Sexual Risk Taking among Adult Dating Couples in the US: The Influence of Respondent, Partner and Relationship Characteristics

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Paper prepared for presentation at the 2007 Annual Meeting of the Population Association of America, New York, NY, March 29-31. The research reported in this paper derives from a project entitled, "Contraceptive Decision Making among Adult Couples," supported by the National Institute of Child Health and Human Development, under Grant Number 1 R01 HD044708-01. The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the views or policies of NICHD or the Battelle Memorial Institute. Direct all correspondence to John O.G. Billy at the above address, or email at: billy@battelle.org.

Introduction

Despite the many emotional and social benefits of sexual behavior in relationships, there is growing evidence that some close relationships may be risky in terms of contracting STDs and HIV. Although there are considerable efforts directed at controlling the spread of HIV and STDs, the rates of heterosexual transmission of these diseases remain at unacceptably high levels. The need for STD/HIV prevention is especially high for nonresidential partners (unmarried and non-cohabiting dating couples) who are less likely to be monogamous and who may engage in riskier sexual behavior.

Although prior research has examined factors associated with sexual risk taking, much of what we know about sexual and contraceptive behaviors as risk factors for HIV and other STDs, as well as pregnancy, is based largely on women's or men's separate reports of their attitudes and behaviors. Relatively little research has been based on couples, where reports are obtained from both partners, despite the fact that sexual behavior is inherently dyadic. It is only from couple-based studies that we can gain a comprehensive, more accurate understanding of factors that affect the contraceptive and sexual behaviors of the couple. Further, only in a couples-based study can we assess whether accurate conclusions about a couple's sexual and contraceptive behaviors can be obtained from one-sex studies (i.e., studies based only on the reports of men or of women).

The purpose of this paper, then, is to better understand adult dating couples' sexual and contraceptive behaviors that are risk factors for HIV and STDs by adopting a couple's perspective. Specifically, using data from the recently completed National Couples Survey, we include personal and relationship characteristics as reported by each partner of the dating couple in our models to examine how the female and male's partner reports are related to reports of sexual risk taking and whether the female or male's reports are more influential. We also investigate whether we would come to the same conclusion about the impact of various factors if we had only male reports or female reports. The two measures of sexual risk taking examined here are: whether the couple did anything during the four weeks prior to interview to protect themselves from STDs; and whether the couple had anal sex during the four weeks prior to interview.

The analyses performed in this paper have two other distinguishing characteristics that move beyond the more usual study of risk taking behavior in which a standard set of socio-demographic characteristics are included as predictors and toward a more innovative, insightful approach in which other aspects of the sexual relationship and partner characteristics are considered. First, we include measures of the respondent and partner's prior sexual risk taking behaviors and perceptions of AIDS risk and severity, and examine the extent to which these framing events and perceptions of risk and severity mediate the impact of the respondent and partner's background characteristics on reports of sexual risk taking. Second, and most importantly, we take power in the couple's relationship explicitly into account and examine how relationship power, defined along several dimensions, moderates (conditions) the impact of the respondent's or their partner's characteristics on the sexual and contraceptive behaviors in which they engage. We also examine how beliefs about their level of control over sex and contraception moderates the effects of respondent and partner characteristics on the behaviors in which couples engage.

Background

Most theories and empirical models of sexual risk taking focus on the individual's sexual behavior and attitudes (DeLamater & Hyde 2004). Although not inherently precluded from doing so (see below), current theoretical models of health behavior (e.g. Ajzen & Fishbein 1980; Ajzen & Madden 1986; Bandura 1977; Becker 1974; Prochaska, DiClemente, & Norcross 1992), as well as theories specifically focusing on HIV-related behavior (e.g. Catania, Kegeles, & Coates 1992; Fisher & Fisher 1992), are conceptualized at the individual level and typically fail to consider the partner and a couple's relationship as important to STD risk behavior. Typically, the models are presented with the assumption that sexual behaviors are controlled totally by the individual, even though it is now readily held that individual knowledge, perceived susceptibility, or even skills in using condoms do not sufficiently describe the contextual factors that prevent men and women's ability to engage in safer sex (Amaro 2000).

One reason for this individualistic conceptualization and determination of sexual behavior is the lack of data. Relatively little research has been based on couples, where reports are obtained from both partners. At most, we obtain information about the partner's characteristics, behavior and attitudes from

the index respondent and almost never from direct reports of both the index respondent and her or his partner. The few studies that have had couples data are small, purposive samples that focus mainly on white, middle-class, or college-aged couples (e.g., Blumstein & Schwartz 1983; Christopher & Cate 1985; Harvey et al. 2002; Ochs & Binik 1999; Peplau, Rubin & Hill 1977; Seal 1997). Further, most of these studies using couples data are restricted to married couples and tend to focus not on sexual behavior and sexual decision-making, but instead examine fertility behavior and intentions, and occasionally contraceptive use and contraction of an STD (e.g., Beach et al. 1982; Beckman 1984; Beckman et al. 1983; Clark & Swicegood 1982; Downs 1977; Fried & Udry 1979; Green & Biddlecom 2000; Miller & Pasta 1996; Miller et al. 1985-86, 1986, 1991, 1993; Severy & Silver 1993; Shain et al. 1985; Sobel & Arminger 1992; Thomson 1989, 1990, 1995, 1997; Thomson & Williams 1982; Thomson et al. 1988).

Increasing numbers of researchers are beginning to stress the importance of relationship characteristics and their association with STD/HIV risk (e.g. Amaro & Raj 2000; Brown, Feiring, & Furman 1999; Katz et al. 2000; Kelly & Kalichman 1995; Ku et al. 1994; Logan, Cole, & Leukefeld 2002; Noar, Zimmerman, & Atwood 2004; Soler et al. 2000; Sheeran, Abraham & Orbell 1999). This includes characteristics such as length and type of relationship (Katz et al. 2000; Ku et al. 1994), gender and power dynamics within relationships (Amaro & Raj 2000; Logan et al. 2002; Pulerwitz, Gortmaker & DeJong 2000; Soler et al. 2000), and partner support of condom use (e.g., Sheeran, Abraham & Orbell 1999). Most of these studies, however, are limited in their findings due to the very specific populations (e.g. young adult females and males aged 13-24, minority-focused) available for analysis. In addition, none of these studies takes into consideration reported behavior from both partners.

An exception to these generalizations is the “couples sample” of Wave III of the National Longitudinal Study of Adolescent Health in which 1,500 Add Health respondents recruited their romantic partners (married, cohabiting and dating) to complete the same interview as they (see Harris 2005). However, although an exceptionally rich database, Add Health lacks measures of couple sexual decision making and relationship power that are available in the data set we use here.

There are many reasons why it is necessary to have the requisite data and to adopt a couples perspective to gain an in-depth understanding of sexual behavior in general and sexual risk taking in particular. First, most sexual behavior is experienced and expressed within a close relationship and can not be separated from that relationship (Christopher & Sprecher 2000; DeLamater & Hyde 2004). Using information from both partners in sexuality research allows the examination of individual and relationship variables that combine to determine interdependent decision making (Becker 1996; Gomez & Marin 1996; Miller & Pasta 1996; Severy & Silver 1993). That is to say, a couple's collective sexual behavior is the result of some level of interaction between the couple, interaction that may not be captured by one-sex models (i.e., based only on the reports of men or women)(Agnew 1999; DeLamater & Hyde 2004).

Second, relying on reports from only one partner forces one to draw conclusions about a couple's behavior based upon that person's reports. In those studies that have collected heterosexual couple data, we know that for a wide range of topics including sexual behavior there is some disagreement between partners on both objective characteristics and factual behaviors in which the couple presumably engaged in together, and on attitudes that logically can differ between partners (see e.g., Bachrach et al. 1992; Becker 1996; Clark & Wallin 1964; Ellish et al. 1996; Firkree et al. 1993; Julien et al. 1992; Neal & Groat 1976; Ochs & Binik 1999; Padian et al. 1995; Seal 1997; Tanfer et al. 1998; Thomson 1989). Using only male reports or female reports of couple behaviors therefore can lead to a distortion of the behaviors in which a couple engages and the individual and joint attitudes of the partners that drive those behaviors. Further, proxy reports obtained from a respondent on the behavior or attitudes of his or her partner may be inaccurate (Miller 1994). Data on the partner's characteristics, attitudes, and perceptions of the relationship can be more accurately obtained from the partner (Ochs & Binik 1999).

