

Partner-Provided Social Support Influences Choice of Risk Reduction Strategies in Gay Male Couples

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Abstract We investigated the influence of partner-provided HIV-specific and general social support on the sexual risk behavior of gay male couples with concordant, discordant, or serostatus-unknown outside partners. Participants were 566 gay male couples from the San Francisco Bay Area. HIV-specific social support was a consistent predictor for reduced unprotected anal intercourse (UAI) with both concordant outside partners (all couple types) and outside partners of discordant or unknown serostatus (concordant negative and discordant couples). General social support was associated with increased UAI with concordant outside partners for concordant negative and concordant positive couples (i.e., serosorting). Our findings suggest that prevention efforts should target couples and identify the level of HIV-specific support that partners provide. Partner-provided support for HIV-related behaviors could be an additional construct to consider in gay male relationships, akin to relationship satisfaction and commitment, as well as an important component of future HIV prevention interventions.

Keywords HIV-specific social support · Social support · Gay male couples · Sexual risk behavior

Introduction

According to recent estimates from five U.S. cities, the majority of HIV infections among MSM occur within the context of primary partnerships [1]. Prior evidence of this trend has also been found in the Netherlands [2–4]. These findings underscore the importance of understanding the context of intimate relationships in which this risk may occur. Agreements about whether to allow sex with outside partners are common among gay male couples [5], but it is also true that relationship characteristics may impact both those agreements as well as other choices that many couples make in their efforts to reduce their HIV risk. For example, factors such as intimacy and relationship satisfaction may influence whether partners choose to have unprotected anal intercourse (UAI) with each other. Another dimension often present in primary relationships is the presence of outside partners—a situation commonly addressed by specific agreements among gay male couples as to whether outside partners are permitted or not [6]. The presence of an outside partner may not necessarily increase HIV risk (particularly with concordant partners), but the possibility of UAI with outside partners of discordant or unknown serostatus could confer risk for HIV transmission [7, 8]. Thus, a primary relationship may not bestow the level of protection from HIV previously thought. Furthermore, most theoretical orientations used in HIV prevention have focused on individuals and do not take into account the role and influence of primary partners on sexual behavior [6]. Therefore, it is imperative to examine how partners may influence the choices gay men in relationships make about their sexual behaviors.

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Social Support

Social support is one mechanism through which partners influence each others' health and behavior. It is an important influence on individuals' psychological outcomes in addition to being a significant predictor of morbidity and mortality [9, 10]. However, it has most often been examined in conjunction with psychological outcomes, such as depression or anxiety. It has been examined with respect to the type of support (e.g., informational, emotional) [9], the source of support (e.g., friends, relatives, partners) [11], and the dimensions of support (e.g., amount, satisfaction) [12]. It has also been examined in association with a variety of behavioral outcomes (e.g., smoking cessation, heart disease, medication adherence, weight loss) [13–16]. For gay men, general social support has been examined in the context of psychological outcomes. For example, support from peers has been found to be an important buffer for gay men against low family support as a result of their sexuality [17, 18], and important differences in these types of support (peer vs. family) have been described [19]. It has also been noted that lower family support may potentially cause additional strain or distress on gay relationships [20, 21]. Specific investigations of partner support in gay male relationships have been conducted, most often as it relates to overall relationship satisfaction [18, 22]. However, few examinations have been made of the role of partner support specifically regarding sexual risk behavior among gay male couples.

In the realm of HIV, examinations of social support have frequently focused on coping with being HIV-positive or having AIDS [23–25] or the progression of HIV disease [26]. Although the definitions of social support are often heterogeneous, fairly consistent findings demonstrated that increased general social support was often a protective or positive factor in coping with being HIV-positive or having AIDS. Social support has been examined less often in conjunction with sexual risk behavior. As the findings from these studies have been mixed, with some reporting that general social support is associated with increased sexual risk behavior [26, 27] and others showing decreased risk [28, 29], researchers have posited that general social support might be a more reliable predictor of psychological rather than behavioral outcomes [30, 31].

