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Male and Female Partners among
Men who Have Sex with Men and
Women (MSMW)**

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The Effect of Partner Sex: Nondisclosure of HIV Status to Male and Female Partners among Men who Have Sex with Men and Women (MSMW)

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ABSTRACT

A common concern within HIV prevention is that HIV positive MSMW do not disclose their HIV status to female partners who are thus at increased risk for HIV infection. The present study uses unique data to examine whether MSMW actually disclose more often to male rather than female partners. Data were collected on most recent male and/or female primary partner and four most recent casual partners from 150 MSMW (50 African American, 50 Latino, 50 White). MSMW reported on 586 partners (30% female; 70% male). Disclosure was coded as disclosure before sex, disclosure after sex, or nondisclosure. A series of multinomial logistic regressions with partners clustered within respondents were conducted to evaluate effects of respondent characteristics and partner characteristics on timing of disclosure. In bivariate and multivariate analyses there were no significant differences in odds of disclosure to male and female partners before or after sex. However, while MSMW were substantially less likely to disclose to HIV negative before sex compared to HIV positive partners regardless of sex, HIV negative male partners were more likely to be disclosed to before sex than HIV negative female partners. The

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paper makes additional methodological contributions to the measurement and analysis of disclosure.

KEYWORDS

disclosure, HIV, bisexual, men who have sex with men and women (MSMW), risk, responsibility, female partners, measurement

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INTRODUCTION

Communication about stigmatized identities and behaviors takes place within complex interpersonal and social contexts. For HIV positive men who have sex with men and women (MSMW) disclosure of sexual behavior and HIV positive status present unique problems with male and female sexual partners. A common concern within HIV prevention is that MSMW may not disclose to female partners who, unaware of their partner's sexual behavior and HIV status, are at increased risk for infection. These concerns have been raised particularly for Black and Latino men who have sex with men (MSM) since they have been observed to be more likely than White MSM to have female partners^{1,2,3} but are less likely to disclose their bisexual behavior to female partners.^{4,3} Yet, rates of disclosure of HIV status to both male and female partners by MSMW generally and across race/ethnicity and sexual orientation remain unknown. The following study aims to describe patterns and identify determinants of disclosure to male and female sexual partners among HIV positive MSMW using a unique data set that provides information on individual and partner characteristics.

A number of studies have observed that individual assessments of the personal and social benefits and risks of disclosure are important determinants of whether individuals disclose their HIV status to anyone, including sexual partners. The widely used Disclosure Decision Model⁵ argues that decisions to self-disclose personal information are a function of the strategic evaluation of the individual and social risks and benefits of disclosure. Work formally and informally within this risk/benefit framework has sought to identify characteristics of HIV positive individuals and their partners or relationships that influence disclosure of HIV status by increasing or decreasing the personal and social risks to the discloser.

In popular discussions of disclosure of HIV status among MSMW, disclosure to female partners is often assumed to be less frequent than disclosure to male partners with the justification that it entails substantially greater risk than disclosure to male partners who are, at the very least, aware of the MSMW's same-sex sexual behavior. However, with the exception of recent work using the present data set,⁶ the authors are not aware of additional studies that disaggregate disclosure of HIV status by partner gender among MSMW or among men who have sex with men (MSM) more broadly. While there is some evidence that female relatives are more likely to be disclosed to by MSM,⁷ it is not clear whether this trend extends to intimate relationships. In a qualitative study of disclosure to various targets, including family members, friends, and sexual/relationship partners, Cusick and Rhodes⁸ present nondisclosure as a means of protecting not only particular relationships between the HIV positive individual and another, but also as protecting "fixed social relationships" such as "husband", "boyfriend", or "father". Within this framework, we might think of disclosure to female primary partners as being accompanied by greater perceived disruptive potential for MSMW's social roles as husbands or fathers. Thus MSMW may avoid disclosure of their HIV status to female partners more so than to male partners. Further, MSMW may avoid disclosure to female partners on the grounds that female partners are perceived to be more likely to respond negatively to information that their partner is HIV positive and may be more likely to question his fidelity or sexual orientation if he discloses that he is HIV positive.⁹

Despite the risks involved in disclosure, however, a growing body of work finds that HIV positive individuals see themselves as having a duty or responsibility to disclose to others, particularly those who might be at risk of infection. HIV positive individuals frequently disclose to primary partners^{10, 11} and often acknowledge an obligation to disclose to partners.^{8, 12}

Qualitative investigation of this phenomenon by Cusick and Rhodes⁸ and others finds that, in addition to a risk/benefit analysis, HIV positive individuals frame disclosure as a personal responsibility to partners and for partners' health specifically. Some conceptualize this responsibility more broadly, citing a social responsibility to public health aims of decreasing HIV transmission.¹³ Beliefs about responsibility to disclose may be further supported by fears of legal action among some men.¹⁴ Thus, despite unbalanced risks, MSMW may still be similarly motivated to disclose to both male and female primary partners while remaining generally unmotivated to disclose to either male or female casual partners.

In order to evaluate differences in disclosure of HIV status to male and female partners by MSMW, we must also consider and control for other factors that contribute to variation in disclosure behaviors, including: relationship status, partner's HIV status, sexual orientation, race/ethnicity. In line with arguments that greater benefit and less risk may be derived from primary partners who are more emotionally and materially invested in the discloser, a number of studies show that primary partners are more likely to be disclosed to than casual partners.^{15, 16, 17,}
¹⁸ Similarly, MSM are more likely to disclose to HIV positive partners than HIV negative or unknown partners to avoid rejection from potential partners.^{14, 19}

