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Relationship dynamics as predictors of broken agreements about outside sexual partners: Implications for HIV prevention among gay couples

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Abstract

Agreements about allowing sex with outside partners are common among gay couples, and breaks in these agreements can be indicative of HIV risk. Using longitudinal survey data from both partners in 263 gay couples, we investigate whether relationship dynamics are associated with broken agreements. 23% of respondents report breaking their agreement. Partners who report higher levels of trust, communication, commitment, and social support are significantly less likely to report breaking their agreement. Promoting positive relationship dynamics as part of HIV prevention interventions for gay couples provides the opportunity to minimize the occurrence of broken agreements and, ultimately, reduce HIV risk.

Introduction

Men who have sex with men (MSM) continue to bear the burden of HIV/AIDS in the United States, representing 57% of total HIV diagnoses in 2009 (1). Between 2006 and 2009, the number of men who were diagnosed with HIV transmitted through same-sex contact increased, while HIV diagnoses due to intravenous drug use and heterosexual contact decreased for both men and women (1). Recent studies of MSM indicate that high rates of new HIV infections may be driven by unprotected anal intercourse (UAI) with primary partners (2, 3). For example, in a longitudinal study of young MSM in the Midwest, unprotected sex was nearly eight times more likely to occur in relationships described as "serious" compared to those that were "casual" (2). Moreover, using behavioral surveillance data from five U.S. cities, Sullivan and colleagues estimate that 68[95% CI 58-78]% of cases of HIV transmission among MSM originated from primary partners, attributed to more sex acts, more frequent receptive anal intercourse, and lower levels of condom use with those partners (3). Yet, throughout the epidemic, prevention efforts targeting gay men have primarily focused on the individual, thereby ignoring other important contextual factors such as relationship status and quality, despite previous research that has documented differences in sexual behavior between gay men in relationships and their single counterparts. Thus, investigating factors that hinder protective sexual behaviors for men in relationships may have important implications for future HIV preventive interventions for MSM.

An increased likelihood of engaging in UAI with primary partners could be explained partially by relationship dynamics. While an association between positive relationship dynamics and sexual risk behavior may seem paradoxical, evidence suggests that factors such as closeness, investment in and dependence on the relationship, the desire for a stable and lasting relationship, and relationship satisfaction are associated with UAI (4, 5). For example, as couples grow closer,

taking risks such as engaging in UAI may be seen as part of building trusting, commitment and love (5). These findings highlight that in order to improve the effectiveness of HIV prevention efforts it is necessary to examine not only the individual-level influences on sexual behavior within relationships but also the relationship itself, since the relationship is the context within which UAI frequently occurs. Moreover, transmission of HIV through sexual contact is innately dyadic – that is, it requires the participation of two individuals in a sexual act. There is compelling evidence to indicate the importance of studying HIV risk among gay men at the couple level with data from both partners. However, few research studies employ this approach.

Among gay couples, agreements about sex with outside partners are ubiquitous regardless of couple HIV status (6). Sexual agreements serve as a framework for the couples' decision to engage in or refrain from sexual behaviors that may place them at increased risk for HIV. They may include formal or informal agreements, as well as understandings or expectations, about sex with outside partners. Agreements may be closed (i.e., monogamous) or open, permitting a wide range of acceptable situations for sex with outside partners, including sex with a third person when both partners are present, separation of physical and emotional intimacy with outside partners, allowing "safe" sex with outside partners, or non-disclosure of outside sexual activity (6). Given the high rates of HIV infection among men in relationships, agreements about sex with outside partners are a likely prevention strategy for gay couples (3).

Relationship dynamics that deeply influence the quality of the relationship may have a bearing on the agreements that couples make and thereby on couples' risk behavior for HIV. For example, couples with open agreements describe high levels of relationship satisfaction because a relationship that permitted outside sexual partners was less oppressive and hetero-normative (6). One study found that there is no difference in reported levels of relationship satisfaction

between couples with open and closed agreements, though monogamous couples have higher levels of investment in their sexual agreements, trust, and commitment (7). Moreover, these same dynamics may influence whether these agreements are broken. Broken agreements may be common and can include a wide range of behaviors with varying implications for HIV risk. For example, for a couple with a closed agreement, kissing another man may constitute a break. A break for a couple with an open agreement could include disclosure of outside sexual behaviors to the primary partner when the agreement includes a "don't ask, don't tell" policy or having UAI when the agreement requires condom use for anal sex with outside partners. Higher levels of positive relationship dynamics, such as trust, communication and commitment, may decrease the likelihood of a broken agreement. For example, couples who do not communicate well may differently interpret the terms of an open agreement and thus be more likely to break the agreement. There is an emerging but limited body of literature examining the consequences of broken agreements (6, 8). One study notes that in situations where agreements prohibit UAI with outside partners, broken agreements could increase HIV transmission risk for both partners (6).

