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Female Disclosure of HIV-Positive Serostatus to Sex Partners: A Two-City Study

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Abstract

Aims—1) To describe the prevalence of disclosure of HIV serostatus to sex partners (SPs) among a racially/ethnically diverse sample of HIV-positive women living in Hawai'i and Seattle Washington; and 2) to examine factors related to disclosure and condom use with those SPs.

Background—HIV-positive women have difficulties consistently disclosing serostatus to SPs and using condoms. Little is known about the disclosure practices of women from Hawai'i or Seattle.

Methods—A cross-sectional design with convenience and snowball sampling was used, and up to three recent SP experiences were assessed among the HIV-positive participants (N = 84).

Results—A total of 133 recent SPs were reported, with disclosure and condom use frequencies of 75.2% and 59.9%, respectively. Women who knew when it was safe to disclose were more likely to disclose. Women who disclosed to recent SPs were less likely to use condoms, while those in casual/anonymous partnerships were more likely to use condoms. Hawaiian/Part Hawaiian women had the lowest proportion of condom use.

Implications—Health care personnel should routinely discuss disclosure and sexual transmission risk behaviors with seropositive women and offer strategies to enhance condom use, especially among those in committed partnerships. Culturally tailored interventions focused on strengthening efficacy beliefs for disclosure and condom use in Native Hawaiians are needed.

Introduction

During 2000–2006, women accounted for over one quarter (27%) of all new HIV diagnoses in the United States (US). Sexual contact with a seropositive male was the most frequent mode of transmission (80%) reported by those women (Centers for Disease Control and Prevention [CDC], 2008). The impact of subsequent sexual behaviors on the transmission of HIV by seropositive women is critical to acknowledge. In 2006, 15% of men newly diagnosed with HIV reported sexual contact with a woman known to have or be at high risk for HIV as the mode of transmission. About three quarters of seropositive persons engage in sex after diagnosis (Bingman, Marks & Crepaz, 2001; Weinhardt et al., 2004), and unprotected sex frequently occurs. Disclosure of seropositive status can offer sexual partners (SPs) the opportunity to make informed decisions regarding condom use, and thus is an important link in disease prevention. The purpose of this study was to explore factors associated with disclosure of serostatus to SPs and condom use practices among a diverse population of multiethnic HIV-positive women from Hawai'i and Seattle, Washington.

Background

Most research to date on disclosure to SPs has included men who have sex with men (MSM). More recently, mixed gender studies have emerged that shed light on patterns of disclosure to SPs by gender (Ciccarone et al., 2003; Duru, Collins, Ciccarone, et al., 2006; Sullivan, 2009b; Weinhardt, 2004). Two multi-city probability surveys (Ciccarone et al. 2003; Weinhardt et al., 2004), included proportions of men and women having sex without disclosure ranging from 17 % – 31.9%. Most females in one study (Ciccarone, 2003) were younger, of lower income and education, and diagnosed with HIV more recently than the MSM respondents. Those women were less likely than MSM to engage in sex without disclosure in nonexclusive partnerships. Of 978 women surveyed by Weinhardt and colleagues (2004), 74% were sexually active, and nearly one quarter reported two or more partners during the 3-month recall period. Both samples were said to be demographically representative of the HIV epidemic in the US, although individuals from the non-contiguous US were not included. Disclosure of an HIV-positive serostatus in the context of sexual intimacy is complex and influenced by multiple interactions among intrapersonal aspects of the self, along with interpersonal and situational factors (Simoni & Pantalone, 2005; Sullivan, 2005). Some of these factors will be explored.

Intrapersonal factors—In addition to gender and age, race/ethnicity has been considered to influence disclosure. In one cohort of men and women from Louisiana, disclosure was correlated with older age and White race (Mohammed & Kissinger, 2006). A Hawai'i-based study (Kanuha et al., 2003), found that reasons for non-disclosure differed by gender, with women reporting fear of loss of intimacy and/or of violence from irate SPs and men reporting issues of rights to privacy surrounding HIV and health status. In a qualitative study among non-HI-based Asian/Pacific Island (API) American women (n = 9) (Chin and Kroesen, 1999), fears of being stigmatized and shame about extramarital sex were reasons given for less disclosure. Cultural values about sex, accommodation of others, and traditional romantic ideals among API were considered to inhibit open discussion about HIV and requests for condom use.