Third, adopting a couples perspective is also conducive to collecting and analyzing data that include such potentially important factors affecting sexual risk taking as the respondent and partner's prior risk taking behaviors and perceptions of AIDS risk and severity, as well as power within the relationship. In general terms, power refers to the relative ability of one partner to act independently, to dominate decision making, to engage in behavior against the other partner's wishes, or to control a partner's actions (Pulerwitz et al. 2000). Power plays a role in determining what, when and how sexual

and contraceptive behaviors take place (Vohs et al. 2004). Despite the norm of egalitarianism in romantic relationships in the U.S. (Peplau et al. 1977), power imbalances occur in heterosexual relationships (Sprecher & Felmlee 1997). One source of power differences between partners is gender role ideology, since gender role ideology can define the decision making domains or roles reserved for male and female partners (Lucke 1998; Ostovich & Sabini 2004; Shearer et al. 2005). To our knowledge, no study has examined the gender role ideology of both partners and how they together determine a couple's sexual risk taking behavior. Nor has this factor been considered jointly with other dimensions of power within the relationship, such as income and education, and power associated with the nature of the couple's relationship (e.g., commitment, relationship alternatives, and compliance gaining strategies) that have sometimes, albeit infrequently, been investigated as factors affecting the negotiation of safer sex and HIV/STDs (Agnew 1999; Cohen et al. 1991; Fullilove et al. 1990; Gomez & Marin 1996; Pulerwitz et al. 2000). In this paper, we examine how power weights the decision making process toward one partner or the other by elevating or reducing the importance of a person's beliefs or characteristics. Power differences between partners in gender role ideology, structural power (income and education), commitment, relationship alternatives and compliance gaining strategies can also lead to differences in beliefs about level of control over sex and contraception. Hence, we also examine how beliefs about their level of control over sex and contraception moderates the impact of the respondent's or their partner's characteristics on the couples' sexual risk taking behaviors.

Conceptual Framework

Our understanding of the determinants of sexual risk behaviors is complicated by a number of factors. Sex can be motivated by both pleasure and procreation, and it can have undesirable outcomes including contracting HIV and unwanted pregnancy. Avoiding these undesirable outcomes does not come without costs. For instance, growing concern about AIDS and STDs has led to increased motivation to use condoms because they reduce the risk of infection, but using condoms may also increase the risk of unwanted pregnancy for men's partners and potentially reduces both partners' sexual pleasure. Thus, the choices people make about their sexual behavior require them to balance competing risks and needs. The entire process is further complicated by the imperfection of existing prevention

measures, uncertainty about one's seropositive status, the likelihood of HIV transmission, survival after HIV infection, the likelihood of an unintended pregnancy, and motivation and success in seeking and obtaining appropriate health care.

Here we present a conceptual model that helps inform us about respondent, partner and relationship characteristics that affect a couple's STD/HIV risk taking behavior. Our model is grounded in a conceptual framework that is a synthesis of elements drawn from two theoretical choice perspectives that are often used in analyses of health behaviors, the Subjective Expected Utility model (SEU) and the Health Belief (HBM) model (see Janz & Becker 1984; and Jaccard 1980), along with the Social Exchange theory (Emerson 1962, 1972, 1981) that posits that discrepancies in goals among individuals are resolved through the exercise of relative power within the relationship. The SEU and HBM models provide mechanisms to explain an individual's sexual and contraceptive decision making, while Social Exchange theory explains the role in decision making of partner status and power differences. Both the SEU and HBM models posit that individuals consider the potential outcomes of their choices or actions, their utility (value) or disutility the individual will experience if a particular outcome occurs, and the likelihood (expectancy) that specific choices will lead to a given outcome. The decision maker optimizes by selecting the action that maximizes the expected utility, or the probability weighted sum of the utilities of the various outcome states. Thus, the SEU model implies that in deciding what types of sex to have or contraception to use, an individual assesses both the probability of experiencing each of a number of sex and contraceptive-related outcomes (e.g., pleasure, pregnancy, or STD/HIV infection) and the implication of each outcome.

An important distinction between the SEU and HBM models is that the HBM model more thoroughly considers the process by which people form their perceptions of risk (probabilities that the outcome states will occur when a specific action is taken) and severity (valuations of outcome states). Specifically, the HBM model posits that an individual's personal characteristics and prior experiences (framing events or cues to action) influence how an individual forms her or his perceptions about the risk and valuations of potential outcomes of action. In the context of a model of STD/HIV risk behavior, the HBM model predicts that personal characteristics, such as race and ethnicity, and framing events, such

as previous engagement in risk behavior, influence perceptions about the risk and severity of acquiring HIV or another STD. Since sexual and contraceptive decision making may also be influenced by one's partner, it is important to consider the characteristics and attitudes of both couple members. In particular, there are reasons to suspect that perceptions and valuations may differ for men and women. For example, men may feel less vulnerable to HIV risks than women because female-to-male HIV transmission rates are lower than male-to-female transmission rates, and fewer women than men are currently carrying the HIV virus. In our analyses, then, we include a number of personal attributes and framing events of both the female and male partner that are likely to influence perceptions of the risk and severity of potential sexual and contraceptive behavior outcomes.

The SEU and HBM models do not provide any insight into when and what sexual and contraceptive behaviors the couple will engage in if their perceptions differ. We therefore draw on Social Exchange theory because it deals directly with the dyadic relationship, examining the structure of interpersonal exchange and its consequences. An actor's relative power in a relationship is expressed in decision making dominance and in the ability to take actions against a partner's desires. The distribution of power in the relationship is based on such factors as the quantity of valued resources (e.g., money) one partner has relative to the other, the dependence of one partner on the other for the resources, and whether partners perceive alternative sources for the resources outside of the relationship. Relative power will be greater when one has more of the valued resources, the lower the dependence on the relationship, or the more perceived alternatives there are to the relationship. Importantly, the more powerful partner's preferences will have a greater impact on decision making than will those of the less powerful partner. So the greater a partner's relative power, the larger the effect of his or her characteristics on the couple's sexual behavior and contraceptive choices.

The relevant sources of power described earlier are based on Social Exchange theory. Structural power may arise from individual characteristics that are linked to inequality in the larger social structure, such as education or income. Power imbalances also emerge from differences between partners in their level of commitment to the relationship. A more highly committed partner will be relatively more dependent, and thus less powerful in sexual decision making. Similarly, when individuals believe they

have little trouble in attracting potential partners, they will perceive more alternatives to their current partnership, be less dependent on it, and thus have greater power over decision making. Dependency, and thus power, in a relationship also may vary by one's gender role orientation. Individuals who have a liberal gender role orientation are more likely to adopt traits and behaviors that are non-traditional for their gender (Presser 1994; Ross 1987). As such, partners who have a liberal gender role orientation will have more balanced dependencies in their relationships, and each partner's sexual preferences will have a similar level of influence in the decision making. In contrast, in a traditional gender role orientation where women engage in family care roles and men engage in economic provider roles, the man's power may be higher and decisions about sex may therefore be more strongly influenced by his preferences. A final source of power are the compliance gaining strategies (e.g., manipulating, bullying, distancing bargaining) used by each partner when negotiating decisions and wanting the other partner to do something he or she does not want to do (Blumstein and Schwartz 1993; Howard et al. 1986).

Data and Study Population

The data used in this paper are from the National Couples Survey (NCS). These data were collected in two on-going NIH-funded studies by which we are currently examining couples' contraceptive decision making. Completed interviews were obtained from both partners of 414 married couples, 259 cohabiting couples and 337 dating non-cohabiting heterosexual couples (2,020 individuals), where the female is age 20 to 35 years and the male is age 18 or older. Other eligibility criteria are that the female is not currently pregnant, postpartum, or trying to get pregnant. Only data for the 337 dating couples are used here.

The survey used computer-assisted self interviewing (CASI) to collect data from an area probability sample of household residents in four cities and the county subdivisions immediately adjacent to them: Baltimore, MD; Durham, NC; St. Louis, MO; and Seattle, WA. These four cities were chosen for substantive and pragmatic reasons. On the pragmatic side, these cities are where Battelle has survey research offices, making the survey much more cost efficient. On the substantive side, these sites provide diverse populations with respect to race, ethnicity, economic status and other factors influencing sexual and contraceptive decision making. Within the four study sites, we stratified segments by percent

black and oversampled segments with high minority concentrations to obtain the desired allocation of black and nonblack couples across the four sites. Participants were recruited through door-to-door visits from female interviewers.

During the survey effort, 65% of households were successfully rostered for eligibles, with potential eligibles respondents located in 27% of rostered households. Where more than one age-eligible couple and/or unattached adult was present, we randomly selected a couple or unattached adult and screened them for eligibility. If the selected person was married or cohabiting, we screened the female partner in the couple for eligibility, and had an 83% screening rate. If the selected person was a dater, the selected (focal) respondent was screened first, and then we screened his/her nonresident partner prior to establishing the couple's eligibility. Eligibility screening was completed for 79% of focal respondents. If the focal dating respondent met the eligibility criteria, field interviewers then asked the focal respondent to recruit his/her dating partner. Due to human subjects concerns, dating partners were recruited indirectly, by the focal respondent and not by us. If the focal respondent's dating partner agreed to be contacted, the field interviewer administered an eligibility screener, which was completed with 77% of the focal respondents' partners. Overall, 72% of eligible married/cohabitating couples completed the survey, and 94% of eligible dating couples completed the survey.