The present analysis examines relationship dynamics as predictors of broken agreements among concordant HIV-negative and HIV-discordant gay couples. We hypothesize that higher levels of positive relationship dynamics will be associated with a lower likelihood of breaks in agreements about sex with outside partners.

Methods

This analysis utilizes data from a longitudinal study of 566 gay couples recruited between 2005 and 2007 in the San Francisco Bay Area. Couples were eligible for the study if their relationship length was 3 months or longer and if both partners were at least 18 years old, fluent

in English, had knowledge of their own and their partner's HIV status, identified as gay or bisexual, and were willing to participate. Members of eligible couples individually completed six audio computer-assisted self-interviews (ACASI) over a three-year period. Follow-up interviews were not conducted with couples who broke up between data collection points. The present analysis focuses on the subset of 263 concordant HIV-negative and HIV-discordant couples (n = 526 individuals) who reported having a sexual agreement and completed the baseline interview and the first follow-up interview one year later.

The outcome of interest is a binary variable measured at the one-year follow-up interview, reflecting a break in the couple's agreement about sex with outside partners in the past year. All independent variables of interest and control variables are created using the baseline interview data. Primary independent variables of interest are previously validated scales for salient relationship dynamics. Cronbach's alpha statistics are calculated to assess reliability for the set of items included in the scales reflecting various dimensions of relationship dynamics for the study population. *Relationship commitment* measures the degree to which participants feel they will continue their relationship (8 items, α= 0.91)(9). *Social support* measures the degree to which respondents and their partners provide each other various dimensions of social support, including attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturance (24 items, α=0.91)(10). Three dimensions of trust are examined (11). *Predictability* reflects the extent to which respondents feel they can predict their partner's behavior based on past experiences (5 items, α=0.72). *Dependability* addresses the partner's trustworthiness (5 items, α=0.66). *Faith* captures an aspect of trust not rooted in past experiences and reflects emotional security in the relationship and their partner (7 items, α=0.84). Additionally, two subscales for communication patterns are examined: *Mutual constructive*

communication around discussion and resolution of problems, expressing emotions, and understanding of views (7 items, α=0.78); and *mutual avoidance and withholding* captures mutual avoidance of, withdrawing after and withholding after discussion (3 items, α=0.63) (12). Individual scale items are reverse-coded as necessary so that higher scores on the scale indicate higher levels of the characteristic under consideration. Each measure is summed and entered into models as a continuous variable. Relationship dynamics are examined at the couple level in two ways. First, the average of both partners' scores on each factor is entered in models to assess differences between couples in the sample. Second, each partner's deviation from the couple-level mean is also entered into models to examine differences within couples. Individual-level dichotomous control variables include race, income, employment status, and educational attainment. Dichotomous control variables at the couple level include whether the couple was interracial, self-reported couple HIV status, relationship length, cohabitation, and whether the agreement was open. Study procedures and measures are detailed in-depth elsewhere (7).

All analyses are conducted using Stata 11.0 statistical analysis software (StataCorp, College Station, TX). F tests are used to assess statistically significant differences in the prevalence of and reasons for broken agreements by couple HIV status, with associated p values reported. Multivariate logistic regression models are employed to examine the association of relationship dynamics with broken agreements, controlling for individual- and couple-level characteristics. Due to the dyadic nature of the data, survey commands are employed, including adjustments for couple-level clustering and robust standard errors, for both the bivariate and multivariate analyses.

