

Sexual Risk-Taking Among Adult Dating Couples In the United States

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CONTEXT: Knowledge of sexual and contraceptive behaviors as risk factors for STDs is largely based on women's or men's separate reports of their attitudes and behaviors. Little research has been based on couples.

METHODS: Data from the 2005–2006 National Couples Survey were used to examine the sexual risk-taking behavior of 335 dating couples. Associations between each partner's characteristics and the couple's probability of recently having had anal sex and of having done something to protect themselves from STDs were assessed using logistic regression analyses. Models included measures of power dynamics and partners' perceptions of who controls sexual and contraceptive decisions.

RESULTS: Couples in which the female partner reported that her male partner made the decisions about sex and contraception had increased probability of having had anal sex during the four weeks prior to the interview. In addition, partners' relationship power and their perception of control over sex and contraception moderated associations between couples' behavior and partners' characteristics, experiences and beliefs. For example, although couples in which the male partners had known someone with AIDS were less likely than others to engage in anal sex, that association was much greater for males with high income—and thus greater power—than for those with low income.

CONCLUSIONS: Sexual behaviors are not controlled by any one individual in a relationship; characteristics of each partner are important. Couples-based interventions that take into consideration relationship—especially power—dynamics may enable individuals to initiate and sustain safer-sex practices.

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Despite the many emotional and social benefits of sexual behavior in relationships, there is also the threat of contracting STDs, including HIV. Rates of heterosexual transmission of these diseases remain unacceptably high. The need for STD prevention is especially great for nonresidential partners (unmarried and noncohabiting dating couples), who are less likely than married or cohabiting couples to be monogamous and who may engage in riskier sexual behaviors.¹

Much of what we know about sexual and contraceptive behaviors as risk factors for STDs, as well as pregnancy, is based on women's or men's separate reports of their attitudes and behaviors. Relatively little research has been based on reports obtained from both partners in a couple, even though sexual behavior is inherently dyadic. At most, studies obtain proxy reports from one partner about the other partner's characteristics, behavior and attitudes. Here, we address this limitation by using data from the National Couples Survey to examine how the self-reported characteristics, attitudes and behaviors of each partner are related to dating couples' sexual risk-taking. Specifically, we examine whether the couple had anal sex during the four weeks prior to the interview and whether they did anything during that time to protect themselves from STDs.

Our analyses advance prior research in two other important ways. First, we include measures of the respondent's

and partner's prior sexual risk-taking behaviors and perceptions of AIDS risk and severity, to examine the extent to which these framing events and perceptions are associated with recent sexual risk-taking. Second, we examine how relationship power, defined along several dimensions, and perceived level of control over sex and contraception moderate, or condition, the associations between respondent and partner characteristics and sexual and contraceptive behaviors.

NEEDED FOCUS ON COUPLES

One reason for the prior research focus on individuals' sexual and contraceptive behavior is the lack of couples data. The few studies that have had couples data have tended to be based on small, purposive samples of mainly white, middle-class, married, college-age or young at-risk minority couples.^{2–6} Most studies have focused not on sexual behavior and sexual decision making, but on fertility behavior and intentions, and contraceptive use.^{7–15} More research now stresses the importance to STD risk of couples' relationship characteristics, such as length and type of relationship,^{16,17} gender and power dynamics within relationships^{18–22} and partner support of condom use.²³ Most of these studies, however, have limited findings because of the specific populations available for analysis. An

exception to these generalizations is the “couples sample” of Wave 3 of the National Longitudinal Study of Adolescent Health (Add Health).²⁴

There are good reasons to adopt a couples perspective to gain a better understanding of sexual behavior in general, and of sexual risk-taking in particular. First, most sexual behavior occurs within a close relationship and cannot be separated from that relationship.^{25,26} Research that uses information from both partners can examine individual and relationship variables that combine to determine interdependent decision making.^{27,28} Second, relying on reports from only one partner forces one to draw conclusions about a couple’s behavior on the basis of that person’s perspective, which can lead to a distortion of the individual and joint characteristics of the partners that affect the couple’s behavior.^{4,29}

Third, adopting a couples perspective allows examination of the effects on sexual risk-taking of a range of potentially important factors, including 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.²¹ Power plays a role in determining what, when and how sexual and contraceptive behaviors take place.³⁰ Despite the norm of egalitarianism in romantic relationships in the United States, power imbalances occur.³¹ One source of power differences between partners is gender role ideology. Individuals who have an egalitarian gender role orientation are more likely than others to adopt traits and behaviors that are nontraditional for their gender.^{32,33} As such, they 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, the man’s power may be greater and decisions about sex may therefore be more strongly influenced by his preferences.^{34,35} To our knowledge, no study has examined the gender role ideologies of both partners and how these beliefs influence a couple’s sexual risk-taking behavior.

