3/01/04

Partner Awareness Risk and Perceived HIV Vulnerability Among Seronegative Heterosexual Couples

Trent W. Moore
David F. Sly
Dianne F. Harrison

Florida State University

A paper prepared for the 2004 Annual Meeting of the
Population Association of American
Boston, Massachusetts
April 1-3

Acknowledgments
This research is supported by a grant (HD-31025-01 – 08) from the National Institutes of Health.

Author Contact: *twm8357@garnet.acns.fsu.edu*

Partner Awareness Risk and Perceived HIV Vulnerability Among Seronegative Heterosexual Main Partners

Trent W. Moore; David F. Sly; Dianne F. Harrison

Abstract

Perceived vulnerability is a central concept in many theoretical models of individual health-protective behavior. One's perceived vulnerability for HIV is due not only to one's own behavioral risk levels but also his/her partner's risk levels. Consideration of partner risks, however, is usually done without full and accurate knowledge. The disparity between perceived partner risks and one's partner's self-reported risks constitutes what we call *partner awareness risk* (PAR). Using data from a pretest phase of a randomized trial designed to evaluate the efficacy of an HIV/STD risk reduction intervention for at-risk heterosexual couples (N=520), we find that the PAR association with perceived HIV vulnerability is moderated by gender, controlling for self- and partner-reported risk levels. PAR level is negatively associated with the odds of perceived vulnerability for men, but positively associated with vulnerability for women. We also find interactions between PAR and marital status/living arrangements and relational factors.

Partner Awareness Risk and Perceived HIV Vulnerability Among Seronegative Heterosexual Couples

Trent W. Moore; David F. Sly; Dianne F. Harrison

Perceived vulnerability or susceptibility is a central concept in many theoretical models of individual health-protective behavior, including the health belief model (Becker 1974; Rosenstock 1966, 1974), protection motivation theory (Rogers 1975; Rippetoe & Rogers 1987), precaution adoption process theory (Weinstein 1988), the transtheoretical model (Prochaska 1979, 1984), and expectancy value theories such as the theory of reasoned action (Fishbein & Ajzen 1975; 1980) and theory of planned behavior (Azjen and Madden 1986). Two widely known theories of AIDS-risk behavior i.e., the AIDS risk reduction model (Catania et al. 1990) and the information motivation behavior model (Fisher & Fisher 1992) similarly include perceived vulnerability as a central concept. A commonality among these perspectives is the hypothesis that perceived vulnerability to a given health threat e.g., contracting HIV, is a primary motivational factor contributing to health-protective behavior.

HIV risk behavior, or risk behaviors associated with contracting sexually transmitted diseases in general, is more complex than many other health-protective risk behaviors in that one's overall risk is due not only to one's own behavioral risk levels but also the risk behavior of one's partner. One usually considers partner risks without full and accurate knowledge of those risks. The disparity between perceived partner risks and one's partner's self-reported risks constitutes what we call *partner awareness risk* (PAR). In this paper, we examine whether PAR is associated with perceived HIV vulnerability. We are also interested in whether this potential association holds after controlling for other known covariates e.g., behavioral risk factors, gender, ethnicity, and relationship context. In addition, we seek to understand whether this potential association is primarily direct or in

terms of PAR moderating the association of other covariates with perceived HIV vulnerability.

Behavioral Risk and Perceived HIV Vulnerability

Evidence supporting the vulnerability as motivation hypothesis is relatively limited as it relates to HIV. According to Gerrard et al. (1996), much of the existing research has focused instead on whether perceptions of vulnerability are reflections of risk and precautionary behavior. However, it is essential to note that beyond being influenced by one's own risk behavior, perceived HIV vulnerability may also be attributable to the risks that one's partner brings to the relationship (Sly et al. 2001; Soler 2000; Moore et al. (under review)). Hoffman et al. (2000) similarly found that women who reportedly feel susceptible to HIV/STDs attribute this in part to having risky partners. We similarly expect, for both men and women, that both one's own and one's partner's behavioral risk levels to be positively associated with perceived HIV vulnerability. Unfortunately, however, individuals are not always completely aware of the risks that one's partner brings to the relationship. That is, awareness of partner risk may be limited by factual inaccuracies and/or incomplete knowledge.

Partner Awareness Risk and Perceived HIV Vulnerability

Some have found that perceived HIV vulnerability is influenced by perceptual biases e.g., optimistic bias (van der Velde et al. 1992) as well as distancing and downward comparison (Brown et al. 2000), which are ways that individuals generally underestimate their vulnerability to HIV. Others have highlighted how perceptual biases in interpersonal

judgments of AIDS risk characteristics of others can influence one's own risk behavior (Blanton & Gerrard 1997; Malloy et al. 1997; Misovich et al. 1997; Swann et al. 1995). Due largely to an over-reliance on self-reports, what has been missing in these studies of perceptual bias of HIV vulnerability is an assessment of the accuracy of perceived risks that one's partner brings to the relationship. Couple-level data allow for cross-referencing between perceived partner risk levels of with one's partner's self-reports of risk behaviors. That substantial discrepancies frequently occur in what partners tell one another regarding risk behavior is well documented (Sly et al. 2001; Moore et al. (under review), Cochran & Mays 1990). Cochran and Mays (1990) describe how outright deception frequently occurs between partners.