Results

Among the 526 men included in the analysis, 23% report breaking their agreement about outside sexual partners in the previous year. There is not a statistically significant difference in reports of broken agreements by couple HIV status, with 24% of members of concordant negative couples and 23% of members of discordant couples reporting a break (p=0.90). Among discordant couples, there is not a statistically significant difference in the proportion of reported breaks between the HIV-positive and -negative partners, though 27% of HIV-positive partners report breaks compared to 19% of HIV-negative partners (p=0.20). Participants describe a variety of reasons for breaking their agreement, with the most frequently reported causes being: feeling "horny" (96%); "the guy was really hot" (88%); being "weak" (85%); feeling deserving of "an exciting sex life" (78%); and lack of sexual satisfaction (74%). There are some statistically significant differences by couple HIV status with respect to reasons for breaking the agreement. Compared to members of concordant negative couples, members of discordant couples are more likely to report the break occurred because they: did not have to use condoms (41% vs. 20%, $p \leq 0.05$); did not have to engage in "safer" sex (47% vs. 15%, $p \leq 0.001$), or wanted to "bottom" (i.e., have receptive anal sex) (59% vs. 39%, p=.052). At the same time, they are less likely to attribute the break to not being able to control their urges (62%) compared to members of concordant negative couples (91%, $p \leq 0.001$). Among the men who report a broken agreement, 55% did not disclose the break to their primary partner. The most frequently reported reasons for not disclosing the break are: a desire to protect the relationship (89%); fear that their partner would not forgive them (73%); the belief that the break did not put their partner at risk of HIV (73%); and fear of depressing their partner (67%).

In multivariate logistic regression analyses, the couple-mean score on each examined relationship dynamic is consistently and significantly associated with breaks in the expected direction (Table I). Members of couples with higher mean scores for commitment, mutual constructive communication, dependability, predictability, faith, and social support within the relationship have a lower odds of reporting a break in their agreement. For example, each 1-point increase in the couple-mean dependability score is associated with a 12% decrease in the odds of a broken agreement (AOR: 0.94, 95% CI: 0.90-0.99), meaning that couples with more dependability have lower odds of their members breaking the agreement relative to couples with less relationship satisfaction. Higher levels of mutual avoidance and withholding are associated with increased odds of a break (AOR 1.07, 95% CI 1.004-1.13), suggesting that couples with a more avoidant communication style have a higher odds of a couple member breaking agreement than do couples with a less avoidant communication style . Within couples, higher levels of predictability are negatively related to breaks (AOR 0.94, 95% CI 0.89-0.999), which means that couples with greater discrepancies in predictability within the couple had lower odds of a broken agreement by one of the men in the relationship. Also, each 1-point increase in the individual's deviation from the couple-mean for mutual avoidance and withholding is associated with an 8% increase in the odds of a broken agreement (AOR: 1.08, 95% CI: 1.01-1.16). This finding indicates that the higher the discrepancy in communication style between the partners, the greater the odds are that a partner breaks the agreement.

Discussion

To our knowledge, this is the first study examining the association of relationship dynamics with breaks in agreements about sex with outside partners among gay couples. We find

that breaks in sexual agreements about sex with outside partners occurred in less than a quarter of the couples included in the analysis. Our hypothesis that positive relationship dynamics are protective against breaks in sexual agreements about sex with outside partners is partially supported. While the couple mean of each positive relationship dynamic is protective against broken agreements (i.e., the between-couple effect), each partner's deviation from their couple mean is generally not associated with breaks (i.e., the within-couple effect). For the sample as a whole, the most frequently reported reasons participants provide for breaking their agreements are situational. However, for members of discordant couples, breaks are also attributed to the desire to not use a condom or not practice safer sexual behaviors. More than half of participants who report broken agreements did not disclose the break to their primary partner.

The differing causes of broken agreements between members of concordant negative and discordant couples have important implications for HIV prevention efforts. For the sample as a whole, many of the reported reasons for breaking agreements are situational and have a spontaneous quality, since they involve the participant breaking his agreement in the heat of the moment. This finding is worrisome, as it may indicate situations and emotional states that have the potential to sabotage even the best prevention efforts. More information about the context of the break, the agreement that was broken, and with whom (i.e., was the outside partner a regular partner or a partner of unknown HIV status), is desperately needed and may open potential inroads for HIV risk reduction. There are statistically significant differences in reasons for breaking agreements by couple HIV status that may reflect safer sex fatigue or habituation to risk among members of discordant couples. Similar to the above, more information about the context of the break – and, in the instance of discordant couples, the HIV status of the partner implicated in the break – may inform tailored prevention efforts for these men. While condom use and

abstinence have been promoted as the most biologically effective methods of preventing HIV transmission for discordant couples, the development of new prevention approaches, such as targeted (in place of blanket) condom use promotion, for this population is crucial, particularly if condoms are not seen as a component of a satisfying sexual relationship.