Other examinations of social support's influence on behavior have focused on domain-specific support, or support provided specifically for a singular behavior such as smoking cessation or weight loss. These investigations found that domain-specific support was a significant and consistent predictor of positive behavior change [32–35]. However, the idea of domain-specific social support as a possible factor for reducing HIV risk behavior has rarely been examined.

Sexual behavior among gay men has been found to vary depending on partner type (primary vs. outside) [4, 36–39] and serostatus [40, 41]. For example, studies show that rates of UAI increase when primary partners are concordant [42, 43], however, when primary partners are discordant, studies show men making conscious choices about positioning for UAI [44]. The presence of outside partners, or sexual concurrency, brings an additional layer of complexity to the possibility of HIV risk for gay couples, as sexual behavior with outside partners can present potential HIV risk to both members of a couple [45]. There is also evidence that while relationship characteristics such as intimacy and satisfaction may influence sexual behavior within the couple [43], sexual behavior with outside partners, if permitted, may not vary substantially from that of single men with their casual partners [46]. Specifically, Kuyper and colleagues reported that neither the type of sexual behavior with casual partners (e.g., condom use) nor the rate of STI diagnoses for men in relationships differed from single men.

Thus, previous research has examined aspects of gay relationships, such as relationship quality, satisfaction, and the role of social support, while other investigations have been conducted into psychosocial predictors of sexual risk behavior among gay men. Fewer investigations have considered these aspects in tandem, which could reveal whether psychosocial factors (e.g., social support) exert similar influences on sexual risk behavior among gay men in relationships. Further, there have been few examinations of samples of gay couples which represent all couple serostatus types (concordant negative, discordant, concordant positive). Gaps still remain in our knowledge regarding how primary partners influence sexual behavior with outside partners and whether this influence differs by couple serostatus.

The primary research question of the current investigation is to test whether partner-provided social support (both general and HIV-specific) is associated with sexual risk behavior for HIV with outside partners in a sample of gay male couples. Previous investigations into HIV-specific social support [47] had found it to be a significant predictor of reduced HIV risk behavior among gay male couples. Similarly, our hypothesis was that couples who report higher levels of both types of social support will engage in less sexual risk with outside partners.

Methods

Recruitment

Gay male couples ($n = 566$) were recruited from the San Francisco Bay Area between June 2005 and February 2007

using active and passive recruitment strategies in community venues. Field research staff reached potential participants by handing them study postcards in person or by placing recruitment materials (e.g., study postcards and flyers) in gay-identified social venues such as bars, clubs, and cafes and in community health and HIV/AIDS service organizations, or by placing advertisements in gay-oriented publications, websites, and listservs. Recruitment strategies were designed to produce a diverse sample in terms of race and ethnicity as well as serostatus in an effort to reflect the demographics of the San Francisco Bay Area. Field research staff reached out specifically to community-based agencies whose constituents were men of color and HIV-positive. All recruitment materials invited interested potential participants to call a toll-free recruitment hotline for information.

Screening and Eligibility

Potential participants were screened over the telephone to determine eligibility. To be eligible, participants had to: be at least 18 years old, have been in their current relationship for at least 3-months, have knowledge of their own and their partner's HIV status, and be fluent in English. Partners were screened separately and if both met the eligibility criteria the couple was invited to participate. Couples who gave discrepant reports of HIV status were not eligible for participation nor were couples where either partner identified as transgender.

Eligible couples were given appointments to come to the study offices in downtown San Francisco and upon arrival each partner was consented individually. Research assistants then administered an audio computer-assisted self interview (ACASI) to participants that required an average of 70 min to complete. Both partners took the survey simultaneously; however, each one sat in a separate cubicle to provide privacy and encourage independent responses to the questions. Upon completion, each partner received \$40.00.

Measures

Demographic Characteristics

These included age, race and ethnicity, current employment status, and income over the past 12 months at the time of the interview.

HIV Status

The respondent's HIV status was determined via self reports of the results from his most recent HIV test. Respondents also reported their partner's HIV status.