Nor has gender role ideology been considered jointly with other dimensions of power within the relationship. Structural power may arise from individual characteristics that are linked to inequality in the larger social structure, such as education or income.^{2,21} Power also emerges from differences between partners in their level of commitment to the relationship. The more highly committed a partner is, the more dependent, and thus less powerful in sexual decision making, he or she will be.³⁶ 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.²⁷ A final source of power are the compliance-gaining strategies (e.g., manipulating, bullying, distancing and bargaining) used by each partner when negotiating decisions and wanting the other partner to do something he or she does not want to do.³⁷

In this article, 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 and other dimensions of power can also lead to differences in beliefs about level of control over sex and contraception. Hence, we also examine how these beliefs moderate the impact of each partner’s characteristics on the couple’s sexual risk-taking behaviors.

METHODS

Data and Study Population

Our data are from the dating couples sample of the National Couples Survey, conducted in 2005–2006. Both partners of 335 dating heterosexual couples completed interviews; dating was defined as currently being in an unmarried, noncohabiting sexual relationship of at least one month’s duration. Because the primary purpose of the survey was to provide information on couples’ decisions about contraception, females were eligible if aged 20–35 (the ages during which most childbearing occurs), not sterile and not pregnant or trying to get pregnant; male partners had to be not sterile and 18 or older, so that both partners were adults and parental informed consent was not necessary.

Computer-assisted self-interviewing was used to collect data from an area probability sample of household residents in four cities (Baltimore; Durham, NC; St. Louis; and Seattle) and the U.S. census-defined county subdivisions immediately adjacent to them. These sites provide diverse populations with respect to race, ethnicity, economic status and other factors associated with sexual and contraceptive decision making. Within the four study sites, we stratified segments by the percentage of population who were black and oversampled segments with high minority concentrations. This procedure yielded a large enough sample of couples in which one or both partners were black to provide stable estimates of both their behaviors and the antecedents of those behaviors. Participants were recruited through door-to-door visits from female interviewers; where possible, the race of the interviewer was matched with that of the respondent.

During the survey effort, 65% of households were successfully rostered (i.e., all adult residents were listed by age). Twenty-seven percent of rostered households had at least one age-eligible person;* if a household contained more than one age-eligible person, one was randomly selected for eligibility screening on the other survey criteria. Eligibility screening was completed for 79% of selected potential respondents. Those who were eligible for the study and were defined as dating were asked to recruit their partners; 77% of partners were screened, and 94% of eligible dating

*Only 18–45-year-old males were included in the roster, because men of this age were the most likely to have age-eligible female partners. If a female was selected for screening, there was no upper limit on her partner’s age as a selection criterion.

couples completed the survey. Partners were scheduled to take the survey contemporaneously and were restricted from communicating about their answers. The questionnaires for males and females were nearly identical.

Analysis weights were constructed for each study site; the sampling weights reflected the probability of selection of each sampled address and of the couple sampled from that address, and were adjusted to account for non-response. The weights were then readjusted such that each site impacted the analysis equally.

Measures

•**Outcomes.** We examined two couple behaviors that increase a person's risk of STD infection. The first was whether the couple had had anal intercourse during the four weeks prior to the interview. Even though anal intercourse is generally recognized as being riskier than vaginal sex in terms of HIV transmission,^{38,39} it has received little research attention in heterosexual populations. The second outcome concerned whether a respondent and his or her partner had decided to do anything in the last four weeks to protect themselves against STDs. We defined a trichotomous measure with categories "did nothing," "used condom" and "engaged in less risky sex practices" (i.e., decided not to have sex with other partners, to have fewer partners, to have sex with each other less often or not to have certain kinds of sex that are "more risky").