PAR is thus conceptually distinct from the other forms of perceptual bias covered in pervious research in that it is relational. Succinctly, PAR refers to the risk that one incurs due to inaccurate or incomplete knowledge of one's partner's risks. As such, two primary factors on any given risk behavior can contribute to PAR. These include a) *ignorance* of one's partner's risks and/or b) *factual inaccuracies*/*deception* (due perhaps to miscommunication or having been misled by one's partner). One's overall PAR level is the result of all inaccuracies or incomplete knowledge of any risk behaviors potentially engaged in by one's partner, including those incurred recently and in the distant past.

Some who are cognizant of potential inaccuracies or incomplete knowledge regarding their partner's risks may perceive themselves as more vulnerable to contracting HIV. Others, who are perhaps unaware of these inaccuracies, may have a false sense of confidence regarding the risks that they are incurring due to their partner's risk behavior and thus do not perceive themselves as vulnerable to HIV. On the other hand some at elevated

PAR levels may be aware of the potential for these risks and thus be more likely to perceive themselves as vulnerable to HIV infection. Our interest in this paper is whether and how PAR level is associated with perceived HIV vulnerability, and whether this association is direct or in terms of moderating the associations of other covariates.

Relationship Context and Perceived Vulnerability

We will also examine whether various relational factors are associated with perceived HIV vulnerability, whether PAR moderates these associations, as well as whether these associations vary by gender. The increasing incidence of heterosexually acquired HIV among U.S. women has brought to light various problems that women face when trying to protect themselves and their partners against this disease, particularly when negotiating condom use (Amaro 1995; Campbell 1999). Gender issues as they relate to HIV risk in heterosexual couples are inextricably relational e.g., power and control in the relationship, affective and relationship satisfaction, norms or standards regarding extra-relational sexual behavior, etc.

Several issues regarding relationship context e.g., marital status, living arrangements, communication, affection, trust, power and control, intimate partner violence, and sexual decision-making have been found to be associated with HIV/STD prevention, particularly condom use. For example, some have found that "knowing", trusting, liking, or loving a partner is associated with low perceived partner risk for HIV/STDs, as well as with low levels of condom use (Misovich et al. 1996). Compared to those in casual relationships, those in relationships perceived as committed or close are also unlikely to see their partners as posing an HIV/STD risk (Misovich et al. 1996; Misovich et al. 1997). Many fail to

initiate safer sex practices out of fear that it would jeopardize relationship stability (Bowen & Michal-Johnson 1989; Sobo 1993). Similarly, many have found that married cohabiting couples and "regular" partners are less likely to use condoms than their unmarried cohabiting and non-cohabiting counterparts (Forste & Morgan 1998; Catania 1993; Catania et al. 1994; de Visser & Smith 2001; Macaluso et al. 2000). Following this, we expect those who are married and cohabiting to perceive themselves as less vulnerable to HIV than those who are unmarried cohabiting and non-cohabiting. We also expect that perceived level of relationship satisfaction with one's main sex partner to be negatively related to perceived HIV vulnerability. We also examine whether PAR and/or gender moderates these potential relationships.

Many have argued that we must understand interpersonal power within heterosexual relationships before we can effectively reduce HIV risk for women (Quina et al. 1997; Amaro 1995). Women often feel pressured to conform to men's demands for unsafe sex (Campbell 1999). This pressure may take the form of fear of being physically abused, being rejected, or abandoned. According to Harlow et al. (1993), this pressure serves as a deterrent for women to assert the need to adopt safer sex practices. Given this, we expect that perceived personal power in one's relationship is negatively associated with perceived HIV vulnerability among women, but is positively associated with perceived vulnerability among men.

Method

Our sample was drawn from a project designed to test a behavioral intervention to reduce HIV/STD risks of at-risk heterosexual couples in the Miami-Ft. Lauderdale, Florida

metropolitan area. The data we use are from 520 couples for whom we have completed pretests for both main partners (N= 1,040). We define main partner as the person with whom one most regularly has sexual relations and purposely did not include recruitment criteria involving marital or cohabitation status. Potential participants were recruited at prespecified sites (state employment offices, state funded family and child service centers, and state funded county health units) by trained, gender- and ethnically-matched recruiters. Recruiters briefly explained the project in general health terms initially avoiding any reference to partner participation.

Potential recruits were asked for consent to answer questions from a brief screening instrument to determine their eligibility. Recruits had to be between the ages of 18 and 45, report having an opposite sex main partner, not be pregnant or trying to become pregnant, self-identify as non-Hispanic black, Hispanic, or non-Hispanic white, and not knowingly be HIV positive nor have a main partner who is knowingly HIV positive. First-recruited persons also had to report at least two criterion risk behaviors in the last year: two or more partners, having sex for money, drugs, or favors, having injected drugs, having used a range of substances to get high an hour before sex, or having had sex without a condom.

The full project was explained to the eligible including that their main partner also had to voluntarily consent to participate. If interested, arrangements were made to determine their partner's informed consent and willingness to participate. After securing informed consent from both partners, pretest questionnaires were administered by gender- and ethnically-matched interviewers and were conducted confidentially i.e., not in the presence of the other partner. Each partner was told that both would not be asked all of the same questions, and they were free to discuss them with one another after both were

interviewed. Pretest interviews lasted about 1.5 hours and respondents were paid a $25 incentive. The proportion of the eligible first-recruits completing a pretest whose partner also completed a pretest is 85 percent for female first-recruits and 82.7 percent for male first-recruits.