This analysis has a number of strengths, including the usage of longitudinal, dyadic data. In our regression models, all independent variables were measured at baseline, while the broken agreement outcome variable was measured at the one-year follow-up interview. While this analysis does not form the basis for a causal relationship, the availability of longitudinal data ensures that the predictor variables precede the outcome variable. Likewise, the usage of data from both members of each couple allows for a richer exploration of relationship dynamics. Both relationship dynamics and sexual risk behaviors involve inherently dyadic processes; in this case, between two men who are in a committed relationship together. The examination of relationship and sexual risk behavior variables at the couple level acknowledges the interpersonal and relational contexts that must be targeted in HIV preventive interventions for gay couples. Furthermore, these data were collected using ACASI, which may have increased participants' comfort with reporting broken agreements. Finally, our sample was diverse, representing men from various racial and ethnic groups, couples with both open and closed agreements, and concordant negative and discordant couples.

The primary limitation of this study lies in the broad measurement of breaks in sexual agreements. Participants were only asked if they had broken their sexual agreement in the past year and not about the specific aspects of the agreement that were broken or the circumstances of the break itself. Thus, we are unable to separate the most risky breaks (e.g., UAI with an outside partner of unknown HIV status) from those that may be important to the relationship but have

fewer implications for HIV risk in the near-term. While sexual agreements are extremely common among gay couples, little is known about the implications of breaks in sexual agreements for relationships, HIV risk, and overall mental health and well-being. The current study was not designed to explore broken agreements in-depth, though our future work with gay couples will attempt to address many of these measurement limitations in order to better understand the antecedents, contexts, and consequences of broken agreements. Further limitations of the study include the self-reported nature of the data, including particularly participant HIV status; possible underreporting of broken agreements due to social desirability bias, which may have been intensified because members of couples completed the ACASI surveys simultaneously; and the data are not population-based, which may limit generalizability.

While it is not entirely surprising that members of couples with higher levels of positive relationship dynamics are less likely to report broken agreements, there are still important implications of this association for HIV prevention. Reducing the risk of HIV transmission may not serve as primary motivation for sexual agreements among gay couples. Rather, couples may establish agreements to express trust and love or to provide structure to the relationship with boundaries around sex with outside partners (6). Given that sexual agreements may be an important approach for HIV prevention, that gay couples may perceive agreements in the greater context of a healthy and satisfying relationship, and that the majority of couples in this analysis did not report broken agreements, promotion of positive relationship dynamics could also be an important aspect of prevention efforts targeting couples. Encouraging positive relationship dynamics, such as communication and trust, through skills-based interventions may allow couples to form clearer, equitable, and satisfying agreements; communicate dissatisfaction about

agreements; minimize the occurrence of broken agreements; improve disclosure of breaks when they happen; and, ultimately, reduce HIV risk.

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Table I. Association of relationship dynamics with broken agreements about sex with outside partners

	Multivariate logistic regression results (OR, 95% CI)	
	Between-couple mean	Within-couple deviation from mean
Commitment	0.96 (0.93-0.99)**	0.98 (0.94-1.03)
Communication patterns		
Mutual constructive communication	0.96 (0.94-0.99)**	0.98 (0.95-1.02)
Mutual avoidance and withholding	1.07 (1.003-1.13)*	1.08 (1.01-1.16)*
Trust		
Dependability	0.88 (0.83-0.94)***	1.02 (0.97-1.07)
Predictability	0.93 (0.88-0.98)**	0.94 (0.89-0.999)*
Faith	0.94 (0.90-0.99)*	1.01 (0.96-1.06)
Social support	0.94 (0.91-0.97)***	0.99 (0.95-1.03)

Notes. N = 526. * p≤0.05 ** p≤0.01 *** p≤0.001. Multivariate logistic regression models control for individual race, income, employment status and educational attainment; whether the couple is interracial; couple HIV status; relationship length; cohabitation; and whether the agreement is open.