At the interviewing stage, partners were scheduled to take the survey contemporaneously, usually at their residence. The questionnaires for males and females are nearly identical. Field interviewers took two laptop computers to the home and set up the partners in separate spaces for the interview. Respondents were restricted from communicating with each other about their answers. The computer-assisted survey allowed us to capture and resolve many data inconsistencies during the interview process. Overall, the rostering, screening, and interview response rates are respectable, given the heavy burden of the survey on the participants, in that each member of the couple was asked to provide rather sensitive information about their private lives. Further, the requirement that both partners had to agree to participate also increased the chances for refusal, particularly among daters who had to recruit their non-resident partner for us, telling that person that s/he wanted to provide us with information about their sexual relationship and convincing the partner to do the same.

The analysis weights used in this study were separately constructed for each of the four study sites, with the sampling weights reflecting the probability of selection of each sampled address and of the couple sampled from that address (if any) and then adjusting these weights to account for nonresponse. When data from all four sites are used together, as in this study, the weights are readjusted such that each site has an equal impact on the analysis. To facilitate this approach, we created a combined weight by adjusting each site's weights so that they summed to a common population total.

Measurement

Outcome Measures

In this paper we focus on two couple behaviors as outcomes that increase a person's risk of HIV/STD infection: 1) whether the couple had anal intercourse during the four weeks prior to interview (anal sex); and 2) whether the couple did anything during the four weeks prior to interview to protect themselves from STDs (STD protection).

The first outcome focuses on anal sex, whereby HIV is more easily contracted than by vaginal or oral intercourse (Halperin 1999; Mayer and Anderson 1995; Silverman and Gross 1997). Even though anal intercourse is generally recognized as a riskier sexual behavior in terms of HIV transmission, especially in men who have sex with men, it has received little attention in heterosexual populations. It is possible for either sex partner, no matter the sexual orientation, to become infected with HIV during anal intercourse. In general, the person receiving the semen during anal sex is at greater risk of getting HIV because the lining of the rectum is thin and may allow the virus to enter the body during anal intercourse. However, a male who inserts his penis into an infected partner also is at risk because HIV can enter through the urethra or through small cuts, abrasions, or open sores on the penis. STDs (e.g. herpes simplex virus, gonorrhea, HPV, syphilis, and chlamydia) can also be spread through anal intercourse when blood, semen, or fluid is shared (CDC 1996). Whether the couple had anal sex is based on a direct question about this behavior in the last four weeks and is defined as a dichotomy. Twenty-two percent of females and 26% of their male partners reported engaging in that behavior with their partners.

The second outcome focuses on the couple's condom use that can have a direct effect on their risk of contracting STDs, including HIV, as well as making decisions about sexual practices that lower

HIV/STD risk. It is derived from direct questions of whether the respondent and their partner actually decided to do anything in the last four weeks in terms of STD protection, and if so, what they did. Based on responses to these questions, we define a trichotomous measure with categories: "did nothing to protect themselves"; "used condom"; and "other" (decided not to have sex with other partners, decided to have fewer partners; decided to have sex with each other less often, and decided not to have certain kinds of sex that are more risky). The third category of the outcome thus pertains to decisions about sexual practices that have been shown to reduce the risk of STD/HIV infection (CDC 2006; Beadnell et al. 2005; Finer et al. 1999; Laumann et al. 1994; Maticka-Tyndale 1997). In our sample of dating couples, 63% of females and 61% of their male partners reported doing nothing to protect themselves from STDs in the last four weeks; 29% of females and 32% of males reported using the condom; and 8% of females and 7% of males reported doing something else that involved decisions about their sexual practices.

Personal, Partner and Couple Demographic and Social Characteristics

Respondent and partner socio-demographic characteristics include: age (in years); race/ethnicity (measured as a series of dummies defining three categories: Hispanic, non-Hispanic black, and non-Hispanic other); completed education (in years); personal income (logged) during the last calendar year; and religiosity (a dichotomy defined as not religious at all vs. somewhat or very religious). We also include mother's education and father's education (measured as a series of dummies defining five categories: less than high school, high school complete, some college, college complete, and "no man[woman] who mostly raised you"). Finally, we include duration of the relationship, measured as the number of months between the date when the partners began "seeing each other on a regular basis" and the date of the interview.

Framing Events

Personal framing events are prior experiences or behaviors that may affect an individual's subsequent HIV/STD risk taking behavior. Five important respondent and partner personal framing events are examined in our analyses. The first is the number of sex partners the female and male report having had in their lifetime. This is an interval level measure truncated at the point where the distribution

becomes highly skewed. The second measure is the female and male's age at first intercourse (in years). It is based on the respondents' reported month and year of first voluntary vaginal intercourse, if known, or a follow-up question on respondent's age when they first had voluntary vaginal intercourse if they could not recall the date. Based on direct questions, we also define two dichotomous measures of whether the respondent had a prior STD infection (prior to first having sex with her or his current partner) and whether she or he had ever personally known someone with AIDS. The fifth framing event is a measure of the contraceptive method that each partner used the first time they ever had voluntary intercourse. This measure of method used at first sex focuses on method use for disease protection and has the following collapsed categories: "condom" (male or female condom with or without another method); "effective method for pregnancy prevention" (pill, sterilization, IUD, Depo Provero, Implant); and "less effective method (all other methods) or no method."

Perceptions of Risk and Severity of AIDS

We measure the respondent and partner's perceptions of AIDS risk with two interval-level variables. The first is based on the respondent and partner's reply to, "What do you think is the percent chance (between 0 and 100) that a man will get AIDS if he has intercourse only once without using any contraception with a woman who has AIDS or the virus that causes AIDS?" The second is based on replies to, "What do you think is the percent chance (between 0 and 100) that a woman will get AIDS if she has intercourse only once without using any contraception with a man who has AIDS or the virus that causes AIDS?" Respondents and partners' perception of AIDS severity is based on a set of questions asking for level of agreement to eight statements about how bad it would be to get AIDS, with agreement provided on a 5-point scale ranging from 1="very strongly disagree" to 5="very strongly agree." These statements take the form of: "People who get AIDS always develop many painful symptoms." Responses to the eight statements were summed into a scale (with some question scale-scores reversed for consistency) such that higher score indicated greater perceived severity.

Relationship Power

As discussed above, we include multiple measures of power so as to capture its multidimensional nature in relationships (Pulerwitz et al. 2000). Among these underlying sources of power are measures

of the respondent and partners' structural power based on their education and income (defined above). Another dimension on which power is based is relationship commitment, with the less committed partner being more powerful. To tap relationship commitment we use two measures. The first is based on responses to the question: "Compared to your partner, who is more committed to making your relationship last?" (with responses ranging from 1="definitely me" to 5="definitely him/her"). The second is based on responses to the question: "Compared to your partner, if it ever ended, who's more likely to end your relationship?" (with the same 5-point response categories). Another related power dimension is relationship alternatives, with those who have more alternatives to their current relationship having more power. Relationship alternatives are based on responses (1="impossible" to 4= "certain") to three questions: 1) "If you broke up this month, how likely is it that you could find another partner better than him/her?"; 2) "…how likely is it that you could find another [husband/wife/partner] as good as [him/her]?" and 3) "…how likely is it that there are many other men/women you could be happy with?" Responses to these questions were factor analyzed to construct a scale of relationship alternatives for each partner, ranging from few perceived alternatives to many perceived. We measure gender role ideology using a set of questions asking for level of agreement to eight statements about "the roles of husbands and wives," with agreement provided on a 5-point scale ranging from 1="very strongly disagree" to 5="very strongly agree." These statements take the form: "Husbands and wives should spend equal time raising the children;" and "A wife's career is less important than her husband's." Responses were used to construct a summative scale (with some question scale-scores reversed for consistency) ranging from 8 to 40, with higher scores indicating greater traditionalism. Finally, we include two variables capturing the compliance-gaining strategies used by the respondent and his/her partner. Each is based on responses to six questions about specific tactics used. Using a 9-point scale ranging from 1="never" to 9="always," respondents were first asked about how often their partner uses specific tactics, such as: manipulation, bullying and distancing. They were then asked about the tactics that they use with their partner, using parallel questions and the same response set. Responses were factor analyzed to form two scales, one for the respondent's strategy and one for the respondents' reported partner's strategy. More positive values on the scales mean that stronger tactics are used.

Level of Control Over Sex and Contraception

As discussed above, power differences between partners in gender role ideology, structural power, commitment, relationship alternatives and compliance gaining strategies can also lead to differences in beliefs about level of control over sex and contraception. We measure control over sex using a set of questions asking for level of agreement to 10 statements about the extent to which the respondent takes control over the sexual activity of the couple, with agreement provided on a 5-point scale ranging from 1="very strongly disagree" to 5="very strongly agree." These statements take the form of: "I often take the initiative in beginning sexual activity;" and "I feel it is difficult to get my partner to do what makes me feel good during sex." Responses were used to construct a summative scale (with some question scale-scores reversed for consistency), with higher scores indicating greater control over sex. Similarly, we measure control over contraception using a summative scale that is based on three questions (each ranging from 1="very strongly disagree" to 5="very strongly agree") that take the form: "My partner makes most of the decisions about what birth control the two of us will use." Higher values of this scale mean that the respondent's partner is more in control of contraception in their relationship. A final composite measure of control over sex and contraception is based on four additional questions about "who usually makes the final decision about": "when to have sex"; "what the two of you do when you have sex"; "whether you use birth control at any particular time when you have" sex; and "what kind of birth control to use." Responses range from 1="I always decide" to 5="He/she always decides." Responses were factor analyzed to form a scale of decisions about sex and contraception, with higher values indicating that the respondent's partner is more likely to make the decisions.