Self-efficacy (SE) for disclosure decision-making (Kalichman et al., 2001) is another intrapersonal factor that has received considerable attention (Kalichman & Nachimson, 1999; Kalichman, Rompa & Cage, 2005; Serovich, 2001). This domain-specific efficacy rating involves one's personal belief in his/her ability to disclose in the context of sexual intimacy. Two mixed gender studies demonstrated a significant association between higher SE scores and disclosure to SPs. Women who did not disclose had the lowest disclosure SE ratings (Kalichman & Nachimson; Sullivan, 2009b). While over three quarters of the female participants in one study disclosed, slightly over half (51%) engaged in unprotected intercourse, and nearly one quarter (21%) reported practicing safe sex to avoid disclosing (Kalichman, 1999). Further research is needed to examine SE indicators for women who have multiple SPs, as an inverse relationship between SP number and disclosure has been observed (Simoni & Pantaloni, 2004).

HIV-related factors, including disease progression indicators (HIV symptoms, CD4 cell count, hospitalizations) have been considered to influence disclosure decisions (Kanuha et al., 2003; Klitzman 1999; Serovich 2001). Many studies include the variable of time since testing positive, as a pattern of lower levels of disclosure soon after diagnosis followed by more disclosure, abstinence and/or other protective behaviors has been noted as individuals come to terms with the illness (Crepaz & Marks, 2003; Klitzman, 1999; Sullivan, 2009a; Yoshioka & Schustack, 2001). Both non disclosure and unsafe sex have been associated with fewer years since diagnosis (Marks & Crepaz, 2001). With the advent of antiretroviral therapy clients are living longer with less overt disease manifestations than previously observed. Recent research

has not consistently reported a temporal pattern in disclosure among females (Sullivan, 2009b).

Interpersonal factors—Relationship status of the sexual partnership (degree of commitment), the SP's serostatus, and the number of SPs an individual engages with (Simoni and Pantalone, 2004) are interpersonal factors frequently highlighted in disclosure research. Semple et al. (1999) explored factors specifically associated with disclosure and unprotected sex with SPs of negative or unknown serostatus. Higher SE and more positive outcome expectancies were associated with disclosure. However, in the small female subsample (n = 23), most women had spouses or steady partners and disclosed within those partnerships. The literature also points to an inverse relationship between number of SPs and disclosure rate (Simoni).

Environmental factors—Examples of situational factors under consideration in disclosure research include substance use and condom use behavior. Alcohol and/or illicit drug use before sex may alter cognitive abilities needed for making sound disclosure decisions or for refusing unsafe sex. In some studies, drug use has been associated with nondisclosure and unsafe sex (Clark et al., 1997; Duru et al, 2003; Parsons et al., 2004; Sullivan, 2009a). Women who used drugs reported having multiple SPs (Duru) and inconsistent disclosure patterns (Clark). However, research does not consistently demonstrate relationships between substance use before sex and disclosure for women (Kalichman and Nachimson, 1999; Sullivan, 2009b). Further exploration about substance use immediately before sex and disclosure is warranted.

In addition, disclosure does not necessarily lead to condom use. In three studies focused exclusively on adult females (Clark, Kissinger, Bedimo et al., 1997; Simoni, Mason, Marks et al., 1995; Simoni, Walter &, Nero, 2000), most women disclosed, but between one- and two-thirds reported engaging in unprotected sex. While a substantial portion of women living with HIV do make safer sex choices, a subset of women do not disclose and also do not use condoms. In one probability sample (Ciccarone et al., 2003), 13% of women engaged in at least one episode of unprotected sex without disclosure while in serodiscordant partnerships. With less than 500 women in Hawai'i living with AIDS, a need exists to recruit other heterogeneous and multiethnic populations to gain insight into disclosure practices of women of different racial/ethnic and cultural backgrounds in low-incidence areas. Seattle, Washington was chosen because, similar to Hawaii, the population of HIV-positive women is small (~650), heterogeneous and multi-ethnic.