Rates of disclosure have been observed to vary by sexual orientation, with gay and bisexual men (pooled) being less likely than heterosexual men and women to disclose before sex in nonexclusive partnerships.²⁰ However, in the same study, gay and bisexual men reported similar rates of any sex without disclosure in exclusive or primary partnerships compared to heterosexual men and women, identifying relationship status as an important third variable. Few studies consider gay and bisexual men distinct populations, which makes comparisons of rates of disclosure by self-identified sexual orientation and/or sexual behavior difficult. Among MSMW,

however, recent work finds that the predictive value of sexual orientation, assessed using the Klein sexual orientation grid,²¹ interacts with race/ethnicity and partner gender.⁶

Studies of disclosure behavior by race/ethnicity present mixed findings. Disclosure of sexual behavior and HIV status are thought to be inhibited by contexts that increase the real or perceived personal and social risks of disclosure. Homophobia and HIV stigma in communities of color may increase the risk of disclosure of HIV status among Black and Latino MSM and MSMW. Black and Latino MSMW may not openly identify as gay or bisexual due to stigma associated with homosexuality and HIV in communities of color.^{22, 23, 24, 25} There is some evidence in support of these explanations for lower rates of disclosure of HIV positive status among Black and Latino MSM. In a convenience sample of care-seeking HIV positive individuals, those identifying as White or Latino were 3 times more likely than those identifying as Black to disclose their HIV status to all sexual partners in a six month period.¹⁷ Yet other work finds negligible differences in rates of HIV disclosure to primary partners among care-seeking Black and White MSM who report disclosing to 89% and 97% of current primary sexual partners, respectively.²⁶ Among Latino men, broader cultural norms regulating disclosure of personal information and the protection of others from worries or stigma may also limit disclosure.²³

In sum, the present study aims to describe patterns of disclosure to male and female partners while controlling for additional known determinants of disclosure to sexual partners. We utilize a unique data set that includes detailed sexual histories of the male and female sexual partners of HIV positive men who have sex with men and women (MSMW). The study also applies methodological innovations in the study of disclosure of HIV status by disaggregating

disclosure before sex and disclosure after sex²⁷ and by including multiple observations of an individual MSMW's disclosure behaviors.

Multiple observations are necessary because disclosure is not an absolute event; we know well that different factors influence disclosure across different targets.^{12, 23, 28} While the inclusion of multiple targets (e.g., sexual partners, family, and close friends) in analyses of disclosure is common, the inclusion of multiple observations of the same type of target, such as sexual partners, is rare. Often, disclosure is assessed at the most recent or current sexual partnership.²⁹ Yet, among MSM there is wide variability in patterns of disclosure to partners: some disclose to all casual partners (29%) while others disclose to none (33%), and still others disclose selectively to only some casual partners (38%).³⁰ Similarly, in findings from a longitudinal study of disclosure by STD clinic attendees who were surveyed about their disclosure behaviors to new partners at baseline and follow-up, 30% of participants reported disclosing to one new partner but not to another.¹⁶ Given this variability, the present study utilizes sexual history data for up to one male and one female primary partner and up to four casual partners in the five years prior to interview to provide more exact estimates of disclosure among MSMW. Further, this data structure is used to maximize observations for female primary and casual partners.

METHODS

Data were collected from participants recruited via posters and flyers at the eight social service and health-related AIDS organizations funded by Los Angeles County to target MSMW for primary or secondary HIV prevention activities from August, 2002 through July, 2004. The final sample consisted of 150 HIV positive MSMW. A targeted sampling strategy was used to

obtain equal numbers of MSMW participants by race/ethnicity: 50 Black, 50 Latino, and 50 White.

An MSMW was defined as a male who self-reported sex with at least one male and at least one female partner in the previous five years. This definition is consistent with definitions used in prior work.^{25, 31} Using a longer time period allows for analyses of sexual patterns and relationships over time. Men who engage in bisexual behaviors may not identify as bisexual and may not engage in polyamorous relationships; thus their sexual practices with men and women may only be captured over a time period that is measured over several years.³²

Potential participants were screened via phone. Only participants who reported being African-American/Black, Latino/Hispanic or White/Caucasian, male, HIV positive, and behaviorally bisexual in the past five years were selected. Participants were offered \$40 to participate in a face-to-face interview that lasted between 90 and 120 minutes. Informed consent and interviews were administered by trained project staff in a private room at a large AIDS service organization.

Detailed sexual histories were collected for the respondent's most recent male and/or female primary partner and three most recent casual partners. Where the three casual partners were all of the same sex, additional information on a fourth casual partner of a different sex – if the respondent had such a partner – was requested. Participants were instructed to respond based on their sexual behavior since they learned that they were HIV positive or within the past five years, whichever was more recent. Primary partners were defined to participants as “a partner you would call your boyfriend, girlfriend, spouse, significant other, husband, wife, life partner, or primary sexual partner” and casual partners as “people you had sex with who are partners you dated casually, tricks, one-night stands, friends you have sex with, and any other non-primary

sexual contacts.” This produced a data set of 150 MSMW who reported on their relationships with 628 partners. Data of 40 partners and 2 MSMW were dropped due to missing values on the dependent or independent variables. The data of 3 additional partners were dropped due to range restrictions on the dependent variable discussed below. The analytical sample includes 148 MSMW who reported on 586 partners.

Measures

Assessment instruments were used that have shown strong psychometric properties in prior research that included HIV positive MSMW.³³ Items were refined based on formative research with HIV positive MSMW. For instance, the instrument was amended to allow for up to two primary partners (one male and one female; or one transgender and one male or female) and up to four casual male and female partners.