Means and standard deviations for all variables used in our analyses are presented in Table 1.

[Table 1 about here]

Analytic Approach

We have pairs of individuals in our sample of couples. To maintain the couple as the unit of analysis and to be able to assess the impact of each partner's characteristics on the couple's sexual risk taking behavior, we select one member (the female partner) as the index respondent. We then examine how her characteristics/reports and her male partner's characteristics/reports are related to her report of

each of our two sexual risk taking outcomes. Multivariate models of each outcome are estimated in four stages.

First, we estimate a model that includes only the respondent's and her partner's demographic and social characteristics (i.e., age, race/ethnicity, education, income, religiosity, and mother and father's education) as reported by the respondent and her partner, and relationship duration as reported by the female. For simplicity, we then trim all non-significant coefficients from the model, after estimating numerous models to gain a thorough understanding of the interplay of the variables in accounting for the outcome and ensuring that no variable is inappropriately dropped from the model. To maintain a minimum level of socio-demographic background control, relationship duration and the index respondent's age and ethnicity are retained regardless of significance level.

The first model provides an understanding of the total effects of the female's and her partner's socio-demographic characteristics on the outcome. In the second stage of model estimation, we add respondent and partner measures of the framing events and perceptions of risk and severity of AIDS to the model and examine their effects on the outcome and the extent to which they mediate any effects of the respondent and her partner's socio-demographic background characteristics. Recognizing that framing event effects might also be mediated by perceptions of risk and severity of AIDS, we estimate numerous models to examine the interrelationship between the framing events and perceptions variables. For simplicity, however, in our tables we present the results of adding the framing events and perceptions of risk and severity of AIDS variables as a group, after ensuring that no framing events were unduly deleted from the models because their effects are mediated by one or more of the perceptions measures.

In the third stage of model fitting, we interact each of the respondent and partner socio-demographic characteristics, framing events and perceptions of risk and severity of AIDS variables in Model 2 with each of our power measures. This tells us the extent to which relationship power weights the decision to engage in the sexual risk taking behavior toward one partner or the other by increasing, reducing or eliminating the importance of the respondent's or her partner's beliefs or characteristics. During this stage, we also test for significant interaction effects between the power measures and

measures of the respondent and her partner's socio-demographic background, framing events, and perceptions of risk and severity of AIDS that were previously dropped from the model. We do so because it is possible that some of these beliefs and characteristics exhibited no significant main effects on the outcome because their effects are conditional on the respondent's or her partner's power. This stage of the model fitting process thus necessitates estimating many models. To simplify, we first test for significant interaction effects within each of the five power domains. We then combine the significant interactions found within each power domain into a single model and estimate numerous specifications of this model to derive a final model. This final model includes the set of significant power interaction terms, from all power domains, that most succinctly describes how relationship power conditions the effects of respondent and partner characteristics on the outcome.

In the fourth and final stage of model fitting we follow the same procedures as in stage 3, except we test for significant interactions between each of the respondent and partner socio-demographic characteristics, framing events, and perceptions of risk and severity of AIDS and our measures of the respondent's and partner's beliefs about their control over sex and contraception decision making. That is, we derive a model that tells us how beliefs about their level of control over sex and contraception moderates the effects of respondent and partner characteristics on the outcome. We then compare the models in stages 3 and 4 to see how similarly measures of relationship power and measures of beliefs about controlling sex and contraception predict the couple's risk taking behavior.

Models of our dichotomous measure of anal sex are estimated using the logit procedure in STATA. Models of the STD protection trichotomy are estimated using the multinomial logit procedure.

A final task in this paper is to assess whether accurate conclusions about a couple's sexual risk taking behaviors can be obtained from one-sex studies (i.e., studies based only on the reports of men or of women). To do so, we define the male partner as the index respondent and specify exactly the same models of the effects of male and female partner characteristics, and power and control interactions, as were derived in the models where the female is the index respondent. Comparing the effect coefficients in these two sets of models tells us whether we would come to the same conclusion about the impact of various factors if we had only male reports or female reports.

Results

Anal Sex

The models predicting the likelihood (log-odds) that the couple had anal sex in the last four weeks, as reported by the female, are presented in Table 2. The first column of the table shows the effects of the female's and male's socio-demographic characteristics on the risk of having anal sex. Few of the socio-demographic characteristics considered have statistically significant effects. Couples where the female is Hispanic are more likely than couples where the female is non-Hispanic black or non-Hispanic other to have had anal sex. All of the other variables that are significant are measures of socioeconomic status (SES). Both the female and male's education negatively affect the risk of having anal sex, as does the male's income and his father's education. It appears then that anal sex is a behavior practiced by couples of lower as opposed to higher SES. The age and religiosity of the female or her partner, and duration of the couple's relationship, exhibit no significant effects.

[Table 2 about here]

The second column of the table considers the effects of framing events and perceptions of risk and severity of AIDS. Two of these types of measures significantly affect a couple's risk of having anal sex. The more sex partners a female has had in her lifetime, the more likely she is to report having had anal sex in the last four weeks, suggesting that prior risk taking behavior is related to subsequent risk taking behavior. Net of this effect, the higher a woman's perception of risk of getting AIDS, the less likely she is to have had anal sex. We might imagine that people with lower education and lower SES overall are less likely to perceive the risks of engaging in risky sexual behaviors, and more likely then to engage in risky behaviors, such that these effects mediate the negative effects of SES on anal sex observed in the first column of the table. However, evidence of any mediating effects of framing events and perceptions of risk is rather weak. Controlling for these effects reduces the effects of the male partner's education and income to non-significance, but the female's education remains a strong and significant predictor, as does the male's father's education. We should also note that once the personal, partner and relationship characteristics reported in column 2 are entered into the model, no other personal,

partner and relationship characteristics considered in these analyses are significantly related to the female's report of having anal sex in the last four weeks.

We next consider the impact of relationship power on a couple's practice of anal sex (column 3). We find some very interesting interaction effects. The "alternatives X % chance woman AIDS" coefficient says that the negative effect on anal sex of the female's perception of AIDS risk increases when she perceives more relationship alternatives, and hence has more power. Note also that the negative effect of her education is weakened and becomes non-significant, suggesting that a woman's perception of risk does mediate the effect of her education but only when the female is powerful enough for her perceptions to control the sexual situation. In this model, the positive effect of the female's Hispanic ethnicity becomes stronger, suggesting some suppression until relationship power is taken into account.

When taking relationship power into account, the male's father's education continues to have a negative effect on having anal sex. The main effect terms for the male partner's education and income are not by themselves interpretable since they are involved in complex interactions with the male's perception of AIDS risk and knowing someone with AIDS. The interactions have two possible interpretations. When education and income are thought of as measures of structural power, the "education X % chance woman AIDS" coefficient says that the more power (education) the male has, the greater the negative effect on anal sex of his perception of AIDS risk. Similarly, the "income X known someone with AIDS" coefficient denotes that the more power (income) the male has, the greater the negative effect on anal sex of his knowing someone with AIDS. These results are consistent with our expectation that a person who knows someone with AIDS and has a higher perception of risk of acquiring AIDS should be less likely to engage in anal sex, and these effects should be stronger when the person has greater power in the relationship. The alternative interpretation is to continue to regard education and income as measures of socioeconomic status. In that case the "education X % chance woman AIDS" and "income X known someone with AIDS" coefficients mean that the higher the male's SES, the greater the negative effect on anal sex of his perception of AIDS risk and knowing someone with AIDS. This also makes sense if we think of education and overall SES as increasing a person's knowledge about the AIDS risk associated with engaging in anal sex and if it is not until the person

reaches a certain threshold of knowledge that knowing someone with AIDS and perceiving a higher threat of AIDS is more directly associated with engaging in anal sex.

Finally, column 3 of the table reveals a significant main effect of the male's report of his gender role ideology. Note that we conceptualized all of our dimensions of power, including gender role ideology, as weighting the impact of a person's beliefs and preferences and therefore as an interaction term and not as a main effect. In effect, however, it appears that gender role ideology interacts with gender. That is, the main effect of gender role ideology shown here suggests that overall males have a stronger preference for anal sex than females and that more traditional males are more likely than less traditional males to engage in anal sex.