Length of Relationship

Respondents were asked how long they had been in their relationship. Responses were recorded in units of years and months. Any discrepancies were reconciled between partners.

Cohabitation

Respondents were asked if they were living with their partner.

Relationship Status

Respondents were asked whether they were married, were registered as domestic partners, had a commitment ceremony, considered themselves boyfriends or lovers, or other. Respondents checked all that applied.

General Social Support

General social support was measured by the Social Provisions Scale (SPS) [48]. This is a reliable and valid 24-item measure, scored by summing across items. This measure has been used previously with samples of gay men to study social support as a predictor of adherence to HIV medication [49], depression [50], and sexual risk behavior [47]. Items are answered on a scale ranging from 1 (strongly disagree) to 4 (strongly agree), with higher scores reflecting more perceived social support. There are two versions of the SPS, one that asks about one's larger community's provision of support and one that is partner-specific. We utilized the partner-specific version. Cronbach's alpha for this sample was 0.93.

HIV-Specific Social Support

The SPS was modified into an HIV-specific partner support measure that also contained 24 items. Each item from the SPS was adapted to reflect perceived partner support for HIV-preventive behavior. We sought to maintain the underlying construct of the original SPS items as much as possible. For example, an item from the SPS, "My partner depends on me for help," was modified into "My partner depends on me for help when it comes to practicing safer sex." Like the general SPS, items are answered on a scale ranging from 1 (strongly disagree) to 4 (strongly agree) with higher scores indicating higher perceived partner support regarding HIV prevention. This measure was created when HAART was first made available and the experience of being HIV-positive differed significantly from being HIV-negative. To reflect this difference, eleven items out of the 24 had separate versions for HIV-negative

and HIV-positive participants, with 13 items being identical for participants of either serostatus. For example, HIV-negative participants responded to: “My partner and I share similar attitudes and beliefs about practicing safer sex” while HIV-positive participants responded to “My partner and I share similar attitudes and beliefs about being HIV-positive.” The goal was to assess partner-provided support for HIV-related issues for both HIV-positive and HIV-negative men. The entire measure is included in the Appendix.

UAI with Outside Partners

Participants were asked to report the number of times in the preceding 3 months they had UAI (with or without ejaculation) with an outside partner. The question was asked separately for outside partners of HIV-negative, HIV-positive, and unknown serostatus. Based upon these responses, and the respondent’s own serostatus, two composite binary variables representing UAI with concordant outside partners and UAI with outside partners of discordant or unknown serostatus were created. For both variables, 0 was used to represent ‘engaged in no acts of UAI with an outside partner in the past 3 months’ and 1 was used to represent ‘engaged in at least one act of UAI with an outside partner in the past 3 months.’

Data Analysis

Descriptive statistics of the sample such as means and one-way frequencies were calculated. We conducted both exploratory and confirmatory factor analysis to investigate whether the measure of HIV-specific social support followed a structure similar to the original SPS. Exploratory factor analysis yielded a single factor but did not provide a good fit (CFI = 0.92, RMSEA = 0.17, SRMR = 0.097). Three items were found to have low factor loadings when compared to other items (#4 loading = 0.20, #15 loading = 0.23, #24 loading = 0.37) (see Appendix for items). Therefore these three items were dropped for further analyses, and the scale consisted of 21 items for the current results. Cronbach’s alpha for all participants in the sample and for each version separately (HIV-positive and HIV-negative) was 0.90. When examined by couple serostatus, Cronbach’s alphas ranged between 0.88 and 0.90 for the three couple serostatus types.

Next, we used logistic regression to examine the association between UAI and social support both within- and between-couples for the three couple serostatus groups: concordant negative, discordant, and concordant positive. We investigated two categories of UAI (UAI with concordant outside partners and UAI with outside partners of discordant or unknown serostatus) and two types of

partner-provided social support (HIV-specific and general) as described above. For both the social support variables, the means of the two partners’ individual scores were used as predictors of differences between-couples since they are couple-level variables. The predictors of differences within-couples, on the other hand, were calculated as the deviation of the partners’ individual scores from their couple-level mean score for each of the social support variables [51]. To account for the dyadic clustering of the data, we used PROC SURVEYLOGISTIC with Morel-adjusted robust standard errors. All analyses were performed using SAS 9.1 and Mplus V6. All models controlled for the length of the relationship and partner-provided general social support. Findings are reported as odds ratios with 95% confidence intervals, and organized by couple serostatus and type of outside partner.