Disclosure of HIV Positive Status. Participants were asked a series of questions regarding their disclosure to specific primary and casual partners. Questions were worded to capture both direct and indirect disclosure. Questions about disclosure to primary partners versus casual partners differed slightly in their phrasing. Regarding their primary male and female partners, respondents were asked, 1) “Did (partner #) know that you were HIV positive at any time before the first time you had sex?” If no, they were asked, 2) “Does (partner #) know that you are HIV positive now?” Disclosure of HIV status was coded as nondisclosure, disclosure before sex, and disclosure after sex. A negative response to both questions was coded as nondisclosure; an affirmative response to the first question was coded as disclosure before sex; and a negative response to the first question and an affirmative response to the second question was coded as disclosure after sex. For casual partners the following questions were asked: 1) “Does (partner #) know that you are HIV positive?” and 2) “When did (partner #) find out that you are HIV

positive?” The following response categories were given: “S/he knew my HIV status before we met,” “The first time we met,” “Before we had sex,” “Before we had unprotected sex,” “After we had unprotected sex.” The first category (including only 3 partners in the analytical sample) was dropped from analyses because it did not represent a decision to disclose on behalf of the MSMW. The first three of the remaining four categories were collapsed to represent disclosure before sex given an affirmative response to the first question. A negative response to the first question was coded as nondisclosure. A positive response to the first question and the response “After we had unprotected sex” to the second question was coded as disclosure after sex.

Respondent Characteristics. A range of demographic information was collected for each respondent, including age and race/ethnicity, and HIV health status.

Sexual Orientation. Sexual orientation was assessed using a standard, single-item self-identification item: “Do you identify yourself as: 1) Straight/Heterosexual, 2) Bisexual, or 3) Gay/Homosexual”.

Responsibility to Disclose HIV Positive Status. Feelings of responsibility for disclosing HIV status to partners was measured using the ratings of five items on a 5-point scale from strongly disagree (1) to strongly agree (5): “I have a responsibility to let people I’m going to have sex with know that I am HIV positive,” “I shouldn’t have to disclose my HIV status if I only have safe sex (reverse coded),” “If a potential partner doesn’t ask about my HIV status, it’s not my responsibility to tell him or her (reverse coded),” and “When I meet a new sex partner, they don’t expect me to tell them my HIV status right away.” Reliability for the four-item scale was moderate ($\alpha = .70$).

Undetectable Viral Load. Participants were asked to report their most recent viral load as part of a series of health status items. This continuous viral load number was re-coded as a

binary variable, 0=detectable and 1=undetectable, where undetectable was equivalent to <48 copies per mL.

Partner Characteristics. MSMW were asked to report their partner's gender, race/ethnicity, HIV status if they knew it, and relationship partner status (primary or casual). HIV status of primary partners was measured explicitly as that partner's status at the first time he or she and the respondent had sex, whereas HIV status of casual partners was more ambiguously measured simply as that partner's status. Thus, casual partner's status may capture current rather than prior HIV status depending on how the participant interpreted the question if prior and current status differed.

Analyses

Descriptive statistics were produced for all sociodemographic, disclosure, and partner variables. To accommodate the structure of the data we used a multinomial logistic regression with partnerships (n=586) clustered by respondents (n=148). The clustered analyses adjust parameter estimates for the dependence of observations. For example, MSMW who disclose to one partner may be more likely to disclose to other partners by virtue of experience. In contrast, MSMW who do not disclose to one partner may be more likely to maintain this pattern of nondisclosure despite other respondent and partner characteristics. Multiple models are presented below. Tests comparing models and the joint effects of parameters across both outcome categories were conducted using adjusted Wald tests. All analyses were conducted using STATA 9.2.³⁴

RESULTS

Respondent Characteristics

Sample characteristics for respondents and their reported partners are presented in Table I. Participants ranged in age from 20 to 59 years old ($M=39.8$ years). Respondents largely identified as bisexual (58%) or gay/homosexual (37%), with the remainder identifying as straight/heterosexual (5%). MSMW provided sexual histories for a total of 586 partners, 4 partners on average. 98 (66%) MSMW reported having a primary partner (male, female, or both) in the last five years. Of those reporting a primary partner, 43% of MSMW reported having a male primary partner, 11% of MSMW reported having a female primary partner, and 46% of MSMW reported having both a male and female primary partner in the past five years. All but one MSMW reported having a casual partner in the last five years. Of those reporting at least one casual partner, 24% had only male casual partners; 3% had only female casual partners, and 72% had both male and female casual partners. The distribution of male and female partners is presented across respondent characteristics in the upper panel of Table II. Differences in the distribution of male and female partners by respondent's self-identified sexual orientation were significant [$\chi^2(2)=13.02; p \leq .001$], with a straight/heterosexual identified MSMW reporting a higher proportion of female partners (57%) compared to bisexually identified MSMW (31%) and gay identified MSMW (23%). There were no significant differences in the distribution of male and female partners across race/ethnicity.

Partner Characteristics

The lower panel of Table I presents the characteristics of all partners reported by respondents. Of the 586 partners, 30% were female partners and 70% were male partners. Primary partners composed 23% of all partners reported; the remaining 77% of partners were casual partners. A substantial number of partners were known by the MSMW to be HIV positive (29%) or HIV negative (33%). The remaining 37% of partners were of unknown status or had

not been tested. The distribution of male and female partners across partner characteristics is presented in the lower panel of Table II. Differences in the distribution of male and female partners across relationship type were significant [$\chi^2(1)=4.57; p \leq .05$], with female partners (28%) being more likely to be primary partners compared to male partners (21%), while male partners (80%) were more likely to be casual partners compared to female partners (72%). Differences in the distribution of HIV status by partner sex were also significant [$\chi^2(2)=27.6; p \leq .001$], with a greater percentage of male partners being HIV positive (36%), a greater percentage of female partners being HIV negative (48%), and equal proportions of each being unknown or untested (37% male, 38% female).

Disclosure to Male and Female Partners

Overall, MSMW disclosed their HIV positive status before sex in 52% of partnerships (see Table III). MSMW disclosed to an additional 14% of partners some time after having sex. In 34% of partnerships MSMW did not disclose their HIV status. Collapsing the disclosure before sex and after sex categories - a typical binary measure of disclosure - MSMW had disclosed to 66% of partners. In bivariate analyses, the timing of disclosure is similar for male and female partners [$\chi^2(2)=.592; p=.744$], with roughly half of MSMW disclosing before sex and roughly one-third never disclosing to male and female partners.