Measures

Perceived HIV Vulnerability

The measure of perceived HIV vulnerability is from a list of items asking respondents to report their perceived chances that various events will occur to them "over the next five years". The specific item we use involves their perceived likelihood of "being told you are HIV positive". The response categories range from none, very low, low, medium, and high. A significant skew for this item was observed whereby only 5.1 percent of the respondents indicated having at least a medium level of vulnerability. Given this and other analytical considerations, we decided to dichotomize the outcome by categorizing those responding "low," "medium," or "high" as having an "elevated" level of perceived HIV vulnerability (coded as 1) and those responding "very low" or "none" as having "low" perceived vulnerability (coded as 0). Coding perceived HIV vulnerability in this way resulted in 18.4 percent of the respondents being categorized as having elevated perceived HIV vulnerability.

Behavioral Risk Measures

We divide HIV behavioral risk into two separate dimensions: sex history risk and recent sex risk. The items comprising these two indices are provided in Figure 1. Because the data are couple-level, we are able to measure the self-reported risk behaviors of both

partners. We created each gender-specific risk index by summing item scores that comprise them. In accordance with the suggestion of Gerrard et al. (1996), we include both risk behaviors and preventive behaviors in the behavioral risk measures given their overall conceptual interdependence in contributing to one's overall behavioral risk level. Sex history risk involves various sexual risks that have accumulated over one's lifetime (e.g., the total number of sexual partners, ever having had an STD, age at first sex, etc.). While the women's sex history scale is composed of 6 items and ranges from 0 to 13, the men's sex history scale has one additional item (ever having had same sex sex) but nevertheless also ranges from 0 to 13. The Cronbach's alpha reliability coefficients for the sex history scale were α = .66 and α =.64 for women and men respectively.

Recent sex risk is, again conceptually distinct from sex history risk, given a more recent context (within the past year, in the past 3 months, etc.) of the behavioral risk factors that comprise the measure (α = .82 and α =.84 for women and men respectively). The implication of more recent risks is that they are potentially amenable to change. With scores ranging from 0 to 22 for men (and 0 to 21 for women), the recent sex risk scale includes items involving various sexual risk behaviors. It is also comprised of items entail substance use i.e., being "high, buzzed, or stoned" from various substances (i.e., alcohol, marijuana, cocaine, "other" drugs, and intravenous (IV) drugs) during sex in the recent past.

Partner Awareness Risk

Finally, 22 items comprise the PAR scale, which has a potential of range of 0 to 22 (α = .61 and α =.54 for women and men respectively). For all but a few of the PAR items listed in Figure 1, there are complementary "ignorance" and "inaccuracy" dimensions that

were measured. An individual could be coded as at risk for either being ignorant about whether their partner has engaged in a given behavior or for incorrectly indicating their partner had not engaged in the given behavior. With respect to whether one's partner has ever had an STD, for example, the respondent may have indicated that she "does not know". Or, she may have said "no," but her partner indicated that he indeed had been previously diagnosed with an STD. In either case, the respondent does not have complete or accurate information about her partner's risk for that particular behavior and are thus at risk and coded a "1". If the respondent's answer was in concordance with her partner's self-report, she was not considered to be at risk for that item (coded as 0). Again, because the data are couple-level, we were able to cross-reference the self- and partner-reports of both partners and thus create PAR measures for both genders.

Relational Variables

The relationship satisfaction measure (Hudson 1997) is composed of 13 items (α =.91 and α = .90 for women and men respectively) and was designed to capture a general sense of relationship quality in terms of affection, companionship, stability, etc. Some items comprising this scale include "My partner is affectionate enough", "I feel I can trust my partner", "Our life together is dull", "Our relationship is very stable", etc. The response categories ranged from none of the time, very rarely, a little of the time, some of the time, a good part of the time, most of the time, and all of the time (item scores ranging from 0-6). Items were reverse-coded where needed and scores were then summed. Scale scores ranged from 4 to 52 for the women and 11 to 52 for the men.

Self-perceived relationship power (Maddock 1996) is composed of 12 items (α =.80 and α = .81 for women and men respectively). Defined as the capacity to influence, the power scale includes items such as "I get my partner to do things my way," "I have greater say in how we spend money," and "I influence my partner's actions." Defined as the capacity to limit or channel influence, items comprising relationship control include "There are things I won't let my partner do", "I limit our spending," and "I say 'no' to my partner." The five response categories for each item range from "rarely/never" to "most of the time". We reverse coded scores where needed then summed all scores to create the scales.

The sexual permissiveness scale is comprised of 19 items and was designed to measure attitudes regarding the general acceptability of casual and extra-relational sex among men and women (α =.66 and α = .72 for women and men respectively). Some of the items that comprise this scale include "A man and a woman should not have sex with each other unless they are truly in love," "When given the right opportunity, most men will not pass up a chance to have sex," "If a woman has a main sex partner and she has sex with someone else she should tell her main partner this," etc. Responses categories included "strongly agree," "agree," "disagree", and "strongly disagree". Items were reverse-coded where needed and the scores for all items were then summed.

Analytical Approach

To conduct this analysis, a couple file (N=520) for which pretests were completed by both partners was converted to a partner file (N=1,040). This resulted in a file that allowed for the testing of interaction effects by gender while still maintaining many of the couple-level information as well as allowed for the testing of interaction effects by gender. The

analysis begins with a description of the sample, and is followed by a series of hierarchical logistic regression results regarding the odds of elevated perceived HIV vulnerability by the previously defined sets of predictor variables. The first set of models of Table 2 concentrate on the association of marital status and living arrangements, ethnicity with PAR, gender, and perceived vulnerability. The models of Tables 3 and 4 concentrate on the associations of sex history risk and recent sex risk levels respectively with PAR, gender, and perceived HIV vulnerability. Finally, the models of Table 5 focus on the association of the previously described relationship context variables with PAR, gender, and perceived HIV vulnerability. Multivariate analyses were conducted separately by groups of predictors in order to test the hypotheses across a variety of scenarios. The first model in each set is a test for main effects i.e., whether PAR is associated with perceived HIV vulnerability independent of other predictors. Subsequent models within each table are designed test whether and how PAR and gender moderate the association of each other and the other predictors with perceived HIV vulnerability.