Theoretical Framework

The framework guiding the present research was Social Cognitive Theory (SCT) (Bandura, 1986) with a specific focus on self-efficacy. The relationship between SE, disclosure and safer sex decision-making has been detailed elsewhere (Bandura, 2004; Sullivan, 2009b) and will be briefly reviewed here. Judgments of personal efficacy involve the integration of cognitive, social and behavior skills and result in a course of action. People must be viewed in their social contexts to understand the attitudes and emotions underlying their behaviors. A woman's action (e.g., talking about SP serostatus or safer sex) contributes to creating an environment, and the actions and environment contribute to her cognitions or expectancies (disclosure/condom use). Behavior then, involves reciprocal interaction of personal, social, and environmental factors. These concepts are important when choosing personal, social, and situational factors to include in models examining associations with disclosure. SCT provides a framework for viewing intrapersonal, interpersonal and environmental factors influencing behavior (disclosure, condom use) (Bandura, 1997). From this model, three research questions emerged: (1) Does the frequency of disclosure and condom use with recent SPs differ among the multiethnic women from Hawai'i and Seattle?; (2) What personal (demographics, HIV-illness, SE),

environmental (SP-related, substance use before sex) and behavioral (disclosure and safer sex communication) factors are associated with disclosure among these women?; and, (3) Is disclosure associated with condom use among the participants?

Methods

Research Design

A cross-sectional survey design was used with analysis of up to three of the most recent SPs during the past year, similar to that used in a cohort of HIV-positive men (Sullivan, 2009a). Convenience and snowball sampling was used to recruit women 18 years of age or older, who were HIV-positive for at least one year and who also had been sexually active (anal or vaginal sex) during the last 12 months. The recruitment period was from January 2008, through May 2009. Participants were recruited in Hawai'i by active outreach with the assistance of HIV-related health and social service providers, who were members of the HIV Community Planning Group, and staff at HIV health care and social service sites. These providers were informed about the study and were asked to present the flyers and contact numbers and/or describe the study to women who they knew were living with HIV who might be interested in participating. Flyers were also distributed via a web-based listerv and a mailing list for people living with HIV/AIDS in Hawaii. Potential participants either called research personnel for a confidential telephone screening interview, were approached by trained interviewers during HIV specialty clinic visits or at HIV-related community events. A total of 54 eligible participants were identified through an estimated 105 phone contacts made by HIV-related personnel and during 9 recruitment/survey administration periods offered at HIV clinics, HIV-related social events and/or during small group sessions (51.4% eligibility rate). Of those, 44 surveys were completed with 10 lost to follow-up (84.5% participation rate).

In Seattle, key HIV-related community personnel were notified of the project and asked to assist with recruitment of eligible participants. Contact information for women who met inclusion criteria and who were willing to engage in research was provided by a research nurse from a large urban outpatient clinic (n = 100), and a community support project facilitator (n = 20). These agencies provide services for 350 – 500 seropositive females in total. Of the 120 women contacted, 44 agreed to participate (36.7%) and completed the survey. The other women declined, did not keep their appointments, did not engage in recent sex, or did not return repeated calls. Women who agreed to participate were met by a study researcher at a place of their convenience to complete the survey.

At each survey administration, researchers offered an explanation of the study and re-screened for eligibility. Eligible participants received an information sheet similar to a consent form with no signature needed as the study provided for confidentiality/anonymity. Surveys were self-administered unless reading assistance was needed. Gift cards or cash ($20.00) was given to those who participated in the study and to nurse survey administrators at specialty clinics in Hawai'i. The study received Institutional Review Board approval from the Universities of Hawai'i and Washington, respectively.

Instruments

A variety of demographic, contextual, and self-efficacy variables were examined that are considered potential factors related to disclosure of serostatus to SPs including: age, race/ethnicity, income, education (Kalichman and Nachimson, 1999); HIV-related illness factors (time since testing positive, HIV symptoms, ever hospitalized, current disease state [HIV or AIDS] and HIV medication use) (Serovich, 2001); SP variables (relationship status, serostatus) (Crepaz and Marks, 2003), and alcohol and/or drug use before sex (Kalichman and Nachimson).