Table IV presents the unadjusted and adjusted odds ratios of disclosure before and after sex compared to never from a series of clustered multinomial logistic models. In the first panel of Table IV, the unadjusted odds of disclosure before sex to female partners relative to male partners are less than one but nonsignificant: OR=0.86 (CI=0.59-1.25). Evidence for less frequent disclosure to female partners before sex remains limited in the adjusted pooled model as the gap between male and female partners in the odds of disclosure before sex decreases from

0.14 to 0.09 when other known determinants of disclosure are controlled for. Further, a Wald test (adjusted for the dependency of observations) of the joint effect of being a female partner rather than a male partner across disclosure outcomes is nonsignificant [$F(2, 146)=.58$; $p=.563$]. MSMW are as likely to disclose to female partners as they are to male partners after differences in rates of disclosure by race/ethnicity, MSMW's feelings of responsibility, the type of sexual relationship, and partner's HIV status are controlled for.

Two additional models are shown in the right-most panels of Table IV which are equivalent to a model that is fully interacted by partner sex and allows the effects of all variables to vary for male and female partners. The odds ratios estimated for male partners are significantly different from those estimated for female partners [$F(18, 130)=16.50$; $p<.000$].

Additional Factors Influencing Disclosure

The independent effects of all respondent characteristics on disclosure were also estimated. Black and Latino MSMW are 35% and 55% less likely than White MSMW to disclose before sex in the unadjusted model, respectively; however, only the unadjusted odds ratio for Latino MSMW is significantly different from one. In the successive multivariate models, the effect of race/ethnicity on disclosure behavior loses significance: the odds of disclosure before and after sex are similar for Blacks, Latinos, and Whites, and a Wald test of the joint effect of race/ethnicity across disclosure outcomes confirms that differences in disclosure by race/ethnicity are nonsignificant in the pooled model [$F(4, 144)=.59$; $p=.669$].

We next consider differences in disclosure by sexual orientation. Neither the unadjusted nor the adjusted effects of self-identified sexual orientation are significantly different from 1.00 for disclosure before sex. However, gay-identified MSMW were 65% less likely than

bisexually-identified men to disclose after sex in the adjusted pooled model. This effect remains significant when the model is fully interacted by partner sex for male partners only.

In recent work, HIV positive individual's feelings of responsibility to partners and, in some cases, to a broader community or public health agenda, have emerged as an important mechanism that may counter the aversion of disclosure to partners who entail greater personal and social risk. In the present model, each unit increase in feelings of responsibility to disclose increases the odds of disclosure before sex compared to never by a factor of 2.6, net of other individual and partner characteristics in the pooled model. The effect of greater feelings of responsibility on disclosure before sex is consistent for male and female partners: a one unit increase in responsibility score increases the adjusted odds of disclosure after sex by roughly 2 times for both male and female partners. These findings control for HIV viral load in the adjusted models, a factor which has been related to the perceived likelihood of transmission risk, especially when undetectable, among MSM,³⁵ although the effect of reporting an undetectable viral load on disclosure behavior was nonsignificant in bivariate or multivariate models.

Consistent with literature on disclosure among MSM, the likelihood of disclosure before sex and after sex was greatly affected by relationship partner type and partner's HIV status. Overall, MSMW were substantially less likely to disclose to casual partners compared to primary partners and to HIV negative and unknown partners compared to HIV positive partners. In the pooled model, MSMW were 82% less likely to disclose before sex to casual partners compared to primary partners. The odds of disclosure to casual partners after sex, not surprisingly, were even smaller: MSMW were 92% less likely to disclose after sex to casual partners compared to primary partners. The effect of being a casual partner was similar across the unpooled models which estimate effects separately for male and female partners. Compared to known HIV

positive partners, MSMW were 92% less likely to disclose before sex to known HIV negative partners in the pooled model. However, the effect of partner's HIV status varied significantly for male and female partners. Although known HIV negative male partners were 89% less likely to be disclosed to before sex compared to known HIV positive partners, the odds of disclosure before sex to HIV negative female partners compared to HIV positive female partners were substantially lower and significantly less than the odds of disclosure before sex for HIV negative male partners compared to HIV positive male partners [$F(2, 146)=62.33; p<.000$].

Figure 1 depicts the predicted probabilities of disclosure before sex, after sex, and never to male and female primary and casual partners by partner HIV status. Predicted probabilities were estimated using parameters from the fully interacted model. In this figure, the preference to disclose before sex to primary and known HIV positive partners, regardless of partner sex, is apparent. Further, Figure 1 depicts patterns of mutual nondisclosure and nonreciprocal disclosure (discussed in more detail below) among both male and female HIV negative and unknown status partners.

DISCUSSION

The first aim of this paper was to provide much needed data on the disclosure of HIV positive status to the male and female partners of MSMW. Overall, MSMW disclosed their HIV status before sex to roughly half of all partners and did not ever disclose their HIV status to roughly one-third of partners. Findings did not support the conclusion that MSMW systematically disclose their HIV status less to female partners compared to male partners; in bivariate and multivariate analyses there were no significant differences in the odds of disclosure to male and female partners.

However, decisions of whether and when to disclose do reflect broader social and relationship contexts that impact male and female partners differently. It has long been recognized that HIV positive MSM are more likely to disclose their HIV status to primary partners than to casual partners. Notably, this finding is replicated among MSMW for *both* male and female primary partners providing many linkages with previous qualitative and quantitative work which has shown a strong preference for disclosure to primary partners.^{8, 10, 11} Knowledge of partner's HIV status also remains a strong predictor of disclosure among MSMW. In this study, HIV negative and unknown status partners *regardless of sex* were at a substantial disadvantage compared to HIV positive partners. However, the effect of partner's HIV status varies significantly in magnitude for male and female partners. While neither male nor female HIV negative partners had a very high likelihood of disclosure before sex compared to their HIV positive counterparts, HIV negative male partners were more likely to be disclosed to before sex than HIV negative female partners.