Column 4 of Table 2 substitutes our measures of power with measures of reported control over sex and contraception to examine how the female and her partner's beliefs about their level of control over sex and contraception moderates the effects of respondent and partner characteristics on the risk of having anal sex. The results are similar to those obtained in column 3. Overall, the couple is more likely to have had anal sex in the last four weeks if the male decides about sex and contraception, as reported by the female partner. As in column 3, then, it appears that males have a stronger preference for anal sex than females. Note that our measures of "decisions about sex and contraception," "control over sex," and "control over contraception" are multiple indicators of control over sex and contraception, albeit tapping slightly different dimensions of control. Therefore, it is not inconsistent in the model to find a significant, positive main effect on anal sex of "decisions about sex and contraception," as reported by the female, and also to find a significant interaction between the "control over sex" measure and the female's reported perception of the severity of AIDS. This interaction means that the negative effect on anal sex of her perception of the severity of AIDS increases with her perceived level of control over sex in the relationship.

The female's partner's perception of control over sex is also important. The significant "control sex X % chance man AIDS" interaction says that the negative effect on anal sex of the male's perception of AIDS risk increases when he thinks he has more control over sex. Similarly, the significant "decides X known someone with AIDS" coefficient denotes that when the male thinks his partner makes the

decisions about sex and contraception, his knowing someone with AIDS has little effect on engaging in anal sex. However, when he reports that he is more likely to decide about sex and contraception, his knowing someone with AIDS significantly reduces the risk of the couple's having anal sex.

As in the column 3 model specification, there is a negative effect of the male's father's education on having anal sex and a positive effect of the female's Hispanic ethnicity. When control over sex and contraception is taken into account, neither the male's reported education or income has an effect on having anal sex. However, the female's reported education has a significant negative effect on the outcome. Thus, regardless of the model specification, there is evidence that lower SES couples are more likely to engage in anal sex. Finally, as in the previous models, the number of sex partners the female reports having in her lifetime positively affects her risk of having had anal sex in the last four weeks (albeit this effect is not significant in the model 3 specification) and her perception of the risk of acquiring AIDS negatively affects her likelihood of having anal sex (albeit conditioned by her relationship alternatives in the model 3 specification).

STD Protection

The multinomial logit models of the likelihood that the couple used the condom in the last four weeks to protect themselves from STDs, as opposed to doing nothing, and the likelihood that they decided to engage in less risky sexual practices, as opposed to doing nothing, are presented in Table 3. The first broad column of the table shows the effects of the female's and her partner's socio-demographic characteristics on the risks of using the condom and deciding to engage in less risky sexual practices. Couples who have been in their relationships longer are significantly less likely to have used the condom and more likely to have done nothing to protect themselves from STDs in the last four weeks. This is consistent with previous findings showing that if a sexual relationship lasts over a period of a few months, condom use becomes less consistent or stops altogether, presumably because partners begin to know each other better and there is a reduced perceived risk of acquiring an STD (Bankole, Darroch & Singh 1999; Harvey et al. 2006; Katz et al. 2000; Ku, Sonenstein & Pleck 1994 Maticka-Tyndale 1997; Posner et al. 2001). Couples where the female is black are significantly more likely than couples where the female is non-Hispanic other to have used the condom. This, too, is

consistent with previous findings of a higher likelihood of condom use among blacks (see, e.g. Tanfer et al., 1993). A standard interpretation is that blacks perceive themselves at higher risk of HIV and other STDs than whites because of a higher disease prevalence within their racial group. The only other socio-demographic characteristic in the model that significantly affects condom use is the male partner's education. Its negative affect also suggests a lower perceived risk of STD and HIV infection among those with more education or with higher SES. Similarly, race of the female partner (being black) has a significant positive effect on the likelihood that the couple decided to engage in less risky sexual practices in the last four weeks, and the male partner's education and income negatively affect this likelihood. The age, religiosity and parental education of the female or her partner have no significant effects on STD protection in the last four weeks.

[Table 3 about here]

The second broad column of the table considers the effects of framing events and perceptions of risk and severity of AIDS. Only one of the many types of these measures that we tested for inclusion in the models significantly affects a couple's STD protective behaviors in the last four weeks. The more sex partners the female partner has had in her lifetime, the more likely she is to report that she and her partner either used the condom or decided to engage in less risky sexual practices in the last four weeks, as opposed to doing nothing. This finding is consistent with the notion that a woman with a history of having many sex partners better understands that she and her current partner may be at higher risk of STD or HIV infection because of her past history and therefore that they need to use the condom or alter their sexual practices that may have led to STD infection or the fear of STD infection in the past. In this case, then, prior risk taking behavior does not lead to subsequent risk taking behavior, but rather serves as "lessons learned" and actions to better protect herself and her partner from infection now. In short, the positive effect of this variable suggests that the number of sex partners a woman has had alters her perception of risk of HIV/STD infection. Interestingly, none of our direct measures of the female's or male's perception of risk and severity of AIDS significantly affects the couple's STD protective behaviors, regardless of the model specification. Most importantly, none of the framing events and perception of risk and severity measures appreciably attenuates (mediates) the positive effect of the female's race and

the negative effects of the male partner's education and income reported in column 1. Thus, if being black and lower SES do increase a couple's perceived risk of STD infection, this is not immediately being captured with the perceptions of AIDS risk and severity measures available for this study. One possible explanation for the negative effects of the male partner's education and income is that, as shown earlier, couples with lower SES are more likely to have had anal sex in the last four weeks. Because of this sexual practice, they may have been more likely to use the condom or to decide to engage in less risky sexual behaviors like anal sex.

Column 3 of Table 3 reports the results of our investigation of the effect of relationship power on the couple's STD protection in the last four weeks. As in our findings on anal sex, there are some very interesting interaction (power) effects on this outcome. First, considering using the condom vs. doing nothing in the last four weeks, the "ideology X black" coefficient for the female partner says that when a black female has a very traditional gender role ideology (and hence, less power) the couple is far less likely to use the condom than when she has a liberal gender role orientation with more balanced dependencies in the couple's relationship. This suggests that although overall blacks are more likely to use the condom than whites, among blacks, more powerful females are more insistent that their partners use the condom. The "education X perception severity" coefficient for the female partner denotes a positive effect on using the condom of the female's perception of AIDS severity that is higher for females with more education, and hence more power. Similarly, the "education X condom 1st sex" interaction means that as women become more powerful (as assessed by their education) their use of a condom at first intercourse is more likely to positively affect their use of a condom now. Note that the main effect terms for the variables involved in these interactions by themselves are not substantively interpretable. Note also that none of our dimensions of power significantly interact with the male's characteristics and reports to affect the couple's condom use in the last four weeks.

The results of introducing relationship power into the mix somewhat alters our earlier comments about the effects of perceptions of risk and severity. A woman's perception of the severity of AIDS does matter for condom use, but only when she has more power to control the sexual situation. Further, being black does appear to increase the female's perceived risk of STD infection, and this perception leads to

greater condom use when she has greater control to do so. It should also be noted that the positive effect of the number of sex partners the female has had and the negative effect of the male partner's education on condom use are sharply attenuated with the introduction of relationship power into the model and better specifying the conditions under which the female's race, perception of severity of AIDS, and prior condom use most affect the couple's condom use behavior.

Turning to the effects of relationship power on deciding to engage in less risky sexual behaviors in the last four weeks, just as for condom use, there is a significant "education X perception severity" interaction for females. This denotes that the positive effect on deciding to engage in less risky sexual behaviors of the female's perception of AIDS severity is higher when she has more education, and hence more power. Unlike condom use, the number of sex partners the female has had continues to have a strong positive effect on the decision to engage in less risky sexual behavior after taking relationship power into account. This strong main effect may not be surprising if couples where the female has a lengthy sexual history are more likely to have discussed her past behavior and agreed to be monogamous in the current relationship. Also unlike condom use, the male partner's power conditions the effects of his characteristics and reports on engaging in less risky sexual practices. The significant "committed X prior STD" coefficient means that when the male is less committed to making the relationship last, and hence has more power, the effect of his having an STD prior to the relationship has a bigger effect on the couple's decision to engage in less risky sexual practices. The "compliance X known someone with AIDS" denotes that when his partner is less a bullier, manipulator, aggressor, etc., his knowing someone with AIDS has a larger positive effect on the couple's decision to engage in less risky sexual behavior. Finally, although the negative effect of the male's education is attenuated when taking relationship power into account, his income continues to have a strong negative effect on deciding to engage in less risky sexual practices. This suggests that here income is not an indicator of perceived level of risk, but rather an indicator of the power of the male to attract multiple sex partners and an unwillingness to agree with his partner to alter this risk taking behavior.