Results

Demographics of the Sample

The sample was racially and ethnically diverse, with the largest proportions of couples being either interracial (47%) or White (45%) (see Table 1). African-American couples made up 5% of the sample. Concordant negative couples comprised 55% of the sample, 23% were discordant, and 22% were concordant positive. Monogamous agreements were reported by 45% of the couples whereas 47% reported open agreements and 8% reported discrepant agreements (i.e., one partner reported having a closed agreement while the other reported having an open agreement). Couples were defined as monogamous if both partners indicated that the following scenario reflected their agreement regarding sexual encounters outside of the relationship: “Both of us cannot have any sex with an outside partner”, regardless of whether or not that agreement was broken. In approximately half the couples both partners were employed, one partner was employed in 32% of couples, and in 19% of couples neither partner was employed. A majority of participants (45%) reported annual incomes lower than \$30,000. A majority of couples (75%) lived with their partners. Nineteen percent of couples reported being married and 29% were registered as domestic partners. The mean length of relationship was approximately 7 years (SD = 8.5 years) and the average age of the participants was 42 years (SD = 11.4 years).

Concordant Negative Couples

The regression analyses conducted on concordant negative, discordant, and concordant positive couples led to a number of significant findings (Table 2). First, among

Table 1 Characteristics of the sample

| | % | (N) |
|-----------------------------------|------|-------|
| Race of couple | | |
| Interracial | 47 | (268) |
| Caucasian | 45 | (254) |
| African-American | 5 | (26) |
| Latino | 2 | (11) |
| Asian-American/Pacific Islander | 1 | (5) |
| Native American | <1 | (2) |
| HIV status of couple | | |
| Concordant negative | 55 | (310) |
| Concordant positive | 22 | (124) |
| Discordant | 23 | (132) |
| Agreement type | | |
| Monogamous | 45 | (255) |
| Open | 47 | (262) |
| Discrepant | 8 | (44) |
| No agreement | <1 | (5) |
| Employment | | |
| Both partners employed | 49 | (279) |
| One partner employed | 32 | (180) |
| Both partners unemployed | 19 | (107) |
| Income (individual) | | |
| Less than \$30,000 | 45 | (507) |
| \$30,000 to \$59,999 | 30 | (343) |
| \$60,000 or \$99,999 | 16 | (177) |
| \$100,000 or higher | 9 | (105) |
| Partners live together | 77 | (468) |
| Relationship status | | |
| Married | 19 | (108) |
| Registered as domestic partners | 29 | (164) |
| | Mean | SD |
| Length of relationship (in years) | 6.9 | 8.5 |
| Age of participants (in years) | 41.7 | 11.4 |

Note: Not all applicable percentages sum to 100% due to rounding errors

concordant negative couples, there was a consistent and significant association between the couples' level of HIV-specific social support and reduced odds of engaging in both categories of UAI. Couples with higher levels of HIV-specific social support exhibited lower odds of engaging in UAI with both concordant outside partners (OR = 0.93, 95% CI = 0.89–0.98) and outside partners of discordant or unknown serostatus (OR = 0.88, 95% CI = 0.83–0.92). The largest reduction in odds of UAI is found for the riskiest behavior, which is UAI with outside partners who are of discordant or unknown serostatus. For this category of UAI, for instance, a one unit increase in a couple's HIV-specific social support is associated with a 12%

reduction in odds of UAI. Similarly, there was a significant association between the odds of engaging in UAI (with both types of outside partners) and the difference in the level of HIV-specific support reported by partners within a couple: a one unit increase in the deviation of a partner's reported level of HIV-specific social support from the couple-mean score was associated with a 6% reduction in his odds of engaging in UAI with concordant outside partners and a 7% reduction with outside partners of discordant or unknown serostatus. In the case of general social support, the only significant finding was that within-couples, a higher deviation from the couple-mean of general social support was associated with increased odds of engaging in UAI with concordant outside partners (i.e., serosorting). Specifically, a one-unit increase in the deviation of a partner's general social support score from the couple-mean score was associated with a 6% increase in his odds of engaging in UAI with a concordant outside partner.