A partner-by-activity checklist was used for gathering data on up-to-three most recent SPs reported within the last year. This format showed both content and face validity (Sullivan, 2009a). Contemporary disclosure research encourages using this approach (Bingman, 2001), as it offers greater opportunity to detect risky behavior compared to recall from only the most recent sexual encounter. Less reliable recall may occur when sexual experiences with different partners are grouped ("disclosed to all," "to some", "to none") (Niccolai, King, D'Entremont, & Pritchett, 2006). Disclosure and condom use were measured as dichotomous variables (yes/no) for each of the three possible SPs reported. Respondents reported when each SP experience occurred, for example, "in the last 2–3 days," "about a week ago," and "more than 4 months but less than 1 year ago," etc. (Table 1). Partner serostatus for the sexual encounter was assessed with answers to choose from, including, "They told me they were never tested for HIV" (coded as serostatus unknown), or "We never discussed if they were tested," (coded as SP serostatus not discussed) for examples. Data were obtained on whether respondents drank alcohol or used illicit substances before each of the three most recent SP episodes. This method of measurement is appropriate for a retrospective hierarchical design because it offers a more precise link between substance use, disclosure and condom use than a global assessment of substance use (Kalichman and Nachimson, 1999). Queries for use of specific drugs (e.g., cocaine, marijuana, methamphetamine) were made with "Yes/No" response options. One open-ended "other [drugs]" question was also included.

Self-Efficacy for Disclosure Decision Making—A two-item scale was used to score questions pertaining to: *SE for making an effective decision to disclose,* and: *SE for knowing when it is safe to disclose*. The scales were repeated across six scenarios depicting situations in which persons with HIV encounter potential SPs under varying situational demands. One example is:

> "While you were out with some friends and having fun, you unexpectedly run into an ex-partner from your past. You had sex with this person many times long before you became HIV positive. They start telling you how much they missed being with you and that they think of you often. Then they say that they are not currently partnered. You are feeling good and the mood seems right for the two of you to get together. Because you still like this person and have feelings for them you want to be with this person.
>
> **1.** How confident are you that you could make an effective decision of whether to tell this person you are HIV positive in this situation?
>
> **2.** How confident are you that you could know whether it was safe to tell this person in this situation that you are HIV positive?

The SE scales range from 0 – 100 ("certainly I can not" -"certainly I can"). The two items are summed separately across all 6 scenarios which allow computing mean SE scores for two disclosure decision-making domains. High scores indicate efficacy to make an effective decision to disclose and to know a situation is safe to disclose. Cronbach's alphas for the study scales ranged from 0.92–0.93.

SE for Safer Sex—A similar two-item scale was used to score: 1) SE *to bring up the need to practice safe sex*; and, 2) *SE to refuse to have unsafe sex*. Two additional scenarios were included ales that highlighted couples who already knew the partner's serostatus and reflected one's efficacy to refuse unsafe sex. Summing the items across eight scenes allowed for computing two mean rating scores for the safer sex SE domains. Kalichman et al., (2001) demonstrated a high degree of item cohesion in the four SE scales and all Cronbach's alphas were in the .87–.88 range.

Data Analysis

Based on the aims of the study, the analyses included the following: Aim 1) to determine the prevalence of disclosure of HIV status to SPs, frequencies and chi square analyses were used for categorical variables, and means, standard deviations and t-tests were used for continuous variables; Aim 2) to determine the relationship of demographic, HIV-illness indicators, SE, SP variables (serostatus and relationship status), and substance use, with disclosure/condom use practices with up to three most recent SPs, forward selection model building procedures were used to determine factors independently related to disclosure (dependent variable) and to condom use (dependent variable). Statistical significance level was set at $p = .05$. The dependent variables were discrete and correlated, as one woman was correlated with up to three SP disclosure and condom use behaviors. For this reason, Generalized Estimating Equations (GEEs) modeling was used (Agresti, 1996). The GEEs model was fitted using the Proc Genmod procedure in SAS 9.1.3 with repeated statement to account for within-women correlation. The criterion used for evaluating potential confounding variables was a p-value less than 0.15 in the univariate analyses, and the criterion for retention of variables was $p \leq 0.15$ in the multivariate models. Significance for the final regression model was set at $p \leq 0.05$. Deviance was used to assess the model fit. Two way interactions were examined, and none of them had a p-value less than 0.15. Three way interactions were not examined due to sample size limitations.