Column 4 of Table 3 substitutes our measures of power with measures of reported control over sex and contraception to examine how the female and her partner's beliefs about their level of control

over sex and contraception moderates the effects of respondent and partner characteristics on STD protective behaviors in the last four weeks. The results largely highlight and support some of the main results obtained in column 3. With regard to condom use, among black females, when her partner decides about sex and contraception the couple is far less likely to use the condom than when she decides (interpretation of the significant "decide X black" coefficient). Other than this effect, as reported by the female, none of our measures of control significantly interact with the male's characteristics and reports to condition the couple's condom use in the last four weeks. With regard to deciding to engage in less risky sexual practices, the positive effect of the female's perceived severity of AIDS increases as her reported control over sex increases ("control sex X perception severity" effect). Finally, when the male reports that his partner is more likely to decide about sex and contraception, the effect of his having an STD prior to the relationship has a smaller effect on the couple's decision to engage in less risky sexual behaviors ("decides X prior STD" coefficient).

One-Sex Models

As discussed earlier, a final task in this paper is to assess whether accurate conclusions about a couple's sexual risk taking behaviors can be obtained from studies based only on the reports of men or of women. To make this determination, we replicated the model specifications presented in Tables 2 and 3, defining the male partner instead of the female partner as the index respondent. Comparing the effect coefficients in these two sets of models tells us whether we would come to the same conclusion about the impact of various factors if we had only male reports or female reports. It is important to note that since male and female characteristics and reports are included identically in both sets of models, any differences in the effects of the coefficients between the two sets of models must be due to differential reporting of the outcomes by males and females. In this study, 16.3% of the partners disagree on whether they had anal sex with one another in the last four weeks, and 27.9% disagree on what they did to protect themselves from STDs in the last four weeks.

Table 4 presents the models predicting the likelihood that the couple had anal sex in the last four weeks, as reported by the male. Our purpose here is not to discuss these models in any detail, but rather to summarize the differences in conclusions we would reach if we had selected the male instead

of the female as the index respondent by comparing the results in Table 4 with those in Table 2. Had we selected the male as the index respondent, we would not have concluded that Hispanic ethnicity positively affects the likelihood of having anal sex. Nor would we have concluded that the female's education or male's father's education is very important, although the male's education has a rather consistent negative effect in both tables. The effect of the number of sex partners the female has had is consistent in the two tables. The perception of AIDS risk effect, "% chance woman will get AIDS," as reported by the female is not consistent. With the male as the index respondent we would have similarly concluded that his gender role ideology is strongly related to the couple's having anal sex, and that his education conditions the effect of his perception of AIDS risk. However, we would not have concluded, as we did with the female as the index respondent, that her perception of relationship alternatives (power) conditions the effect of her perception of AIDS risk, or that his income (power) moderates the effect of his knowing someone with AIDS. Most importantly, defining the male as the index respondent, we would not have concluded that either the male's or female's control over sex and contraception is directly related to or conditions the effects of other characteristics of the male and female on their risk of having anal sex. That is, unlike in column 4 of Table 2, neither of the two "control over sex and contraception" interaction terms in column 4 of Table 4 is statistically significant.

[Table 4 about here]

Table 5 presents the multinomial logit models of the likelihood that the couple used the condom in the last four weeks to protect themselves from STDs or decided to engage in less risky sexual practices, compared to doing nothing, as reported by the male. Comparing Table 5 with Table 3, had we selected the male as the index respondent, we would have concluded that the female's race (being black) is important in determining condom use but not for predicting less risky sexual practices, and that the duration of the couple's relationship is important in determining their sexual practices but not so much their condom use. In both tables 3 and 5, the female's number of sex partners is important for condom use and engaging in less risky sexual behaviors, although the effects are more persistent across model specifications when the female is the index respondent. With the male as the index respondent, we would have concluded that his education is only important for condom use and not for engaging in less

risky sexual practices as found when the female is the index respondent. With the male as the index respondent, there is also never an effect of his income.

[Table 5 about here]

Turning to the conditioning effects of power, with the male as the index respondent we would not have observed that among blacks condom use is conditioned by the black female's power, although there is a significant "ideology X black" interaction that affects deciding to engage in less risky sexual practices. In the model with the male as the index respondent, the woman's power conditions only the effect of her perceptions of the severity of AIDS on the likelihood that the couple engages in less risk sexual behaviors, and not both sexual behavior and condom use as in the model with the female as the index respondent. In the male model, we also do not find that when the female is more powerful her use of the condom at first sex has a stronger effect on the couple's condom use in the last four weeks. Curiously, in the male model we find a significant interaction between education and the female's use of an effective method at first sex on the risk of the couple's deciding to engage in less risky sexual behaviors. In both tables 3 and 5, however, we find that when the male partner has more power the effects of his having had an STD before the relationship and his knowing someone with AIDS have a greater effect on the couple's decision to engage in less risky sexual behaviors. With regard to control over sex and contraception, in Table 3 we found that among black females, when her partner decides about sex and contraception the couple is far less likely to use the condom than when she decides. We do not observe a significant "decide X black" interaction effect in Table 5. Instead, in Table 5 we find that black couples are more likely than nonblack couples to decide to engage in less risky sexual practices when the female's partner makes decisions about sex and contraception. Regardless of whether the male or the female is the index respondent, we find that the positive effect of the female's perceived severity of AIDS increases as her reported control over sex increases ("control sex X perception severity" effect). With the male specified as the index respondent, however, we would not have concluded that the effect on deciding to engage in less risky sexual practices of the male's having an STD prior to the relationship is smaller when his partner has more decision making power over sex and contraception (the "decides X prior STD" coefficient is significant in Table 3 but not in Table 5).

Summary and Discussion

Our purpose has been to gain a better understanding of adult dating couples' sexual risk taking behavior using a unique data set that permits a truly couples-based study. Unlike most previous studies, we were not limited to examining only socio-demographic background characteristics of one member of the couple and at most proxy reports of the partner's characteristics. Instead, we were able to investigate the effects of background characteristics of each partner, as reported by each partner, and to see whose characteristics are more important in influencing the couple's risk taking behavior. Further, the richness of the data allowed us to examine how each partner's personal framing events and perceptions of the risk and severity of AIDS mediate the influence of their background characteristics. Most importantly, the data and our conceptual approach permitted us to investigate how each partner's power in the relationship and perceived control over sex and contraception weights the decision making process toward one partner or the other by elevating the importance of the person's characteristics, experiences and beliefs.

Conducting a couples-based analysis has been very informative. Our results show that sexual behaviors are not controlled totally by any one individual. Some socio-demographic characteristics do affect sexual risk taking, but often it is only the background characteristic of one partner or the other. Relying on women's or men's separate reports, then, would miss any partner influences, or if proxy reported by the respondent, might be inaccurate enough to distort the partner's influence. Our results also help to better explain the influence of some of the background characteristics by demonstrating how their effects are mediated by the respondent or partner's prior sexual risk taking behaviors and perceptions of AIDS risk and severity. We were, however, less successful in that regard than we had hoped, since strong main effects of the background characteristics most often persist after taking the more proximate, intermediate variables into account. This is particularly the case for the respondent and/or her partner's education and income, whose effects are still not well understood. We were far more successful in our analysis of relationship power, where we were able to demonstrate that the male's and female's power and perception of control over sex and contraception are important moderators of the couple member's characteristics, experiences and beliefs. Importantly, without a

couples-based analysis that takes relationship power into account, we would miss the importance of such factors as having known someone with AIDS, having had an STD prior to the relationship, and a person's perception of the severity of AIDS that only affect the couple's sexual risk taking when the person has enough power in the relationship to control the sexual situation.

We briefly summarize some of more salient findings from our analyses of the two risk taking behaviors considered in this paper, as presented in tables 2 and 3 with the female partner as the index respondent. With regard to anal sex in the last four weeks, as has been found in previous studies (e.g., Billy et al. 1993), Hispanics are more likely to have anal sex than non-Hispanics. All of the other significant socio-demographic characteristics are measures of the female's and her partner's SES, with lower SES couples being more likely to have anal sex in the last four weeks. This finding may seem at odds with previous research (e.g., Billy et al. 1993; Laumann et al. 1994) that has found a positive relationship between SES and having anal sex. The usual explanation for this finding is that anal sex represents a departure from the typical sex act and higher SES, more educated individuals are more willing to engage in a greater variety of non-traditional activities, including different sex acts. These previous findings typically have pertained to ever having anal sex. It is possible that higher SES individuals are more likely to have ever experimented with anal sex, but lower SES individuals are more likely to engage in the behavior on a more regular basis. There is some evidence of this difference in the study by Billy et al. (1993) where men's reports of ever having anal sex are positively related to their education, but reports of having anal sex in the last four weeks are slightly negatively related to men's education.

Framing events and perceptions of risk are also important predictors of a couple's having anal sex, with couples in which the female has had more sex partners being more likely to engage in this behavior, and couples where the female has a higher perception of the risk of getting AIDS being less likely to have anal sex. These factors, however, do not fully mediate the negative effects on anal sex of the couple's SES. Power of one partner or the other and perceived control over sex and contraception are also important in affecting whether the couple has anal sex. The negative effect of the female's perception of AIDS risk is stronger when she has more power or reports that she has greater control over

sex. Further, the negative effects of male's perception of AIDS risk and his having known someone with AIDS are stronger when he has more power or when he reports having more control over sex. Taking differential power into account also helps to better explain some of the mediating effects of such factors as perceptions of AIDS risk, where perception of risk does mediate the effect of the female's education when she has greater power in the relationship.