These findings should prompt additional qualitative work that further compares the process and meaning of disclosure to male and female sexual partners among MSMW. While rates of disclosure were similar overall, the processes and motivations that result in roughly one half of male *and* female partners having no information about MSMW's HIV status may be different. Further, feelings of responsibility emerged as a significant predictor of disclosure to both male and female partners. Work examining the nuances and sources of these feelings of responsibility as they related to male versus female partners would considerably improve our understanding of disclosure behavior. For example, in current work Gorbach and colleagues suggest that a community-wide "Don't ask, Don't tell" norm, or mutual nondisclosure, regulates discussions of HIV status among MSM and their male casual partners.¹⁴ Some have argued that

the adoption of such a norm has been driven by the shift in HIV prevention towards individually-oriented rather than community-oriented risk reduction and responsibility for prevention.³⁶ As a result of this shift, HIV positive MSM are suggested to share an expectation of individual attentiveness to one's own risk behaviors and thus, may be able to justify or avoid disclosing their HIV status to casual male partners.

In the present study, we find evidence of a "Don't ask, Don't tell" norm among casual partners, and to a lesser extent among primary partners, regardless of partner sex. In Figure 1, the predicted probabilities of no information exchange (i.e., nondisclosure to unknown status partners) between MSMW and their male and female casual partners are 76% and 77%, respectively. Among male and female primary partners, this probability drops but remains well above zero at 37% and 32%, respectively. In addition to "Don't ask, Don't tell," however, we also find evidence of a slightly different phenomenon: nonreciprocal disclosure. In their qualitative interviews, Gorbach and colleagues found that a few MSM did not disclose their HIV positive status to partners who had told respondents that they were HIV negative.¹⁴ Similarly, we find that the predicted probabilities of nondisclosure to male and female casual partners that respondents know to be HIV negative are 20% and 28%, respectively. These figures are well above those estimated for disclosure to HIV negative primary partners (4% male, 5% female) and HIV positive partners, primary (1% male, 0% female) and casual (3% male, 0% female). Although we see similar patterns of mutual nondisclosure and nonreciprocal disclosure among male and female partners in our data, the various ways that partner sex may inform the decisions of MSMW to disclose their HIV positive status to sexual partners, particularly those who are HIV negative and unknown status, remain understudied.

A secondary aim of this paper was to provide an improvement on previous studies of disclosure by addressing two technical issues related to the study of disclosure. First, while disclosure is often measured as a binary variable, in the present study disclosure was measured at three levels: disclosure before sex, disclosure after sex, and nondisclosure. This distinction is in line with calls from Niccolai and colleagues²⁷ as it separates disclosures that could preemptively have had an effect on sexual risk from disclosures that happened eventually, perhaps even after sexual activity between the two partners had ended. As a result of this distinction, we see that other studies of disclosure may have overestimated disclosure substantially: although MSMW disclosed their HIV positive status to 66% of partners overall (binary), MSMW only disclosed to 52% of partners before sex.

Second, disclosure patterns were evaluated at the partnership level across multiple partnerships in contrast to a majority of studies that estimate disclosure patterns based on the most recent sexual partner. Such a procedure was adopted by Marks and Crepaz explicitly to decrease recall bias in sexual history data over longer time periods.³⁷ In conclusion of their article on self-disclosure, Marks and Crepaz discuss their assumptions that disclosure and its relation to safer sex practices is likely similar across partners, but they leave it to future studies to confirm the representativeness of disclosure to an individual's most recent partner.³⁷ Given the observed variability in parameter estimates as well as Niccolai and colleagues assessment that a substantial portion (28%) of the variance in disclosure occurs within individuals;¹⁶ the present study rejects this assumption and utilizes sexual history data for up to one male and one female primary partner and up to four of the respondent's casual partners in the five years prior to interview. Although possibly more prone to recall bias, this data structure retains several advantages over a singular observation of the most recent partner: it allows for more exact

estimates of the effects of respondent and partner characteristics through the use of models that account and correct for within-individual variation in disclosure behaviors across partners, and it maximizes observations for female primary and casual partners.

Remarkably little work has considered the validity of self-reported disclosure of HIV status to partners with whom the respondent may have engaged in risk behaviors. Depending on the measure of disclosure and method of data collection, data may suffer from recall bias, social desirability bias, or both. Social desirability biases may prompt some MSMW to over report disclosure before sex generally to all partners or among a particular group of partners. Little work, including the present study, has incorporated measures of disclosure that aim to confirm respondent's reports of disclosure to a given target³ or social desirability scales to evaluate and correct for these biases. Though these data were collected in a face-to-face interview, a concerted effort was made to minimize the impact of social desirability biases in the reporting of disclosure behaviors: the study was conducted anonymously in small private offices in a large, unmarked office building, and interviewers were extensively trained to be sensitive to any inconsistency in disclosure narratives as well as the verbal cues and body language of the participant.

These findings are particularly relevant for HIV-positive MSMW who are receiving HIV/AIDS related medical care or social services; results presented here may not be representative of MSMW who are not seeking care, as care seeking indicates a certain level of acknowledgment of one's HIV status and increases the likelihood of encountering medical staff, other HIV positive individuals, or social support groups that may encourage open disclosure to

³ E.g., partner corroboration. This method has not been utilized in studies of disclosure among MSM with primary and casual partners in the United States and may not necessarily be feasible for logistical reasons, but a large household survey in Malawi has recently used a spouse's report that a respondent disclosed their HIV status to corroborate self-reported disclosure behavior.³⁸

sexual partners. Thus, the focus on a care-seeking population may overestimate disclosure and the similarity in disclosure behaviors across partner sex among MSMW.