Results

Sample Description

In total, 88 women were surveyed with data on 84 women retained. Four surveys were not included because the participant self-identified as transgendered or did not indicate any anal or vaginal sex. The 84 HIV-positive women included in the final analyses reported on a total of 133 most-recent SPs. Near equal numbers of participants were from Hawai'i ($n = 41$) and Seattle, Washington ($n = 43$). The difference in race/ethnicity between Washington and Hawai'i was statistically significant ($\chi^2_3 = 22.22$, $p = 0.0002$) (Table 2). Over one-third of the women from Washington were African-American (37.2%, $n = 16$), while less than ten percent in Hawai'i were African American (7%, $n = 3$). In Hawai'i, over one quarter of the women were Hawaiian/Part-Hawaiian (27%, $n = 11$), while no women in Washington were of Hawaiian descent. Another significant difference between Washington and Hawai'i was employment status ($\chi^2_1 = 5$, $p = 0.015$). Over one quarter (27%) of the participants in Hawai'i were working, while only 7.0% from Washington were working. Most women were reported low income levels and were heterosexual/straight. No significant differences between sites were noted for mean age, years of education, years since diagnosis, or CD4 cell count of the participants (Table 3).

Disclosure of Serostatus to Recent Sex Partners

The overall proportion of women who reported disclosing to the 133 SPs was 75.2%. Disclosure was significantly associated with site, race/ethnicity, SP relationship status, SP serostatus and alcohol use before sex, but with none of the other variables (Table 2). A greater proportion of Caucasian women disclosed than did the Hawaiian/Part Hawaiian (65.6%) or African American (52.9%) women ($\chi^2_3 = 13.46$, $p = 0.003$).

Disclosure also varied significantly based on interpersonal factors including: SP serostatus, relationship status, and number of SPs. The greatest proportion of disclosures occurred among partners who self-identified as HIV-positive (94.7%), HIV-negative (96.2%), or as serostatus unknown (70.0%). For the 34 SPs who did not discuss their own serostatus (“not discussed”), significantly fewer (35%, $n = 12$) received a disclosure ($\chi^2_3 = 45.31$, $p < 0.001$). For SP relationship status, disclosures occurred more frequently among partners identified as

"committed" (93%) or "regular" (67%) compared to SPs identified as casual/anonymous (46.1%) ($\chi^2_2 = 28.28$, $p < 0.001$). A greater proportion of women with one SP disclosed (95.6%) than women with more than one SP (60.0%). Women with only one SP were 1.6 times as likely to disclose compared to women with multiple SPs (X^2_1, = 20.5, $p \leq 0.001$) (Table 4).

The environmental/situational variables of site (Hawai'i/Seattle) and alcohol use before sex were associated with differences in disclosure. Women from Washington had a higher percentage of disclosures (83.1%) compared women from Hawai'i (67.7%) ($\chi^2_1 = 4.24$, $p = 0.04$). In addition, a smaller proportion of women who used alcohol before sex disclosed compared to women who did not drink prior to intercourse ($\chi^2_1 = 4.15$, $p = 0.042$). Illicit drug use before sex was not related to disclosure for the small cohort of women in this study. Analyses reviewed did not account for the within-woman variance attributed to each participant having up to three SPs.

Multivariable Model of Factors Related to Disclosure

The Pearson's correlation matrix among the independent variables of self-efficacy (SE) for disclosure decision-making showed a highly significant correlation between *SE for making an effective decision to disclose* (SEDDM) and for *SE to know when it is safe to disclose* (SEKNOW) ($r = 0.81$, $p < 0.001$). In the domain of SE for condom use, a significant correlation also existed between *SE to initiate safer sex* (SEINITIA) and *SE to refuse unsafe sex* (SEREF) ($r = 0.63$, $p < 0.001$). To avoid multi-colinearity in the GEEs model, we included SEKNOW ($p = 0.01$), and SEINITIA ($p = 0.14$) into the final models after the independent modeling procedures.