[Insert Table 1]

Results

By design the sample was ethnically diverse, with 82.4 percent being composed of ethnic minorities. Bivariate analyses indicated that the nonwhite respondents were significantly more likely to indicate elevated HIV vulnerability ($\chi^2 = 2.87$ $p < .10$). Married cohabiting couples comprise 25.1 percent of the sample, with unmarried cohabiting couples comprising 46.1 percent and unmarried non-cohabiting comprising 21.7 percent.

Proportionally fewer partners of married couples indicated elevated perceived HIV vulnerability than those who are unmarried cohabiting ($\chi^2 = 7.13$ $p < .01$) or unmarried non-cohabiting ($\chi^2 = 7.34$ $p < .01$). There were also significantly more women indicating elevated perceived HIV vulnerability (21.5 %) than men (15.3%) ($\chi^2 = 6.76$ $p < .01$).

The descriptive statistics for the scales in the analysis are provided in Table 1. Men have significantly higher mean scores on both the sex history and recent sex risk scales. Women, however, have significantly higher average PAR scores than men. Finally men had significantly higher relationship power and relationship satisfaction scores.

[Insert Table 2]

Table 2 presents the results of modeling the odds of elevated HIV vulnerability by gender, ethnicity, and marital status/living arrangements. Model 1 represents the main effects model, the results of which clearly indicate that men disproportionately perceive themselves as invulnerable to contracting HIV. As was found in the bivariate analysis, nonwhite respondents as well as those who are unmarried cohabiting or non-cohabiting were found to have significantly greater odds of reported elevated HIV vulnerability. Model 2 includes a set of interaction terms of gender by the other predictors. A significant interaction found was by PAR, indicating that PAR has dramatically different effect on men's perceptions of being HIV vulnerable in comparison to the women. While men with elevated PAR levels are significantly less likely to report elevated HIV vulnerability, women with elevated PAR levels are significantly more likely to report HIV vulnerability.

Model 3 tests a set of interaction terms for PAR by the other predictors. The PAR by gender interaction is again significant and in the same direction. There are significant interactions for the marital status/living arrangements variables whereby PAR has a significantly positive association with perceived vulnerability among those who are unmarried and cohabiting or non-cohabiting in comparison to those who are married and cohabiting. Model 4 tests both the gender and PAR interactions as well as for 3-way interactions. The positive moderating effect of PAR for those who are unmarried and cohabiting holds for both men and women. However, PAR has a negative moderating effect only for men who are unmarried and non-cohabiting.

[Insert Table 3]

The results of Table 3 represent the adjusted odds ratios of perceived HIV vulnerability by gender, PAR, and self- and partner-reported sex history risk level. Again, model 1 presents the main effects, which again indicate men being significantly less likely than women to report HIV vulnerability. Sex history risk level, regardless of whether it is one's own or one's partner's, is positively associated with perceived HIV vulnerability as hypothesized. Although partner sex history risk is significant, we cannot be sure whether the respondents are indeed cognizant of and/or influenced by their partner's risk levels. It could instead be a statistical artifact that relatively risky individuals simply pair with one another (Sly et al. 2001). Including PAR in the model instead offers a means of analyzing how the accuracy of respondents' knowledge of partner risk influences the odds of perceiving themselves as vulnerable to contracting HIV. When including the interactions of

Model 2, the results again indicate a significant interaction of PAR by gender, where higher PAR levels are associated with lower odds of perceived HIV vulnerability among men, but with higher odds of HIV vulnerability among women. Outside of the gender by PAR interaction, none of the other interactions of Models 2 through 4 are significant.

[Insert Table 4]

Table 4 presents the adjusted odds ratios of perceived HIV vulnerability by gender, PAR, and self- and partner-reported recent sex risk level. The results of the main effects model (Model 1) suggests that self-reported recent sex risk level is positively associated with the odds of elevated HIV vulnerability perceptions. When entering the gender interactions in Model 2, gender again is found to interact with PAR as before. However, there is also a significant interaction between gender and partner recent sex risk level whereby men whose partners have higher recent sex risk levels are more likely to perceive themselves as vulnerable to HIV. For women, however, partner recent sex level remains non-significant. Outside of the significant PAR interaction with gender, neither the PAR interactions of Model 3 nor the 3-way interactions of Model 4 resulted in improved models.

[Insert Table 5]

The models involving relationship context are presented in Table 5. Model 1 presents the main effects model where we again find men have lower odds of perceived vulnerability than women. We also find that those with higher levels of relationship

satisfaction also have lower odds of perceiving themselves as HIV vulnerable. Those with higher sexual permissiveness levels, however, are significantly more likely to report elevated vulnerability to being diagnosed with HIV. When entering the interactions involving gender in Model 2, we found the significant interaction between gender and PAR as before. Another interaction was found involving relationship power whereby men who report higher levels of relationship power are significantly more likely to report being HIV vulnerable. In contrast, women with higher reported relationship power have significantly lower odds of reporting elevated HIV vulnerability. Model 3 includes the interactions involving PAR by the other predictors. We found that the negative association between relationship satisfaction and perceived vulnerability is significantly stronger among those at higher PAR levels. In Model 4, we found the positive association between sexual permissiveness and perceived vulnerability is significantly stronger among women at higher PAR levels, but weaker among men at higher PAR levels. The PAR interaction with relationship satisfaction is no longer significant, however, after controlling for the 3-way interaction terms.