Nonetheless, the present study provides a detailed description of disclosure patterns among MSMW across various respondent and partner characteristics. These patterns largely reflect patterns found in other populations of MSM, specifically with regard to relationship partner type and partner's HIV status, but do not show evidence for systematic differences in disclosure of HIV positive status by partner sex among MSMW. Further, we do not find that Black and Latino MSMW are significantly less likely to disclose their HIV status to partners when other respondent and partner characteristics are controlled for. Ultimately, this study highlights more the similarities rather than the differences in disclosure to male and female sexual partners among MSMW. However, it also points to a clear need to better understand the ways that MSMW think about and differentially navigate (non)disclosure of their HIV status to male and female partners, particularly those who are HIV negative or unknown status and casual partners.

REFERENCES

1. Chu S, Peterman, T, Doll, L, Buehler, J, Curran, J. AIDS in bisexual men in the United States: Epidemiology and transmission of women. *Am J Public Health*. 1992; 82: 220-224.
2. Millett G, Malebranche, D, Mason, B, Spikes, P. Focusing "down low": bisexual black men, HIV risk and heterosexual transmission. *J Natl Med Assoc*. 2005; 97(7): 52s-59s.
3. Montgomery J, Mokotoff, E, Gentry, A, Blair, J. The extent of bisexual behavior in HIV-infected men and implications for transmission to their female sex partners. *AIDS Care*. 2003; 15: 829-837.
4. McKirnan D, Stokes, J, Doll, L, Burzette, R. Bisexually active men: social characteristics and sexual behavior. *J Sex Res*. 1995; 32(1): 65-76.
5. Omarzu J. A Disclosure Decision Model: Determining How and When Individuals Will Self-Disclose. *Pers Soc Psychol Rev*. 2000; 4(2): 174-185.
6. Mutchler MG, Bogart, LM, Elliot, MN, McKay, T, Schuster, MA. Psychosocial correlates of unprotected sex without disclosure of HIV-positivity among African-American and Latino men who have sex with men and women. *Arch Sex Behav*. 2008; 37(5): 736-747.
7. Kalichman S, DiMarco, M, Austin, J, Luke, W, DiFonzo, K. Stress, social support, and HIV status disclosure to family and friends among HIV positive men and women. *J Behav Med*. 2003; 26(4): 315-332.
8. Cusick L, Rhodes, T. The Process of Disclosing Positive HIV Status: Findings from Qualitative Research. *Culture, Health, & Sexuality*. 1999; 1(1): 3-18.
9. Harawa NT, Williams, JK, Ramamurthi, HC, Bingham, TA. Perceptions towards condom use, sexual activity, and HIV disclosure among HIV-positive African American men who have sex with men: implications for heterosexual transfer. *J Urban Health*. 2006; 83(4): 682-694.
10. Derlega V, Winstead, B, Folk-Barron, L. Reasons for and against disclosing HIV-seropositive test results to an intimate partner: A functional perspective. *Balancing the Secrets of Private Disclosures*. Mahwah, NJ: Erlbaum; 2000.
11. Hays R, McKusick, L, Pollack, L, Hillard, R, Hoff, C, Coates, T. Disclosing HIV seropositivity to significant others. *AIDS*. 1993; 7(3): 425-431.
12. Derlega V, Winstead, B, Geene, K, Serovich, J, Elwood, W. Reasons for HIV disclosure/nondisclosure in close relationships: Testing a model of HIV-disclosure decision

- making. *J Soc Clin Psychol.* 2004; 23(6): 747-767.
13. Klitzman R, Bayer, R. *Mortal Secrets: Truth and Lies in the Age of AIDS.* Baltimore: The Johns Hopkins University Press; 2003.
 14. Gorbach P, Galea, J, Amani, B, et al. Don't ask, don't tell: patterns of HIV disclosure among HIV positive men who have sex with men with recent STI practising high risk behaviour in Los Angeles and Seattle. *Sex Transm Infect.* 2004; 80(6): 512-517.
 15. Duru O, Collins, R, Ciccarone, D, et al. Correlates of sex without serostatus disclosure among a national probability sample of HIV patients. *AIDS Behav.* 2006; 10: 495-507.
 16. Niccolai L, Dorst, D, Meyers, L, Kissinger, P. Disclosure of HIV status to sexual partners: Predictors and temporal patterns. *Sex Transm Dis.* 1999; 26(5): 281-285.
 17. Stein M, Freedberg, K, Sullivan, L, et al. Sexual ethics: Disclosure of HIV-positive status to partners. *Arch Intern Med.* 1998; 158: 253-257.
 18. Wolitski R, Rietmeijer, C, Goldbaum, G, Wilson, R. HIV serostatus disclosure among gay and bisexual men in four American cities: general patterns and relation to sexual practices. *AIDS Care.* 1998; 10: 599-610.
 19. Klitzman R, Exner, T, Correale, J, et al. It's not just what you say: Relationships of HIV disclosure and risk reduction among MSM in the post-HAART era. *AIDS Care.* 2007; 19(6): 749-756.
 20. Ciccarone D, Kanouse, D, Collins, R, et al. Sex without disclosure of positive HIV serostats in a US probability sample of persons receiving medical care for HIV infection. *Am J Public Health.* 2003; 93(6): 949-954.
 21. Klien F, Sepekoff, B, Wolf, T. Sexual orientation: A multi-variable dynamic process. *Bisexuality: A reader and a sourcebook.* Ojai, CA: Times Change Press; 1990.
 22. Diaz R. *Latino Gay Men and HIV: Culture, Sexuality, and Risk Behavior.* New York: Routledge; 1998.
 23. Mason H, Marks, G, Simoni, J, Ruiz, M, Richardson, J. Culturally sanctioned secrets? Latino men's nondisclosure of HIV infection to family, friends, and lovers. *Health Psychol.* 1995; 14(1): 6-12.
 24. Mays V, Cochran, S, Zamudio, A. HIV prevention research: Are we meeting the needs of African American men who have sex with men? *J Black Psychol.* 2004; 30: 78-105.