To select variables that potentially were related to disclosure, one variable at a time was fitted to the data in the GEE model. Variables that had a *p*-value less than 0.15 were: race/ethnicity (Hawaiian/Part Hawaiian) SEKNOW, SEINITIA, SP relationship status, and, site (Hawai'i/Seattle) (Table 5). After adjusting for all other factors the regression model indicated that one intrapersonal variable, SE for knowing when it is safe to disclose, remained significantly associated with disclosure to most recent SPs ($\beta = 0.025$, $p = 0.019$). With one unit increase in the SEKNOW score, the log odds ratio of disclosure increased by 0.025. Neither the SE to initiate safer sex variable ($p = 0.88$), or the race/ethnicity variable of Hawaiian/Part-Hawaiian reached a level of significance ($p = 0.28$).

The interpersonal factor of SP serostatus was associated with disclosure to most recent SPs ($p < 0.001$). Compared to participants with SPs who were HIV-positive, those who had SPs that were serostatus unknown were less likely to receive a disclosure ($\beta = -2.20$, $p = 0.046$). When the SP's serostatus was not discussed, the participant was least likely to disclose ($\beta = -3.18$, $p = 0.005$). SP relationship status was marginally significantly associated with disclosure ($p = 0.084$). Compared to having committed partners, women who had casual or anonymous partners were significantly less likely to disclose ($\beta = -1.71$, $p = 0.029$). Finally, site (Hawai'i/Seattle) was not significantly associated with disclosure to most recent SPs ($p = 0.53$) when controlling for other factors.

Self-Disclosure and Condom Use

The overall proportion of women reporting condom use with most recent SPs was 59.9% (Table 6). The proportion of women reporting condom use was significantly lower among Hawaiian/Part Hawaiian women (47%) than among European (52.7%), African American (78.8%) women or other race/ethnicities (65.2%) ($p = .049$) (data not shown). Condom use was reported more with SPs to whom a disclosure was not made (78.8%), compared to partners who did receive a disclosure (53.5%). In other words, uninformed protection (no disclosure, condoms used) was significantly more likely to occur than informed protection (disclosure, condom

used) ($p = 0.019$). For this reason disclosure was added to the GEE model to examine its relationship to condom use when other factors were controlled for.

Multivariable Model of Factors Related to Condom Use

To select variables that potentially were related to condom use, one variable at a time was fitted to the data in the GEE models. Variables that had a *p*-value less than 0.15 were: race/ethnicity, SP serostatus, SP relationship status, site (Hawai'i/Seattle), and, participant self-disclosure After adjusting for all other factors, condom use was not associated with any intrapersonal factor under study (Table 7). Condom use was significantly associated with SP relationship status (p = .029), and to situations in which the participant had disclosed ($p = 0.014$). Participants engaging in sex within casual/anonymous partners were more likely to report condom use than participants within committed partnerships ($\beta = 1.28$, $p = 0.046$), and, compared to women who did not disclose, women who disclosed were less likely to report condom use with recent SPs ($\beta = -1.60$, p = 0.014). A trend highlighted differences in condom use between women from each survey site. Being from Seattle was associated with condom use compared to being from Hawai'i, but this trend was not statistically significant ($\beta = 0.97$, $p = 0.067$). Race/ethnicity and SP serostatus were not significantly associated with condom use when controlling for other factors.

Discussion

This two-city study included sexually active HIV-positive women from Hawai'i and Seattle, Washington, and provided unique findings that can aid in strengthening HIV prevention programs among seropositive women. Using the Social Cognitive framework (Bandura, 1986), the study explored intrapersonal, interpersonal and environmental factors that were associated with disclosure and condom use with most-recent SPs among female participants.

With regression modeling controlling for other variables, race/ethnicity was not associated with disclosure. However, the women from Hawai'i, and most notably the proportion of Hawaiian/Part Hawaiian women who reported disclosing to SPs was the lowest compared to women of other racial/ethnic groups. A non-significant trend was observed of women from Hawai'i not using condoms with recent SPs. These findings are consistent with previous reports suggesting that gender and cultural influences may affect HIV transmission risk behaviors among women from Hawai'i (Kanuha et al., 2003) in that these women have expressed difficulty with communication about sex and negotiating condom use with male partners. It may be that the small sample size limited detection of statistically significant differences, warranting further study.