Discussion

Before discussing the results it is important to point out some limitations of this paper. First of all, the generalizability of the sample may be limited given that is drawn from a low-income ethnically diverse population in South Florida. Also, to be eligible, those recruited into the study had to meet risk criteria. These qualifications are justified given increasing evidence that the epidemic tends to concentrate among those of low economic status. Second, the analysis of the relational variables should be considered

preliminary. There are a number of other relational factors that need to be explored e.g., communicative factors, sexual decision-making, intimate partner violence, etc. that may also be associated with gender differences in the PAR – HIV vulnerability association. In addition, numerous psychosocial variables e.g., depression, self-esteem, self-efficacy, etc. may also be related. Third, the data are cross-sectional and as such we cannot attribute causality. Given the research design, a subset of the data we explore in this paper is prospective, which allows for a potential examination of the vulnerability-as-motivation hypothesis. For example, we could examine how perceived HIV vulnerability at pretest effects health protective behaviors at posttest as well as how PAR and the other covariates of perceived vulnerability potentially contribute to this relationship.

Despite these limitations, we consistently found a significant interaction between PAR and gender in predicting the odds of perceived HIV vulnerability, a relationship that held across all sets of predictors. Specifically, the findings consistently indicated that higher PAR levels are associated with lower odds that men perceive themselves as HIV vulnerable. For women, however, higher PAR levels are associated with greater odds of perceived HIV vulnerability. With respect to the interactions of PAR with self- and partner-reported risk levels, support was limited to an interaction between PAR and partner recent sex risk level for the men only. In this case higher PAR levels coupled with higher recent sex risk levels of one's partner contributed to greater odds that men perceived themselves as vulnerable to being diagnosed with HIV. Outside of this interaction, however, the evidence largely suggested that PAR and the other gender-specific risk dimensions operate independently. Our hypotheses with regard to the relational variables were also largely confirmed. Specifically, relationship satisfaction was found to have a significant negative association

with perceived HIV vulnerability. This negative association was stronger among those with higher PAR levels. Sexual permissiveness, as expected, was found to have a positive association with perceived vulnerability. And finally, self-perceived relationship power had a negative association with vulnerability for women, but a positive association for men.

It may be of value for future research to take a closer look at which specific PAR items are most closely associated with perceived HIV vulnerability. Though not verifiable for this paper, it would also be of interest to determine whether the positive PAR – vulnerability association for women is due to their being cognizant of the potential for not having full and accurate knowledge of their partner's risks. This realization may in itself contribute to many women having elevated perceived vulnerability. Outside of this possibility, the women in this sample may also be quite aware of the greater risks of heterosexual transmission for women in comparison to men. Another possible avenue, which could shed more light on the significant gender difference in the PAR – vulnerability association may be to conduct separate analyses based on PAR that is due to ignorance and compare these results with those from analyses based PAR that is due to inaccurate knowledge.

In the past, public health officials have largely relied on women to take primary responsibility for the sexual and reproductive health of the couple. Because men ultimately decide whether to use condoms, many have claimed that targeting women to take responsibility for the sexual and reproductive health of the couple places an unfair burden on women and that men should instead be encouraged to take more responsibility for the couple's health. Thus public health practitioners and researchers have advocated the use of couple-level interventions. It is with these designs that the complex dynamics of dyadic

heterosexual partnerships can be considered in more detail. It is only with the recent availability of couple-level data that researchers have been able to ascertain, with a reasonable degree of reliability and validity, the accuracy of individuals' knowledge of one another's risk behaviors.

There has long been an implicit understanding of the importance of being aware of how one's partners' HIV/STD risks are also one's own risks. Indeed, public health messages dating back to the beginning of the AIDS epidemic have frequently promoted the the importance of "knowing your partner". Some have argued, however, that these efforts are misleading and have caused many to rely too heavily on cursory knowledge and implicit personality theories to justify having unprotected sex with their partner (Misovich et al. 1996; Metts & Fitzpatrick 1992). They argue that efforts extolling the importance of "knowing your partner" should be abandoned and that HIV/STD testing is the only way to objectively assess the whether one's partner is indeed disease free. Universal HIV testing unfortunately remains an elusive goal, however, which is due partly to problems associated with perceived violations of partner trust that are frequently experienced when one partner encourages the other to get tested. In fact, very similar relational concerns may prohibit discussions between partners about past or current risk behavior and/or full disclosure regarding those risks.

It is essential to note that previous messages extolling the importance of "knowing your partner" have not specified which, if any, of a variety of high-risk behaviors that one should know whether one's partner has engaged in. Neither have they acknowledged the difficulties associated with, or possibility of never gaining, full disclosure from one's partner about those risks. The results we present suggest that a wholesale repudiation of

efforts to encourage partners to know one another may nevertheless be imprudent. Vague suggestions to "know one's partner" may indeed be destructive and counterproductive. However, reminding individuals of various *specific* risks that their partner may have incurred, and how they may never have full and accurate knowledge regarding those risks, is qualitatively quite different than simple vague messages. Conveying more specific messages may provide sufficient motivation for both men and women to engage in health-protective behaviors e.g., reduce/cease risky behavior, adopt safer sex practices, or most importantly to become tested for HIV.