25. Stokes J, Vanable, P, McKirnan, D. Ethnic differences in sexual behavior, condom use, and psychological variables among Black and White men who have sex with men. *J Sex Res.* 1996; 29: 1-14.
26. Mason H, Simoni, J, Marks, G, Johnson, C, Richardson, J. Missed opportunities? Disclosure of HIV infection and support seeking among HIV+ African American and European-American men. *AIDS Behav.* 1997; 1(3): 155-162.
27. Niccolai L, King, E, D'Entremont, D, Pritchett, E. Disclosure of HIV serostatus to sex partners: A new approach to measurement. *Sex Transm Dis.* 2006; 33(2): 102-105.
28. Zea MC, Reisen, CA, Poppen, PJ, Echeverry, JJ, Bianchi, FT. Disclosure of HIV-positive status to Latino gay men's social networks. *Am J Commun Psychol.* 2004; 33(1/2): 107-116.
29. Crepaz N, Marks, G. Serostatus disclosure, sexual communication and safer sex in HIV-positive men. *AIDS CARE.* 2003; 15(3): 379-387.
30. Parsons JT, Scrimshaw, EW, Bimbi, DS, Wolitski, RJ, Gomez, CA, Halkitis, PN. Consistent, inconsistent, and non-disclosure to casual sexual partners among HIV-seropositive gay and bisexual men. *AIDS.* 2005; 19: S87-S97.
31. Diaz T, Chu, S, Frederick, M, Hermann, P, Levy, A, Mokotoff, E. Sociodemographics and HIV risk behaviors of bisexual men with AIDS: Results from a multistate interview project. *AIDS.* 1993; 7: 1227-1232.
32. Stokes J, Taywaditep, K, Vanable, P, McKirnan, D. Bisexual men, sexual behavior and HIV/AIDS. *Bisexuality: The psychology and politics of an invisible minority.* Thousand Oaks, CA: Sage Publications; 1996.
33. Stall R. An agenda for gay men's health: The Urban Men's Health Study. Paper presented at: Center for HIV Identification, Prevention, and Treatment Services, University of California Los Angeles, 1999; Los Angeles.
34. StataCorp. StataCorp Statistical Software: Release 9.
35. Crepaz N, Hart, TA, Marks, G. Highly active antiretroviral therapy and sexual risk behavior. *J Am Med Assoc.* 2004; 292(2): 224-236.
36. Sheon N, Crosby, G. Ambivalent tales of HIV disclosure in San Francisco. *Soc Sci Med.* 2004; 58: 2105-2118.
37. Marks G, Crepaz, N. HIV-positive men's sexual practices in the context of self-disclosure of

HIV status. *J Acq Immun Def Synd.* 2001; 27: 79-85.

38. Anglewicz PA, Bignami-Van Assche, S, Clark, S, Mkandawire, J. HIV Risk Among Currently Married Couples in Rural Malawi: What Do Spouses Know About Each Other? *AIDS Behav.* 2010; 14(1): 103-112.

Table I. Sample Characteristics

Respondent Characteristics (N=148)	% (Mean)	N (SD)
Age	(39.8)	(7.5)
Race/Ethnicity		
Black	33.1	50
Latino	33.8	49
White	33.1	49
Sexual orientation		
Gay/Homosexual	36.5	54
Bisexual	58.1	86
Straight/Heterosexual	5.4	8
Responsibility to disclose	(3.5)	(0.9)
Undetectable viral load	29.1	43
Number of partners in last 3 months	(6.3)	(15.8)
Number of partners data collected for	(4.0)	(1.5)
Male	(2.8)	--
Female	(1.4)	--
Partner Characteristics (N=586)		
Sex		
Male	70.1	410
Female	29.9	176
Relationship type		
Primary	22.7	134
Casual	77.3	452
HIV status		
Positive	29.3	172
Negative	33.3	195
Unknown/Untested	37.4	219

Table II. Distribution of male and female partners across select respondent and partner characteristics

Respondent Characteristics	Male		Female		<i>p</i> -value ¹
	N	%	N	%	
Race/Ethnicity					0.166
Black	131	65.2	70	34.8	
Latino	134	71.3	54	28.7	
White	145	73.6	52	26.4	
Sexual orientation					0.001
Gay/Heterosexual ^a	177	77.0	53	23.0	
Bisexual ^b	224	66.9	111	33.1	
Straight/Heterosexual ^c	9	42.9	12	57.1	
Total	410	70.0	176	30.0	
Partner Characteristics					
Relationship type					0.036
Primary	84	20.5	50	28.4	
Casual	326	79.5	126	71.6	
HIV Status					0.000
Positive ^a	146	35.6	26	14.8	
Negative ^b	111	27.1	84	47.7	
Unknown/Untested ^c	153	37.3	66	37.5	
Total	410	100.0	176	100.0	

Note: Categories that do not have superscript letters in common are significantly different from each other at the $p < .05$ level or greater.