A second intrapersonal factor influencing disclosure was efficacy for disclosure decision-making. Women who believed in their ability to know when it was safe to share their diagnosis with a recent SP were more likely to report doing so. It is important to note that most of the women who were in committed relationships disclosed, while most in casual/anonymous partnerships did not. This highlights the potential interrelationship between intrapersonal cognitions of perceived safety, with interpersonal trust on a partnership level. Being in a committed relationship may offer women a sense of safety to communicate potentially stigmatizing information to intimate partners. Women who engage in sex with multiple partners may rarely ever believe it to be safe (thus less disclosure). However, more women in casual/anonymous relationships did negotiate condom use. Further investigation into the influence that efficacy beliefs play in disclosure decision making and condom use is warranted because use of the efficacy measures in this study for disclosure decision-making and for negotiating safer sex was limited by scale intercorrelations. No additional intrapersonal factors) under study were significantly associated with disclosure to most-recent SPs. The lack of an association between HIV-illness factors such as number of symptoms, hospitalizations or an

AIDS diagnosis suggest little support for the disease progression theory of disclosure offered by Serovich (2001). According to the model, individuals disclose when they become ill, as symptoms can no longer be hidden, and they must come to terms with having HIV more publicly.

Based on multilevel modeling which controlled for other factors, environmental/situational variables of illicit substance or alcohol use before sex were not significantly related to disclosure or condom use. It is still important to explore the influence of substance use on disclosure though, because less than one third, and one quarter, of the sexual experiences reported included alcohol or drug use by the participants, respectively, so that we were unlikely to have had sufficient statistical power to detect significant differences in disclosure in relation to these factors.

Unexpectedly, situations in which disclosure occurred were coupled with significantly less condom use. This may be accounted for, in part, by interpersonal relationship factors with the sexual partners. While disclosure occurred within almost all committed partnerships, significantly less condom use occurred in those partnerships. These behaviors may be an indicator of an intraand interpersonal dilemma that HIV-positive women encounter. Women in committed partnerships, who disclose may do so to protect the partner, but they may then feel pressured to meet condom-free intimacy needs of the committed person. Bilateral non-disclosure, where neither partner communicated about serostatus was also apparent among women from Hawai'i and Seattle. This suggests that an environment of “don't ask, don't tell” about serostatus is part of the communication process in the context of some romantic relationships.

When controlling for other factors, SP serostatus was not associated with condom use, suggesting that serostatus sorting (e.g., condoms with seronegative but not seropositive SPs) was not a factor influencing condom use among the participants with recent SPs. Over 60% of the SPs were considered to be at-risk for HIV because condoms were not used, even among those with unknown serostatus, or those who did not discuss their own serostatus.

Overall, it can be concluded that certain subgroups of HIV-positive women from Hawai'i and Seattle, WA were more likely to disclose to recent SPs. These included women who: were in more committed relationships; who discussed their partner's serostatus and it was HIV-positive or HIV-negative; and among women who felt stronger in their beliefs for knowing when it is safe to disclose. Women were significantly more likely to report not disclosing if the partner's serostatus was not discussed or unknown, and if they had less-than-committed SPs (casual/anonymous).

Limitations

This study included a convenience and snowball sample of seropositive women from Hawai'i and Seattle, most of whom were taking HIV medications. Most of the surveys were administered at health or service sites offering support for HIV-positive persons. It may be that women who are less open about their serostatus, more marginalized from mainstream social venues, or not taking medications were underrepresented. Although an ethnically diverse sample was obtained, probability sampling is also needed in future studies to make inferences about race/ethnicity. Further, participant documentation was limited to up to three SPs, as some participants may have engaged in sex with more than three partners during the recall period and those disclosure behaviors were not reported. The small sample size limited statistical power to detect some perhaps meaningful differences as statistically significant, and the low participation rate may have resulted in a non-representative sample, potentially limiting the generalizability of the findings. Also, a potential for social acceptability bias existed due to self-reported data. Despite these limitations significant associations were identified between

the variables under study and the behaviors of disclosure and condom use. The confidential format aided recruitment and limited potential for response bias. These factors provided for a sound two-city study that accrued baseline data to compare with future findings.