Discordant Couples

Among discordant couples, HIV-specific social support was a significant predictor of decreased odds of engaging in UAI with outside partners of both concordant and discordant or unknown serostatus (Table 2). Similar to concordant negative couples, discordant couples with higher levels of HIV-specific social support exhibited lower odds of engaging in UAI with concordant outside partners (OR = 0.93, 95% CI = 0.86–0.996) and with discordant or unknown serostatus outside partners (OR = 0.86; 95% CI = 0.80–0.94). Also, within discordant couples, greater deviations of a partner's HIV-specific social support from the couple-mean score was associated with reduced odds of engaging in UAI (OR = 0.93, 95% CI = 0.86–0.99). However, there was no evidence of any significant association between general social support and UAI with either type of outside partner.

Concordant Positive Couples

Among concordant positive couples, the between-couples effects for both HIV-specific and general social support were found to be significantly, but differently, associated with the odds of engaging in UAI with concordant outside partners. Specifically, the odds of engaging in UAI with concordant outside partners were significantly lower for couples reporting greater HIV-specific social support (OR = 0.85, 95% CI = 0.79–0.91), whereas the odds were significantly higher for couples reporting greater general social support (i.e., serosorting) (OR = 1.09, 95% CI = 1.03–1.15). No significant within-couples effects were found. There were also no significant associations

Table 2 Logistic regression results of association between partner-provided social support and UAI with outside partners

| Parameter | Couple serostatus | | | | | |
|---|---------------------|---------------|----------------|---------------|---------------------|---------------|
| | Concordant negative | | Serodiscordant | | Concordant positive | |
| | AOR | 95% CI | AOR | 95% CI | AOR | 95% CI |
| Outcome: UAI with outside partner of concordant serostatus | | | | | | |
| HIV-Specific social support between couples | 0.93** | (0.89–0.98) | 0.93* | (0.86–0.996) | 0.85** | (0.79–0.91) |
| HIV-Specific social support within couples | 0.94* | (0.89–0.99) | 0.95 | (0.88–1.02) | 1.004 | (0.95–1.06) |
| General social support between couples | 0.99 | (0.95–1.03) | 0.99 | (0.92–1.06) | 1.09** | (1.03–1.15) |
| General social support within couples | 1.06* | (1.01–1.11) | 1.01 | (0.96–1.06) | 1.02 | (0.98–1.07) |
| Relationship length | 1.002* | (1.00–1.004) | 1.001 | (0.997–1.005) | 0.999 | (0.993–1.005) |
| Outcome: UAI with outside partner of discordant or unknown serostatus | | | | | | |
| HIV-Specific social support between couples | 0.88** | (0.83–0.92) | 0.86** | (0.80–0.94) | 0.95 | (0.88–1.01) |
| HIV-Specific social support within couples | 0.93* | (0.88–0.99) | 0.93* | (0.86–0.99) | 1.02 | (0.95–1.11) |
| General social support between couples | 1.002 | (0.96–1.05) | 1.04 | (0.96–1.12) | 1.03 | (0.99–1.08) |
| General social support within couples | 1.006 | (0.96–1.05) | 0.99 | (0.94–1.05) | 0.99 | (0.93–1.04) |
| Relationship length (years) | 1.004** | (1.002–1.006) | 0.999 | (1.995–1.003) | 1.01 | (1.00–1.009) |

* *P*-value < 0.05** *P*-value < 0.01

between HIV-specific or general social support and UAI with outside partners of discordant or unknown serostatus for concordant positive couples.