¹ Pearson chi-square

Table III. Patterns of Disclosure of HIV Positive Status to Sexual Partners by Respondent Characteristics and Partner Characteristics

Respondent Characteristics	Disclosure						p- value
	Before Sex		After Sex		Never		
	% (Mean)	N (SD)	% (Mean)	N (SD)	% (Mean)	N (SD)	
Race/Ethnicity							0.014
Black ^{ab}	52.2	105	13.9	28	33.8	68	
Latino ^a	44.2	83	13.8	26	42.0	79	
White ^b	59.9	118	14.7	29	25.4	50	
Sexual orientation							0.321
Gay/Homosexual	53.5	123	10.4	24	36.1	83	
Bisexual	51.6	173	16.4	55	31.9	107	
Straight/Heterosexual	47.6	10	19.1	4	33.3	7	
Responsibility to disclose	(3.8) ^a	(0.9)	(3.6) ^a	(0.9)	(3.1) ^b	(0.8)	0.000
Undetectable viral load							0.333
Yes	48.9	85	17.2	30	33.9	59	
No	53.6	221	12.9	53	33.5	138	
Partner Characteristics							
Sex							0.744
Male	53.2	218	14.1	58	32.7	134	
Female	50.0	88	14.2	25	35.8	63	
Relationship type							0.000
Primary	64.9	87	28.4	38	6.7	9	
Casual	48.5	219	10.0	45	41.6	188	
HIV status							0.000
HIV positive ^a	83.1	143	14.5	25	2.3	4	
HIV negative ^b	61.5	120	21.5	42	16.9	33	
Unknown/Untested ^c	19.6	43	7.3	16	73.1	160	
Total	52.2	306	14.2	83	33.7	197	

Note: Categories or means that do not have superscript letters in common are significantly different from each other at the $p \leq .05$ level.

Table IV. Unadjusted and Adjusted Odds Ratios of Disclosure from a Series of Clustered Multinomial Logistic Models

	Unadjusted		Adjusted						
			Pooled		Male Partners Only		Female Partners Only		
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	
Disclosure before Sex									
Female partner	0.86	0.59 - 1.25	0.91	0.589 - 1.53	--		--		
Respondent Characteristics									
Race/Ethnicity									
White (reference)	1.00		1.00		1.00		1.00		
Black	0.65	0.34 - 1.27	0.86	0.35 - 2.13	0.78	0.28 - 2.19	1.01	0.30 - 3.37	
Latino	0.45	0.24 - 0.82**	0.83	0.35 - 1.97	0.77	0.29 - 2.07	0.87	0.25 - 3.03	
Sexual orientation									
Bisexual (reference)	1.00		1.00	1.00	1.00		1.00		
Gay/Homosexual	0.92	0.54 - 1.54	0.79	0.39 - 1.61	0.65	0.29 - 1.45	1.16	0.42 - 3.22	
Straight/Heterosexual	0.88	0.25 - 3.12	0.84	0.17 - 4.21	1.03	0.15 - 7.19	0.76	0.13 - 4.42	
Responsibility to disclose	2.26	1.69 - 3.20***	2.60	1.75 - 3.87***	2.57	1.66 - 3.99***	2.74	1.53 - 4.90***	
Undetectable viral load	0.90	0.50 - 1.62	0.86	0.39 - 1.87	0.89	0.39 - 1.99	0.86	0.27 - 2.76	
Partner Characteristics									
Casual partner	0.12	0.06 - 0.25***	0.18	0.08 - 0.42***	0.18	0.06 - 0.56**	0.18	0.06 - 0.52**	
Partner HIV status									
HIV positive (reference)	1.00		1.00		1.00		1.00		
HIV negative	0.10	0.04 - 0.28***	0.08	0.03 - 0.26***	0.11	0.03 - 0.37***	0.00	0.00 - 0.00***	
Unknown/Untested	0.01	0.00 - 0.02***	0.01	0.00 - 0.02***	0.01	0.00 - 0.03***	0.00	0.00 - 0.00***	
N Respondents	148		148		145		130		
N Partners	586		586		410		176		

Note: † $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Table IV. (continued)

	Unadjusted		Adjusted						
			Pooled		Male Partners Only		Female Partners Only		
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	
Disclosure after Sex									
Female partner	0.92	0.55 - 1.52	0.65	0.34 - 1.21	--		--		
Respondent Characteristics									
Race/Ethnicity									
White (reference)	1.00		1.00		1.00		1.00		
Black	0.71	0.33 - 1.54	0.76	0.28 - 2.08	0.72	0.25 - 2.06	0.79	0.15 - 4.02	
Latino	0.57	0.28 - 1.16	0.88	0.36 - 2.15	0.77	0.29 - 2.08	1.36	0.25 - 7.46	
Sexual orientation									
Bisexual (reference)	1.00		1.00		1.00		1.00		
Gay/Homosexual	0.56	0.30 - 1.04 [†]	0.45	0.21 - 4.88 [*]	0.40	0.17 - 0.94 [*]	0.50	0.09 - 2.63	
Straight/Heterosexual	1.11	0.38 - 3.28	1.50	0.41 - 5.52	0.86	0.08 - 9.15	2.34	0.56 - 9.86 [†]	
Responsibility to disclose	1.67	1.13 - 2.46 ^{**}	1.96	1.27 - 3.02 ^{**}	1.94	1.18 - 3.18 ^{**}	2.10	1.03 - 4.28 [*]	
Undetectable viral load	1.32	0.67 - 2.62	1.44	0.57 - 3.66	1.35	0.53 - 3.45	2.13	0.46 - 9.89	
Partner Characteristics									
Casual partner	0.06	0.02 - 0.13 ^{***}	0.08	0.03 - 0.21 ^{***}	0.12	0.03 - 0.40 ^{***}	0.04	0.01 - 0.15 ^{***}	
Partner HIV status									
HIV positive (reference)	1.00		1.00		1.00		1.00		
HIV negative	0.20	0.07 - 0.63 ^{***}	0.18	0.05 - 0.64 ^{**}	0.23	0.06 - 0.85 [*]	0.00	0.00 - 0.00 ^{***}	
Unknown/Untested	0.02	0.00 - 0.05 ^{***}	0.02	0.01 - 0.07 ^{***}	0.02	0.01 - 0.08 ^{***}	0.00	0.00 - 0.00 ^{***}	
N Respondents	148		148		145		130		
N Partners	586		586		410		176		

Note: [†] $p \leq .10$; ^{*} $p \leq .05$; ^{**} $p \leq .01$; ^{***} $p \leq .001$

Figure I. Predicted probability of disclosure of HIV status by partner sex, relationship status, and partner HIV status