There is still very little known about how inaccurate or incomplete knowledge of one's partner's risk behavior is associated with health protective behaviors or the motivational processes associated with those behaviors. Given this and the unlikely scenario of universal HIV testing, it is incumbent that we gain a more systematic and detailed understanding of how inaccuracies in partner perceptions, as is indicated by partner awareness risk, are involved in the spread of HIV and sexually transmitted diseases in general.

References

Amaro, Hortensia (1995). Love, sex, power: considering women's realities in HIV prevention. American Psychologist, 50: 437-447.

Becker, M. H. (1974). The health belief model and personal health behavior. Health Education Monographs, 2:324-5

Blanton, Hart; Gerrard, Meg (1997). Effect of sexual motivation on men's risk perception for sexually transmitted disease: There must be 50 ways to justify a lover. Health Psychology, 16(4): 374-379.

Bowen, S.P.; Michal-Johnson, P. (1989). The crisis of communicating in relationships: confronting the threat of AIDS. AIDS and Public Policy Journal, 4: 10-19.

Brown, Emma J.; Outlaw, Freida H.; Simpson, Edith M. (2000). Theoretical antecedents to HIV Risk Perception. Journal of the American Psychiatric Nurses Association, 6(6): 177-182.

Campbell, Carol A. (1999). Women, families, and HIV/AIDS: A sociological perspective on the epidemic in America. Cambridge, UK: Cambridge University Press.

Catania, Joseph A. et al. (1993). Changes in condom use among Black, Hispanic and White heterosexuals in San Francisco: the AMEN cohort study. Journal of Sex Research, 30:121-138.

Catania, Joseph A.; Thomas, J.C.; Golden, E., Dolcini, M.M.; Peterson, J; Kegeles, S.; Siegel, D.; Fullilove, M.T. (1994). Correlates of condom use among black, Hispanic, and white heterosexuals in San Francisco: the Amen longitudinal survey. AIDS Education and Prevention, 6(1): 12-26.

Chin, Dorothy (1999). HIV-related sexual risk assessment among Asian/Pacific Islander American women: An inductive model. Social Science and Medicine, 49: 241-251.

Cochran, S.; Mays, V. (1990). Sex, lies, and HIV. New England Journal of Medicine, 322: 774-775.

de Visser, R. & Smith, A. (2001). Relationship between sexual partners influences rates and correlates of condom use. AIDS Education and Prevention, 13(5):413-27.

Ehrhardt, A.A. et al. (1992). Prevention of heteroseuxal transmission of HIV: barriers for women. Journal of Psychology and Human Sexuality, 5:37-67.

Ellen, Jonathon M.; Boyer, Cherrie B.; Tschann, Jeanne M.; Shafer, Mary-Ann (1996). Adolescents' perceived risk for STDs and HIV infection. Journal of Adolescent Health, 18: 177-181.

Forste & Morgan (1998). How relationships of U.S. men affect contraceptive use and efforts to prevent sexually transmitted diseases. Family Planning Perspectives, 30(2):56-62.

Gerrard, Meg; Gibbons, Frederick X.; Bushman, Brad J. (1996). Relation between perceived vulnerability to HIV and precautionary sexual behavior. Psychological Bulletin, 119(3): 390-409.

Hoffman, Susie; Koslofsky, Shahana; Exner, Theresa M.; Yingling, Sandra; Ehrhardt, Anke A. (2000). At risk or not? Susceptibility perceptions of women using family planning services in an AIDS epicenter. AIDS and Behavior, 4(4): 389-398.

Hudson, Walter (1997). Index of Marital Satisfaction. Walmyr Assessment Scales Scoring Manual. Tempe, AZ: Walmyr Publishing Co.

Kalichman, Seth C.; Hunter, T.L.; Kelly, J.A. (1992). Perceptions of AIDS susceptibility among minority and nonminority women at risk for HIV infection. Journal of Consulting and Clinical Psychology, 60: 725-732.

Kalichman, Seth C.; Nachmimson, Dena; Cherry, Charsey; Williams, Ernestine (1998). AIDS treatment advances and behavioral prevention setbacks: Preliminary assessment of reduced perceived threat of HIV/AIDS. Health Psychology, 17(6): 546-550.

Macaluso M. et al. (2000). Female condom use among women at high risk of sexual transmitted disease. Family Planning Perspectives, 32(3):138-144.

Maddock, James (1996). Power/Control Scales.

Malloy, Thomas E.; Fisher, William A.; Albright, Linda; Misovich, Stephen J.; Fisher, Jeffrey D. (1997). Interpersonal perception of the AIDS risk potential of persons of the opposite sex. Health Psychology, 16(5): 480-486.

Metts, S. & Fitzpatrick, M. (1992). Thinking about safer sex: the risky business of 'know your partner' advice. In Edgar, T.; Fitzpatrick M., and Freimuth V. (Eds.). AIDS: A Communication Perspective. Hillsdale, NJ: Lawrence Erlbaum Associates.

Misovich, Stephen J.; Fisher, Jeffrey D.; Fisher, William A. (1997). Close relationships and elevated HIV risk behavior: Evidence and possible underlying psychological processes. Review of General Psychology, 1(1): 72-107.

Misovich, Stephen J.; Fisher, Jeffrey D.; Fisher, William A. (1996). The perceived AIDS-preventive utility of knowing one's partner well: A public health dictum and individuals' risky sexual behavior. The Canadian Journal of Sexuality, 5(2): 83-90.