Discussion

Our findings suggest that the spectrum of partner-provided support is wide-ranging. HIV-specific support from partners was consistently associated with less sexual risk behavior across couple serostatus types, whereas the influence of general emotional support on sexual behavior was less clear. Examining one type or the other alone may not sufficiently explain behavioral outcomes as they may be exerting their influence differently.

The relationship between partner-provided social support and UAI is complex. There appear to be significant differences between HIV-specific social support when compared to general social support, although both are partner-provided. Specifically, HIV-specific social support had a consistent and robust association with reduced odds of engaging in UAI with concordant outside partners as well as partners of discordant or unknown serostatus, while general social support was not associated with reduced risk behavior. These findings have several implications for HIV prevention efforts and for the measurement of social support. There are strong indicators that the type of support partners provide to each other is an important influence on sexual behavior with outside partners and it is important to assess both types.

Although domain-specific support has been found in prior studies of gay relationships to be a significant predictor of positive psychological outcomes [20, 52], this is one of the first studies to examine domain-specific support as a potential influence on sexual risk behavior among gay male couples [47]. The HIV-specific social support instrument could be a potentially useful tool for assessing the level of partner-provided support around risk for HIV and the importance of the development of such domain-specific measures has been previously noted [34]. Given its association with reduced odds of engaging in UAI, partner-provided social support for HIV-related attitudes and behaviors should be an additional construct to consider in the context of gay male relationships along with relationship satisfaction, commitment, and agreement investment [53].

We also found that increased levels of general social support were associated with increased odds of UAI with concordant outside partners for both concordant negative and concordant positive couples (i.e., serosorting). It could be that partners who provide positive emotional support to their partners are more accepting of a wide range of behavior from their partners. For example, partners could be providing unconditional support no matter what sexual behavior their partners engage in. Perhaps general social support is more closely aligned to general relationship dynamics (such as satisfaction), as opposed to those that may influence sexual risk reduction. For HIV-positive men, serosorting incurs no HIV risk for either party, but there is the possibility of STI transmission. For HIV-negative men,

having UAI with an outside HIV-negative partner could be a seroadaptive strategy, but it could pose risk for HIV transmission if one's partner has not tested recently, or partners did not directly discuss serostatus [54]. The consistent finding between general social support and serosorting for both types of concordant couples suggests that similar dynamics may be at play for these couples. Further research is needed in order to elucidate whether other relationship factors influence seroconcordant couples in similar ways. We did not find any significant associations for either type of social support and UAI with outside partners of discordant or unknown serostatus for concordant positive couples. Further investigation is needed into other relationship-based or psychosocial factors that may influence the likelihood of men in concordant positive relationships reducing their UAI with outside partners of discordant or unknown serostatus [42].

Prevention efforts should target couples and include participation of both partners. Gay men in primary relationships can be at risk for acquiring or transmitting HIV infection, and we need to improve our understanding of relationship contexts and how they are influencing sexual behaviors with both primary and outside partners. Intervening with gay men in relationships could pose a challenge, as patterns of sexual behavior with primary and outside partners may already be entrenched and accepted and could be difficult to change [55]. However, it may be that HIV-specific social support is tapping into communication skills concerning HIV, such as a comfort discussing sexuality with one's partner, which could be more amenable to intervention via the provision of communication-skills training. Indeed, most of the items of the modified measure imply that conversations about HIV have occurred within the relationship. Few studies have examined communication about HIV among gay couples, and those that have focused on specific issues such as details of their agreement regarding outside partners, e.g., negotiated safety [7, 8]. The current measure appears to be capturing a broader scope of communication about HIV-related topics. By engaging in these discussions, expectations about behavior with outside partners, potential repercussions of that behavior (e.g., becoming HIV-positive), and general thoughts and feelings about HIV could be made clear. This clarity of understanding as well as clear communication of support for particular behaviors may have contributed to less risk for HIV across couple serostatus types, akin to other findings regarding domain-specific support for health behaviors [32–35]. In addition, while altering sexual behaviors with a primary partner in long-standing relationships may be difficult, it may be easier to change sexual behaviors with outside partners (e.g., reducing UAI with outside partners of discordant or unknown serostatus). Future research should be conducted which specifically test

whether increasing partner-provided support specifically for HIV results in reduced sexual risk behavior given the findings that this type of support has a strong association with men's choices of sexual behavior with outside partners [45].