Implications for HIV-Prevention and Research

While disclosure of an HIV-positive serostatus to a sex partner offers informed decision-making opportunities, it does not necessarily lead to safer sex. Intra- and interpersonal factors, including efficacy beliefs and relationship status are clearly related to decisions to disclose and/or use condoms for the women surveyed. Dilemmas may arise because of the influence of relationship development, such that a woman may risk transmission for the `greater good' of the partnership, in which protected sex or no sex at all would cause conflict. In casual relationships, women may feel it is easier to engage in sex rather than to talk about it. The use of interventions that strengthen efficacy appraisals specifically in relation to knowing when it is safe to disclose is warranted. HIV prevention interventionists can structure educational activities that include motivational interviewing techniques (Harding, Dockrell, Dockrell & Corrigan, 2001; Rollnick & Miller, 2008), role playing with efficacy appraisals, problem-solving exercises, and/or positive feedback

Ethnocultural dynamics can create unique challenges for women when faced with disclosure and condom use decisions. To address intrapersonal beliefs and interpersonal communication that can empower HIV-transmission risk reduction, health care professionals need to provide a safe and comfortable milieu for communication about sexual issues that is culturally attuned (Takahashi, et al., 2006). While little research exists on the efficacy of group-based self-management programs for seropositive minority women, a recent study indicates that African American and Latino women were amenable to a gender-specific disease self-management program (Webel & Holzemer, 2009).

Findings from the current study also indicate that the committed partners of HIV-positive women need to be engaged in prevention services as well. Joint voluntary counseling and testing services and group-based interventions for serodiscordant couples have demonstrated some success with increasing condom use (Allen, Meinzen-Derr, Kautzman, et. al., 2003; Mcgrath, Celentano, Chard, et al., 2007). Both of these studies highlight the need for ongoing support for serodiscordant couples rather than a one session intervention. In addition, public health messages and counseling approaches for seropositive women should consistently include explicit strategies that enhance skills with communicating about safer sex behavior and condom use.

Fueled by social and cultural influences of the changing HIV epidemic, the CDC has shifted prevention efforts from populations at-risk for HIV to those individuals already infected (CDC, 2003). Interventions for counseling seropositive clients about HIV transmission risk behaviors have been introduced during clinic visits, including the *Interactive Video Doctor* (Gilbert, Ciccarone, Gansky, et al., 2008), and *Options* (Fisher et al., 2006). Peer-led group intervention programs focused on disclosure decision-making have shown efficacy for increasing rates of disclosure (Kalichman et al., 2001; Wolitski et al., 2005). Group-based HIV self-management programs provide a safe avenue to broach disclosure decisions, while couched within a holistic model of disease self-management. Modules on communication highlight the client's central role in addressing the disclosure dimension of their illness (Gifford & Groessl, 2002).

Future research is needed to further explore and to identify additional intrapersonal, interpersonal and environmental/situational factors that may confer disclosure of serostatus to SPs. These may best be elicited through qualitative means, at a partnership level, in which thoughts and perceptions surrounding disclosure and condom use can be further understood from both the view of the women and her sexual partner. From a research perspective, it is also

important to explore patterns of condom use over time and across relationship types to gain a fuller understanding of the context of safer sex decision-making in a variety of relationships. As cultural differences in efficacy beliefs related to disclosure are identified through research, additional intervention options can be developed for addressing health promotion and transmission-risk reduction behaviors that are perceived by respondents to be culturally appropriate and practical to use.

Conclusion

Women with HIV are living longer, healthier lives, which affords them the opportunity to intimately embrace relationships. Disclosure of serostatus in the context of intimate relationships allows sexual partners to make informed decisions about safer sex practices and to communicate about behavioral risks that lead to HIV transmission. Disclosure of serostatus also involves a process of revealing something potentially stigmatizing that previously was held secret. Intrapersonal, interpersonal and situational factors can influence a woman's beliefs in her ability to manage challenging situations. Interventions need to be tailored to address the unique challenges that seropositive women face. HIV is a preventable disease, yet sexual transmission continues to occur. Consistent disclosure, coupled with consistent condom use can help reduce HIV transmission.

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