Moore, Trent W.; Sly, David F.; Harrison, Dianne F. (2004). Barrier method use among seronegative heterosexual main partners: a couple-level analysis. Unpublished paper.

Nitz, Katherine; Peralta, Ligia; Lee, Rebecca E. (199_). Perceived risk for STDs and HIV infection among sexually active adolescent girls. Journal of Adolescent Health, 20(2): 150.

Pinkerton, Steven D.; Wagner-Raphael, Lynne I.; Craun, Catherine A.; Abramson, Paul R. (2000). A quantitative study of the accuracy of college students' HIV risk estimates. Journal of Applied Biobehavioral Research, 5(1): 1-25.

Prochaska, J.O. (1979, 1984). Systems of psychotherapy: a transtheoretical analysis. Pacific Grove, CA: Brooks-Cole.

Quina, K.; Harlow, L.L.; Morakoff, P.J.; Saxon, S.E. (1997). Interpersonal power and HIV risk. In Goldstein, N. and Manlow, J.L. (Eds.). The Gender Politics of HIV/AIDS in Women. New York: New York University Press.

Rippetoe, P.A.; Rogers, R.W. (1987). Effects of components of protection-motivation theory on adaptive and maladaptive coping with a health threat. Journal of Personality and Social Psychology, 52:596-604.

Rogers, R.W. (1975). A protection motivation theory of fear appeals and attitude change. Journal of Psychology, 91:93-114.

Rosenstock, I.M. (1966). Why people use health services. Milbank Memorial Fund Quarterly, 44:94.

Rosenstock, I.M. (1974). Historical origins of the health belief model. Health Education Monographs, 2:1-8.

Snyder, Leslie B.; Rouse, Ruby A. (1992). Targeting the audience for AIDS messages by actual and perceived risk. AIDS Education and Prevention, 4(2): 143-159.

Sly, David F.; Harrison, Dianne F.; Moore, Trent W.; Soler, Hosanna (2001). The HIV transmission risks of females and males in paired partner relationships. Journal of Health and Human Services Administration, 24(2):144-170.

Sobo, E.J. (1993). Inner city women and AIDS: the psychosocial benefits of unsafe sex. Culture, Medicine, and Psychiatry, 17:455-485.

Soler, Hosanna et al. (1998). Relationship dynamics, ethnicity, and condom use amogn low income women. Family Planning Perspectives, 32(2):83-88.

Strunin, Lee (1991). Adolescents' perceptions of risk for HIV infection: Implications for future research. Social Science and Medicine, 32(2): 221-228.

Van der Pligt, Otten, & Richard (1993). Perceived risk of AIDS: Unrealistic optimism and self-protective action. In Pryor, John B. & Reeder, Glenn D. (Eds.), Social Psychology of HIV Infection. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Van der Velde, Frank W.; Van der Pligt, Joop (1991). AIDS-related health behavior: coping, protection motivation, and previous behavior. Journal of Behavioral Medicine, 14(5): 429-451.

Van der Velde, Frank W.; Hooykaas, Christa; Van der Pligt, Joop (1992). Risk perception and behavior: pessimism, realism, and optimism about AIDS-related health behavior. Psychology and Health, 6: 23-38.

Van der Velde, Frank W.; Van der Pligt, Joop; Hooykaas, Christa (1994). Perceiving AIDS-related risk: Accuracy as a function of differences in actual risk. Health Psychology, 13(1): 25-33.

Weinstein, Neil D. (1988). The precaution adoption process. Health Psychology, 7:355-386.

Weinstein, Neil D.; Nicolich, Mark (1993). Correct and incorrect interpretations of correlations between risk perceptions and risk behaviors. Health Psychology, 12(3): 235-245.

Figure 1. Items Comprising Risk Indices[1]

Sex History Risk

1. Ever had an STD
2. Lived w/ another partner (other than current)
3. Age at first sex
4. Number of lifetime sexual partners
5. Number of sexual partners prior to current main partner
6. Number of sexual partners since first had sex with current main partner
7. Same sex sexual experience (men only)

Recent Sex Risk

1. Number of "other" partners in past year
2. Sex for money or drugs in past year
3. Sex for favors in past year
4. Oral sex to "other" without protection in past year
5. Vaginal sex with "other" without a condom in past year
6. Anal sex with "other" partner in past year
7. Anal sex (w/ any partner) without a condom in past year
8. Sex (at all) when high on <substance>[2]
9. Sex w/ main partner when high on <substance>[2]
10. Sex w/ "other" partner when high on <substance>[2]
11. Sex w/ main partner when he/she high was on <substance>[2] and you were not
12. Sex w/ "other" partner when he/she high on <substance>[2] and you were not

Partner Awareness Risk

1. MP ever had an STD?
2. MP had an HIV test in past year?
3. MP lived w/ another he/she had sex with?
4. MP ever had another main partner?
5. MP tell you she/he had sex w/ another sex partner(s) prior to you?
6. Number of sex partners MP claims to have had prior to you
7. MP tell you whether he/she had sex with an "other" partner since you became partners
8. Number of "other" partners MP has had sex with since you became partners
9. MP see relationship as monogamous?
10. During sex w/ MP in past month, he/she ever high from alcohol?
11. During sex w/ MP in past month, how many times was he/she high from alcohol?
12. During sex w/ MP in past mo., he/she ever high from drugs?
13. During sex w/ MP in past mo., ho many times was he/she high from drugs?
14. MP have sex w/ any "other" partner in past month?
15. MP have sex w/ "other" partner for money or favors in past mo.?
16. MP tell you he/she had same sex experience?
17. MP tell you he/she had same sex experience > once?
18. MP know you had sex w/ "other" partner in last year?
19. MP know you expect to have sex w/ "other" in near future?
20. MP know you want to have sex w/ "other" in near future?
21. MP give(M)/receive(F) money or favors for sex in past year?
22. MP give(M)/receive(F) drugs for sex in past year?