As our findings varied by couple serostatus, future interventions should also be tailored to address the unique needs of each group. For example, HIV-specific social support was consistently associated with reduced UAI with all outside partners for concordant negative couples, while its influence was less consistent for discordant and concordant positive couples. For concordant negative couples, the implications are that it may be helpful to explore the specific agreements that they have with regard to UAI with outside partners, and to explore whether partners perceive general social support from their partner as a tacit endorsement of serosorting in the absence of a more specific agreement. Concordant negative couples may benefit from interventions that include communication skills to improve their ability to discuss the possibility of UAI with outside partners and how to better provide support to their partners for safer sex with partners of any serostatus.

For discordant couples, future interventions should assess the level of HIV-specific social support and could include strategies to increase it (e.g., improve communication and support regarding HIV-specific issues). Focusing on HIV-specific issues of support would appear to be more salient to discordant couples over improving general social support, which did not show any association with UAI for this group. Future research should also examine whether HIV-specific social support has any effect on UAI that partners in serodiscordant couples have with each other.

Similar to the other couple types, concordant HIV-positive couples would seem to benefit from interventions that could increase HIV-specific social support. However, as with concordant HIV-negative couples, the role of general social support should be explored, and couples should be encouraged to have clear discussions regarding their agreements regarding UAI with outside partners, and to clearly establish expectations regarding serosorting. Although serosorting among HIV-positive men poses no risk for HIV transmission, there is the possibility for acquiring an STI (if UAI occurs). Of note, in other findings from this sample, HIV-concordant positive couples were found to have the lowest levels of mutually constructive communication [56]. However, the pattern for HIV-specific social support mirrors that of other couple types, and may indicate that concordant positive couples can communicate effectively with each other about expectations regarding sexual behavior with outside partners.

Limitations of our study include the sampling strategy, study setting, assessment of sexual risk behavior, issues

associated with scale modification, and that participants self-reported their serostatus. First, although our recruitment strategies yielded a diverse sample with regard to race or ethnicity and serostatus, the methods used to gather the sample produced a convenience sample; therefore generalizations should be limited. Second, given that the participants reside in the San Francisco Bay Area, there is the potential that the participants' sexual behaviors may have been influenced by the strong presence of HIV prevention campaigns targeted towards the gay community, and we did not assess this exposure or the participants' potential connection to the gay community. Third, we did not assess whether the episodes of UAI with outside partners occurred when the primary partner was also present (e.g., threesome). It is possible that the presence of the primary partner could influence whether UAI occurred with an outside partner of discordant or concordant serostatus. Fourth, the process of modifying the SPS into two versions could have affected our findings. However, our factor analysis and the consistency of findings across couple serostatus types with regard to the negative association between HIV-specific social support and UAI increases our confidence in the results. Finally, the HIV status of participants was self-reported, as actual HIV testing was not conducted. However, HIV status was verified by asking each respondent to report his own and his partner's HIV status at the time of screening (couples who gave discrepant reports of HIV status were not eligible for participation). Although there may be some error in actual versus self-reported HIV status (i.e., some participants may have incorrectly reported their HIV status), we are most interested in the participants' perceptions of their own and their partners' HIV status and believe that sexual safety or HIV risk behavior is guided in large part by one's perception of risk.

The significance of our findings is in its utilization of a dyadic perspective and of its focus on different types of social support and their respective influences on sexual risk behavior among a large and diverse sample of gay male couples. Choices that men in relationships make (such as engaging in UAI) may not be based solely on individual characteristics but also on the influence from primary partners. The conceptualization of sexual decision making needs to contextualize these decisions within the dynamics of an intimate relationship. Given that primary partners are often the source of new HIV infections among gay men [1], capitalizing on partner-provided support could be a crucial factor in the prevention arsenal against HIV.

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