The gender role ideology of the male partner is a very strong predictor of whether the couple has anal sex, with couples where the male has a more traditional gender role ideology being more likely to have anal sex. We also find evidence that the male partner has a stronger preference for anal sex than the female partner.

Turning to the couple's STD protective behaviors in the last four weeks, consistent with the literature we find that as the duration of the couple's relationship increases use of the condom declines. We also find that blacks are more likely to use the condom than non-blacks and more likely to decide to engage in less risky sexual practices than non-blacks, as are couples where the male partner has lower education and/or income. These findings suggest a higher perceived risk of STD and HIV infection among blacks and those with lower SES. None of these effects is mediated by the main effects of framing events and perceptions of AIDS risk and severity of the male or female partner, although the number of sex partners the female has had increases the couple's use of the condom and deciding to engage in less risky sexual practices.

It is only when we take relationship power into account that the importance of the female's perception of AIDS severity becomes clear. Power conditions this effect such that the positive effect of the woman's perception of AIDS severity on condom use and on deciding to engage in less risky sexual behaviors is stronger when she has more power and/or control over sex. Power also conditions the effect of the female's race. Although black couples are more likely than non-blacks to use the condom, this is especially the case when the black female has more power and makes decisions about sex and contraception. Unlike condom use, the male's report of power in the relationship conditions the couple's decisions about engaging in less risky sexual practices. The effects of his having had an STD prior to the current relationship and having known someone with AIDS have bigger positive effects on the couple

deciding to engage in less risky sexual behavior when he has more power and/or decides about sex and contraception.

When we define the male partner instead of the female partner as the index respondent and re-estimate the same models, we do not necessarily come to the same conclusions. As described above, although there are many similarities in the two sets of findings, there are also many differences. The answer to our earlier question of whether we would come to the same conclusion about the impact of personal, partner and relationship characteristics on a couple's sexual risk taking behavior if we had only female reports or male reports is therefore, "no." The differences here are due only to differential reporting of the outcomes by males and females. It is likely that the differences would be even more pronounced if partner characteristics, experiences and beliefs were obtained by proxy from the respondent.

Finding that accurate conclusions about a couple's sexual risk taking behavior can not necessarily be obtained from one-sex studies is important, and further points to the advantages of couples data and a couples-based approach. This is not to say, however, that a couples-based approach is without its problems and complexities. In any couples survey there will always be some amount of partner disagreement about what the couple has done, as well as who really has the power in the relationship and makes decisions about the couple's behaviors. It is virtually impossible to tell which partner's response is correct. An important next step in our current investigation, however, will be to go through the same detailed model fitting procedures with males as the index respondent as we did with females as the index respondent. Comparing these two sets of models, instead of just replicating the female models for males, may provide additional insights into those factors most important in affecting a couple's sexual risk taking behavior.

As we have seen in the analyses reported here, relationship power itself is a difficult concept to measure. Another important next step, then, will be to explore alternative measures of power, especially measures that may better tap the relative power of partners in terms of such characteristics as education and income. Given the linear dependence of respondent education, partner education, and difference in partner education there are some difficulties with model specification. However, it may be possible to

overcome these difficulties with ratio measures whose effects can be explored and meaningfully interpreted.

Finally, we intend to continue to take advantage of these unique couples data that only very recently became available by investigating additional sexual and contraceptive behaviors that place the couple at greater or lesser risk of HIV and STD infection. Recognizing that our analyses to date pertain only to nonresidential dating couples, we also intend to examine the sexual risk taking of couples in cohabiting and marital relationships, and compare differences in factors affecting sexual risk taking across these relationship groups. This research on adult dating couples' sexual and contraceptive behaviors may help inform new couples-based prevention interventions to more effectively fight STD and HIV infection. Most STD/HIV prevention messages have directed little attention toward the relationship status of sexual partners and toward the need to promote safer sex within affectionate rather than just casual relationships (Kelly & Kalichman 1995; Noar, Zimmerman & Atwood 2004). If they are to be successful, STD/HIV prevention efforts must take into account the complexity of sexual and contraceptive behaviors within the relationship context. Although using condoms and being monogamous are certainly behaviors that will reduce the incidence of new STD/HIV infections, public health efforts have largely underestimated the difficulty people have in following these recommendations because little attention has been paid to the many relationship influences that form the context for human sexual behavior and attitudes. Our couples-based approach is designed to help redress this problem.

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Table 1 – Means and Standard Deviations for All Variables Used in the Analyses

Variables	Female's Characteristics/Reports			Male's Characteristics/Reports		
	Mean	S.D.	N	Mean	S.D.	N
Outcome Measures						
STD protection						
did nothing to protect themselves	.63	.48	323	.61	.49	316
used condom	.29	.45	323	.32	.47	316
other (sexual practices)	.08	.28	323	.07	.25	316
Anal Sex (0 = no; 1= yes)	.22	.41	327	.26	.44	313
Personal, Partner and Couple Demographic and Social Characteristics						
Duration of relationship	33.69	32.37	330	35.14	37.67	318
Age	26.61	4.71	335	28.77	6.67	335
Race/ethnicity						
black	.49	.50	335	.49	.50	334
hispanic	.04	.20	335	.08	.27	334
other	ref	ref	335	ref	ref	334
Education	13.46	2.77	335	13.33	2.81	335
Income (logged)	8.29	3.60	323	8.78	3.23	313
Religiosity (0 = somewhat or very religious; 1 = not religious)	.32	.47	326	.48	.50	328
Mother's education						
< high school	.12	.33	328	.13	.33	329
high school	.28	.45	328	.33	.47	329
some college	.24	.43	328	.24	.43	329
college	ref	ref	328	ref	ref	329
no mom	.02	.15	328	.03	.16	329
Father's education						
< high school	.13	.33	326	.23	.42	322
high school	.23	.42	326	.23	.42	322
some college	.18	.39	326	.18	.38	322
college	ref	ref	326	ref	ref	322
no dad	.13	.34	326	.12	.33	322
Framing Events						
# of sex partners	13.64	18.14	317	21.94	25.41	314
Age at 1st intercourse	17.88	3.69	323	18.48	5.62	320
Prior STD infection (0= no; 1=yes)	.21	.41	320	.19	.39	316
Known someone with AIDS (0= no; 1=yes)	.43	.50	323	.51	.50	317
Method used at 1st sex						
condom	.56	.50	322	.44	.50	313
effective	.10	.30	322	.13	.33	313
other/none	ref	ref	322	ref	ref	313

Table 1 – Means and Standard Deviations for all Variables Used in the Analyses (Continued)

Variables	Female's Characteristics/Reports			Male's Characteristics/Reports		
	Mean	S.D.	N	Mean	S.D.	N
Perceptions of Risk and Severity of AIDS						
Percent chance man will get AIDS	73.15	32.50	317	63.10	36.16	309
Percent chance woman will get AIDS	76.86	30.04	315	72.40	32.26	308
Perception of AIDS severity	28.01	3.71	314	27.29	3.94	306
Relationship Power						
Structural Power						
education	13.46	2.77	335	13.33	2.81	335
income (logged)	8.29	3.60	323	8.78	3.23	313
Relationship commitment						
committed to making relationship last	2.94	.86	333	3.11	.81	316
more likely to end relationship	2.76	1.13	331	2.80	1.03	312
Relationship alternatives	-.14	.97	324	-.17	.89	310
Gender role ideology	17.14	5.34	326	18.12	5.16	315
Compliance gaining strategies						
strategy R reports partner using	-.26	.88	332	.05	.86	320
strategy R uses with partner	-.12	.90	331	-.03	.87	321
Level of Control Over Sex and Contraception						
Control over sex	36.33	6.05	320	33.95	5.32	308
Control over contraception	6.30	2.87	325	7.51	2.43	315
Decisions about sex and contraception	-.31	.89	332	.20	.83	318

Table 2 – Logit Coefficients Predicting the Female Partner's Report of the Couple Having Anal Sex in the Last 4 Weeks