---

1. Items are abbreviated to due to space constraints and thus do not represent the actual wording used in the survey instrument.
2. For items 8-12 under Recent Sex Risk, there were separate items for <substance> referrring to alcohol, marijuana, cocaine, "other" drugs, and IV drugs. Recent Sex Risk is thus comprised of 32 items.

Table 1. Descriptive Statistics of Scales with Tests for Differences in Means by Gender

	Men (N=520)		Women (N=520)		Gender
	Mean	SD	Mean	SD	Difference[1]
Sex History Risk ……	6.68	2.83	5.29	2.83	7.82***
Recent Sex Risk ……	3.48	3.87	2.85	3.25	2.85**
Partner Awareness Risk …….	3.28	2.08	3.96	2.60	4.64***
Relationship Power……...……..	25.47	8.24	25.50	8.62	.05
Relationship Satisfaction ……	41.23	9.20	39.88	10.43	2.18*
Sexual Permissiveness …….	9.42	3.33	7.58	2.81	9.59***

1. T-tests for equality of means; * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 2. Adjusted Odds Ratios of Perceived HIV Vulnerability by Demographic Covariates

Variable	Model 1	Model 2	Model 3	Model 4
Male	.66**	1.19	.66**	1.09
Non-white	1.39†	1.67*	1.38†	1.67*
Unmarried Cohab.	1.67**	1.80*	1.72**	1.73*
Unmarried Non-coh.	1.79**	2.14**	1.82**	1.87*
Partner Aware. Risk (PAR)	1.05	1.10**	.92	.91
Male X PAR		.87*	.86*	.93
Male X Non-white		.59		.66
Male X Unmarr. Cohab.		.89		.89
Male X Unmarr. Non-coh.		.68		.68
PAR X Non-white			1.10	1.01
PAR X Unmarr. Cohab			1.14†	1.21*
PAR X Unmarr. Non-coh.			1.16†	1.33*
Male X PAR X Non-white				1.20
Male X PAR X Unm. Coh.				.83
Male X PAR X Unm. Non-coh.				.60*
Constant	-1.94***	-2.20***	-2.02***	-2.18***
-2 Log likelihood	955.06	947.91	946.53	938.21

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

Table 3. Adjusted Odds Ratios of Perceived HIV Vulnerability by Gender, Sex History Risk and Partner Awareness Risk Level

	Model 1	Model 2	Model 3	Model 4
Variable				
Male	.59**	.56**	.59**	.54**
Sex History Risk (self)	1.16***	1.14***	1.17***	1.13**
Sex History Risk (partner)	1.09**	1.08*	1.09**	1.09*
Partner Aware. Risk (PAR)	1.04	1.10*	1.09*	1.11*
Male X PAR		.82**	.82**	.83*
Male X SHR (s)		1.05		1.06
Male X SHR (p)		1.02		1.02
PAR X SHR (s)			1.00	1.02
PAR X SHR (p)			1.00	.99
Male X PAR X SHR (s)				.97
Male X PAR X SHR (p)				1.02
Constant	-1.34***	-1.38***	-1.39***	-1.38***
-2 Log likelihood	883.25	875.95	876.46	873.75

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

Table 4. Adjusted Odds Ratios of Perceived HIV Vulnerability by Gender, Recent Sex Risk and Partner Awareness Risk Level

Variable	Model 1	Model 2	Model 3	Model 4
Male	.65**	.64**	.66**	.63**
Recent Sex Risk (self)	1.11***	1.12***	1.11***	1.11**
Recent Sex Risk (partner)	.99	.95	1.00	.97
Partner Aware. Risk (PAR)	1.08*	1.15***	1.15***	1.16***
Male X PAR		.82**	.84**	.81**
Male X RSR (s)		.99		1.00
Male X RSR (p)		1.11*		1.01
PAR X RSR (s)			1.01	1.00
PAR X RSR (p)			.99	.99
Male X PAR X SHR (s)				1.00
Male X PAR X SHR (p)				1.01
Constant	-1.33***	-1.36***	-1.36***	-1.35***
-2 Log likelihood	930.82	921.05	924.42	920.04

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

Table 5. Adjusted Odds Ratios of Perceived HIV Vulnerability by Gender, Relational Variables and Partner Awareness Risk

	Model 1	Model 2	Model 3	Model 4
Variable				
Male	.53***	.54***	.52***	.54**
Relationship Satisfaction	.97***	.96***	.97***	.96***
Relational Power	1.00	.98†	1.00	.98†
Sexual Permissiveness	1.13***	1.16***	1.14***	1.14**
Partner Awareness Risk	1.03	1.10*	1.08*	1.08*
Male X PAR		.82**	.80**	.83*
Male X Relat. Satis.		1.02		1.02
Male X Power		1.06**		1.06**
Male X Permiss.		.96		.98
PAR X Relat. Satis.			.99†	1.00
PAR X Power			1.00	1.00
PAR X Permiss.			1.01	1.03†
Male X PAR X Relat. Satis.				1.00
Male X PAR X Power				1.01
Male X PAR X Permiss.				.96†
Constant	-1.33***	-1.35***	-1.36***	-1.37***
-2 Log likelihood	913.63	896.53	892.92	890.60

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