.
6. Fortenberry JD, Tu W, Harezlak J, Katz BP, Orr DP. Condom use as a function of time in new and established adolescent sexual relationships. Am J Public Health 2002;92:211–213.
7. Macaluso M, Demand MJ, Artz LM, Hook EW, 3rd. Partner type and condom use. AIDS 2000;14:537–546.
8. Wingood GM, DiClemente RJ. Partner influences and gender-related factors associated with noncondom use among young adult African American women. Am J Commun Psychol 1998;26:29–51.
9. Rosenthal D, Gifford S, Moore S. Safe sex or safe love: Competing discourses? AIDS Care 1998;10:35–47.
10. Thorburn S, Harvey SM, Ryan EA. HIV prevention heuristics and condom use among African-Americans at risk for HIV. AIDS Care 2005;17:335–344.
11. Snowden JM, Raymond HF, McFarland W. Seroadaptive behaviours among men who have sex with men in San Francisco: The situation in 2008. Sex Transm Infect 2011;87:162–164.
12. Xia Q, Molitor F, Osmond DH, et al. Knowledge of sexual partner's HIV serostatus and serosorting practices in a California population-based sample of men who have sex with men. AIDS 2006;20:2081–2089.
13. Zablotska IB, Crawford J, Imrie J, et al. Increases in unprotected anal intercourse with serodiscordant casual partners among HIV-negative gay men in Sydney. AIDS Behav 2009;13:638–644.
14. Zablotska IB, Imrie J, Prestage G, et al. Gay men's current practice of HIV seroconcordant unprotected anal

intercourse: serosorting or seroguessing? AIDS Care 2009; 21:501–510.
15. Davidovich U, de Wit JB, Stroebe W. Assessing sexual risk behaviour of young gay men in primary relationships: The incorporation of negotiated safety and negotiated safety compliance. AIDS 2000;14:701–706.
16. Jin F, Crawford J, Prestage GP, et al. Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. AIDS 2009;23: 243–252.
17. Guzman R, Colfax GN, Wheeler S, et al. Negotiated safety relationships and sexual behavior among a diverse sample of HIV-negative men who have sex with men. J Acquir Immune Defic Syndr 2005;38:82–86.
18. Butler DM, Smith DM. Serosorting can potentially increase HIV transmissions. AIDS 2007;21:1218–1220.
19. Cassels S, Menza TW, Goodreau SM, Golden MR. HIV serosorting as a harm reduction strategy: Evidence from Seattle, Washington. AIDS 2009;23:2497–2506.
20. Golden MR, Stekler J, Hughes JP, Wood RW. HIV serosorting in men who have sex with men: Is it safe? J Acquir Immune Defic Syndr 2008;49:212–218.
21. Wilson DP, Regan DG, Heymer KJ, Jin F, Prestage GP, Grulich AE. Serosorting may increase the risk of HIV acquisition among men who have sex with men. Sex Transm Dis 2010;37:13–17.
22. Stoner BP, Whittington WL, Aral SO, Hughes JP, Handsfield HH, Holmes KK. Avoiding risky sex partners: Perception of partners' risks v partners' self reported risks. Sex Transm Infect 2003;79:197–201.
23. Lenoir CD, Adler NE, Borzekowski DL, Tschann JM, Ellen JM. What you don't know can hurt you: Perceptions of sexpartner concurrency and partner-reported behavior. J Adolesc Health 2006;38:179–185.
24. Drumright LN, Gorbach PM, Holmes KK. Do people really know their sex partners? Concurrency, knowledge of partner behavior, and sexually transmitted infections within partnerships. Sex Transm Dis 2004;31:437–442.
25. Corbett AM, Dickson-Gomez J, Hilario H, Weeks MR. A little thing called love: Condom use in high-risk primary heterosexual relationships. Perspect Sex Reprod Health 2009;41:218–224.
26. Warren JT, Harvey SM, Agnew CR. One love: Explicit monogamy agreements among heterosexual young adult couples at increased risk of sexually transmitted infections. J Sex Res 2012;49:282–289.
27. Burton J, Darbes LA, Operario D. Couples-focused behavioral interventions for prevention of HIV: Systematic review of the state of evidence. AIDS Behav 2010;14:1–10.
28. El-Bassel N, Gilbert L, Witte S, Wu E, Hunt T, Remien RH. Couple-based HIV prevention in the United States: Advantages, gaps, and future directions. J Acquir Immune Defic Syndr 2010;55:S98–S101.
29. Fisher JD, Fisher WA. Changing AIDS-risk behavior. Psychol Bull 1992;111:455–474.
30. Fisher JD, Fisher WA, Misovich SJ, Kimble DL, Malloy TE. Changing AIDS risk behavior: Effects of an intervention emphasizing AIDS risk reduction information, motivation, and behavioral skills in a college student population. Health Psychol 1996;15:114–123.
31. Harman JJ, Amico KR. The relationship-oriented information-motivation-behavioral skills model: A multilevel structural equation model among dyads. AIDS Behav 2009;13:173–184.
32. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res 2005;15:1277–1288.
33. Patton MQ. *Qualitative Research and Evaluation Methods.* Thousand Oaks, CA: Sage, 2002.
34. Metsch LR, Feaster DJ, Gooden L, et al. Effect of risk-reduction counseling with rapid HIV testing on risk of acquiring sexually transmitted infections: The AWARE randomized clinical trial. JAMA 2013;310:1701–1710.
35. Golub SA, Starks TJ, Payton G, Parsons JT. The critical role of intimacy in the sexual risk behaviors of gay and bisexual men. AIDS Behav 2012;16:626–632.
36. Hoff CC, Beougher SC, Chakravarty D, Darbes LA, Neilands TB. Relationship characteristics and motivations behind agreements among gay male couples: Differences by agreement type and couple serostatus. AIDS Care 2010; 22:827–835.
37. Morris JL, Lippman SA, Philip S, Bernstein K, Neilands TB, Lightfoot M. Sexually transmitted infection related stigma and shame among African American male youth: Implications for testing practices, partner notification, and treatment. AIDS Patient Care STDs 2014;28:499–506.
38. El-Bassel N, Witte SS, Gilbert L, et al. Long-term effects of an HIV/STI sexual risk reduction intervention for heterosexual couples. AIDS Behav 2005;9:1–13.
39. El-Bassel N, Witte SS, Gilbert L, et al. The efficacy of a relationship-based HIV/STD prevention program for heterosexual couples. Am J Public Health 2003;93:963–969.
40. Do AN, Hanson DL, Dworkin MS, Jones JL. Risk factors for and trends in gonorrhea incidence among persons infected with HIV in the United States. AIDS 2001;15:1149–1155.
41. Koniak-Griffin D, Lesser J, Henneman T, et al. HIV prevention for Latino adolescent mothers and their partners. West J Nursing Res 2008;30:724–742.
42. Sweat M, Gregorich S, Sangiwa G, et al. Cost-effectiveness of voluntary HIV-1 counselling and testing in reducing sexual transmission of HIV-1 in Kenya and Tanzania. Lancet 2000;356:113–121.

Address correspondence to:
Anna Hotton, PhD, MPH
Chicago Developmental Center
for AIDS Research (D-CFAR)
Women's Interagency HIV Study, Chicago Consortium
Department of Infectious Diseases
John H. Stroger Hospital
Administration Bldg. #1242
1900 W. Polk Street
Chicago, IL 60612

E-mail: anna.hotton@hektoen.org