Personal, Partner and Relationship Characteristics	Demographic and Social Characteristic	Framing Events and Perceptions of Risk and Severity of AIDS	Relationship Power	Control Over Sex and Contraception
Female's Characteristic/Report				
Duration of relationship	-.005	-.003	-.003	-.007
Age	.018	-.007	.009	.020
Race/ethnicity				
Black	-.346	-.721	-.680	-.193
Hispanic	1.185**	.935	1.875**	2.044**
Other	ref	ref	ref	ref
Education	-.146**	-.222**	-.136	-.305***
# of sex partners		.031***	.017	.035**
% chance woman will get AIDS		-.014**	-.012	-.017**
Her relationship alternatives			.984*	
Alternatives X % chance woman AIDS			-.012*	
He decides about sex and contraception				.680***
She controls sex				.611**
Perception of AIDS severity				.648*
Control sex X perception severity				-.020**
Male's Characteristics/Reports				
Education	-.184**	-.113	.213**	-.099
Income (logged)	-.111**	-.078	.103	-.077
Father's education				
< high school	2.202***	2.494***	2.867***	2.772***
high school	.970	1.321**	1.966***	1.792***
some college	.260	.456	1.294	.440
no father	.513	.787	1.121	.346
college	ref	ref	ref	ref
He controls sex				.160*
% chance man will get AIDS				.102**
Control sex X % chance man AIDS				-.003***
Gender role ideology			.250***	
% chance woman will get AIDS			.072***	
Education X % chance woman AIDS			-.006***	
Known someone with AIDS			2.027	-1.335*
Income X known someone with AIDS			-.308**	
She decides about sex and contraception				-.570*
Decides X known someone with AIDS				1.001**
Log likelihood (df)	**-118.13 (11)**	**-96.777 (13)**	**-69.218 (20)**	**-74.342 (23)**
*** p ≤. 10, ** p ≤ .05, *** p ≤ .01**				

Table 3 - Multinomial Logit Coefficients Predicting the Female Partner's Report of the Couple's STD Protection in the Last 4 Weeks (Used Condom vs. Did Nothing, Less Risky Sexual Practices vs. Did Nothing)

Personal, Partner and Relationship Characteristics	Demographic and Social Characteristics		Framing Events and Perceptions of Risk and Severity of AIDS		Relationship Power		Control Over Sex and Contraception	
	Condom	Sex	Condom	Sex	Condom	Sex	Condom	Sex
Female's Characteristic/Report								
Duration of relationship	-.009*	-.009	-.011**	-.009	-.007	-.005	-.008	-.006
Age	.021	.030	.010	.010	-.045	-.086	.013	-.012
Race/ethnicity								
Black	1.238***	1.646***	1.236***	1.692***	5.267***	3.983*	1.062**	2.173***
Hispanic	.864	1.207	.796	.715	.510	2.783**	.740	1.453
Other	ref	ref	ref	ref	ref	ref	ref	ref
Education					-2.527**	-3.707***		
# of sex partners			.016**	.026***	.005	.038***	.015*	.030**
Gender role ideology					.232***	.028		
Ideology X Black					-.200**	-.097		
Perception of AIDS severity					-.901*	-1.590***	-.071	-.948*
Education X perception severity					.075*	.130***		
Method used at 1st sex								
Condom					-7.391**	-2.967		
Effective					3.069	5.608		
None/other					ref	ref		
Education X condom 1st sex					.604***	.276		
Education X effective 1st sex					-.120	-.477		
He decides about sex and contraception							.622	-.768
Decides X black							-1.106**	.542
She controls sex							-.043	-.712*
Control sex X perception severity							.002	.028**

Table 3 - Multinomial Logit Coefficients Predicting the Female Partner's Report of the Couple's STD Protection in the Last 4 Weeks (Used Condom vs. Did Nothing, Less Risky Sexual Practices vs. Did Nothing) - Continued

Personal, Partner and Relationship Characteristics	Demographic and Social Characteristics		Framing Events and Perceptions of Risk and Severity of AIDS		Relationship Power		Control Over Sex and Contraception	
	Condom	Sex	Condom	Sex	Condom	Sex	Condom	Sex
Male's Characteristics/Reports								
Education	-.176**	-.253***	-.131*	-.240***	-.045	-.135	-.102	-.206**
Income (logged)	-.066	-.164**	-.035	-.147**	-.063	-.256***	-.036	-.114
Committed to making relationship last					.128	-.221		
Prior STD infection					-.818	-5.457**	.138	.920
Committed X prior STD					.335	1.992**		
Compliance gaining partner uses					-.043	1.140*		
Known someone with AIDS					.654	1.398**		
Compliance X known someone with AIDS					-.457	-2.057***		
She decides about sex and contraception							-.094	.205
Decides X prior STD							.054	-.949**
Log Likelihood (df)	**-221.657 (12)**		**-207.528 (14)**		**-151.296 (44)**		**-175.582 (30)**	
p ≤. 10, ** p ≤ .05, *** p ≤ .01								

Table 4 – Logit Coefficients Predicting the Male Partner's Report of the Couple Having Anal Sex in the Last 4 Weeks

Personal, Partner and Relationship Characteristics	Demographic and Social Characteristic	Framing Events and Perceptions of Risk and Severity of AIDS	Relationship Power	Control Over Sex and Contraception
Female's Characteristic/Report				
Duration of relationship	-.003	.000	.004	.000
Age	.072	.041	.067	.051
Race/ethnicity				
Black	-.265	-.398	-1.052	-.267
Hispanic	.642	.473	-.166	.218
Other	ref	ref	ref	ref
Education	-.077	-.099	.010	-.157*
# of sex partners		.037***	.019	.027**
% chance woman will get AIDS		-.001	.003	-.003
Her relationship alternatives			.561	
Alternatives X % chance woman AIDS			-.007	
He decides about sex and contraception				.233
She controls sex				.388
Perception of AIDS severity				.315
Control sex X perception severity				-.011
Male's Characteristics/Reports				
Education	-.214***	-.189**	.095	-.195**
Income (logged)	-.062	-.024	-.125	-.056
Father's education				
< high school	.778	.769	1.105	.677
high school	-.352	-.078	.608	-.141
some college	-.856	-.636	-.255	-.829
no father	-.405	-.241	.494	-.647
college	ref	ref	ref	ref
He controls sex				-.121
% chance man will get AIDS				-.031
Control sex X % chance man AIDS				.001
Gender role ideology			.300***	
% chance woman will get AIDS			.059**	
Education X % chance woman AIDS			-.004*	
Known someone with AIDS			-.196	.330
Income X known someone with AIDS			.111	
She decides about sex and contraception				-.379
Decides X known someone with AIDS				.204
Log likelihood (df)	**-137.08 (11)**	**-117.48 (13)**	**-83.50 (20)**	**-101.08 (23)**
*** p ≤. 10, ** p ≤ .05, *** p ≤ .01**				

Table 5 - Multinomial Logit Coefficients Predicting the Male Partner's Report of the Couple's STD Protection in the Last 4 Weeks (Used Condom vs. Did Nothing, Less Risky Sexual Practices vs. Did Nothing)

Personal, Partner and Relationship Characteristics	Demographic and Social Characteristics		Framing Events and Perceptions of Risk and Severity of AIDS		Relationship Power		Control Over Sex and Contraception	
	Condom	Sex	Condom	Sex	Condom	Sex	Condom	Sex
Female's Characteristic/Report								
Duration of relationship	-.008	-.027*	-.009	-.027*	-.007	-.015	-.011*	-.026**
Age	-.033	.028	-.048	.007	-.087**	-.093	-.031	-.017
Race/ethnicity								
Black	1.036**	.442	1.093**	.486	2.449*	-3.411	.836*	.624
Hispanic	.909	.057	.784	-.179	.372	1.398	.814	-.252
Other	ref	ref	ref	ref	ref	ref	ref	ref
Education					-.658	-2.785***		
# of sex partners			.015*	.025**	-.003	.018	.007	.011
Gender role ideology					.160**	-.089		
Ideology X black					-.082	.268*		
Perception of AIDS severity					-.254	-1.164***	.238	-1.517**
Education X perception severity					.025	.115***		
Method used at 1st sex								
Condom					-1.277	2.142		
Effective					7.776	20.185***		
None/other					ref	ref		
Education X condom 1st sex					.067	-.238		
Education X effective 1st sex					-.612	-1.621***		
He decides about sex and contraception							.603	-1.458**
Decides X black							-.405	1.368**
She controls sex							.114	-1.662***
Control sex X perception severity							-.005	.051**

Table 5 - Multinomial Logit Coefficients Predicting the Male Partner's Report of the Couple's STD Protection in the Last 4 Weeks (Used Condom vs. Did Nothing, Less Risky Sexual Practices vs. Did Nothing) - Continued

Personal, Partner and Relationship Characteristics	Demographic and Social Characteristics		Framing Events and Perceptions of Risk and Severity of AIDS		Relationship Power		Control Over Sex and Contraception	
	Condom	Sex	Condom	Sex	Condom	Sex	Condom	Sex
Male's Characteristics/Reports								
Education	-.231***	-.139	-.201**	-.100	-.179*	-.023	-.174**	-.003
Income (logged)	-.054	.030	-.039	.055	-.072	-.026	-.038	.155
Committed to making relationship last					.377	-1.580**		
Prior STD infection					1.117	-7.276***	.561	2.301***
Committed X prior STD					-.169	3.177***		
Compliance gaining partner uses					.207	-.954		
Known someone with AIDS					.958**	.145		
Compliance X known someone with AIDS					-.635	1.517**		
She decides about sex and contraception							-.249	-.938*
Decides X prior STD							.292	.254
Log Likelihood (df)	**-221.62 (12)**		**-207.91 (14)**		**-146.35 (44)**		**-171.11 (30)**	
P ≤. 10, ** p ≤ .05, *** p ≤ .01								