•**Individual and couple characteristics.** We considered the following socioeconomic and demographic characteristics of both partners: age (in years), race and ethnicity (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 versus somewhat or very religious). Also included were mother's education and father's education (less than high school graduate, high school graduate, some college, college graduate and "no man [woman] who mostly raised you"). Finally, we included relationship duration, measured as the number of months that the partners had been "seeing each other on a regular basis."

Measures for three personal framing events—behaviors or experiences that may affect an individual's subsequent STD risk-taking behavior—were examined. Lifetime number of sex partners was a continuous measure, truncated at the point where the distribution became highly skewed. STD infection prior to first sex with the current partner and ever having known someone with AIDS were dichotomous measures.

We measured perceptions of AIDS risk with variables representing beliefs about the percentage chance a man will get AIDS and the percentage chance a woman will get AIDS "if they have intercourse only once without using any contraception with a partner who has AIDS or the virus that causes AIDS." Perception of AIDS severity was a summative scale based on respondents' level of agreement (1="very strongly disagree" to 5="very strongly agree") with eight statements about how bad it would be to get

AIDS (e.g., "People who get AIDS always develop many painful symptoms"). The higher the score, the greater the perceived severity.

•**Relationship power and control.** We included several measures of the underlying sources of relationship power. First were measures of structural power based on personal education and income (defined above). Another power dimension was relationship commitment, based on responses to the question "Compared to your partner, who is more committed to making your relationship last?" (1="definitely me" to 5="definitely him/her").³⁶ Another power dimension was relationship alternatives, based on responses to three questions—e.g., "If you broke up this month, how likely is it that you could find another partner better than him/her?" (1="impossible" to 4="certain").⁴⁰ These questions were factor-analyzed, and we constructed a scale on which a more positive score indicates more perceived alternatives. Traditional gender role ideology was measured using items from the Sex Role Egalitarianism Scale.⁴¹ The eight items in this summative scale asked how strongly respondents agreed with statements about the roles of husbands and wives: for example, "A wife's career is less important than her husband's" (1="very strongly disagree" to 5="very strongly agree"). The higher the score, the greater the traditionalism. Finally, two variables captured the strategies the respondent and his or her partner used to gain compliance from each other.³⁷ Respondents were first asked how often their partner used six specific tactics (e.g., manipulation, bullying and distancing) to get what they want (1="never" to 9="always"). They were then asked about the tactics they used with their partner, using parallel questions and the same response set. Responses were factor-analyzed, and we formed two scales, one reflecting the respondent's strategy and one reflecting the partner's strategy. The higher the value, the more often coercive tactics are used.

Control over sex was measured using a summative scale based on a set of questions asking for level of agreement (1="very strongly disagree" to 5="very strongly agree") with 10 statements about the individual's perceived level of control over the sexual activity of the couple (e.g., "I often take the initiative in beginning sexual activity"). The higher the score, the greater the control over sex. Similarly, control over contraception was measured using a summative scale based on level of agreement (1="very strongly disagree" to 5="very strongly agree") with three statements (e.g., "My partner makes most of the decisions about what birth control the two of us will use").⁴² A final composite measure of control over sex and contraception was based on four questions on 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."⁴³ Responses (1="I always decide" to 5="he/she always decides") were factor-analyzed, and a scale of decisions about sex and contraception was created. The higher the value, the greater the likelihood that the respondent's partner makes the decisions.

Analytic Approach

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 selected the female partner as the index respondent. We then examined how her characteristics and reports and those of her male partner were related to her report of each outcome.

Multivariate models of the dichotomous measure of anal sex were estimated using the logit procedure in STATA. Models of the trichotomous STD protective behaviors outcome were estimated using the multinomial logit procedure. Although the level of nonresponse was low (less than 5% for almost all items), selection bias because of missing data may have affected our results. To deal with this issue, we employed multiple imputation procedures^{44,45} to estimate our models over the full sample of 335 dating couples.

For each outcome, we first estimated a main effects model that included relationship duration as reported by the female, both partners' social and demographic characteristics, their reports of framing events, and their perceived risk and severity of AIDS. Next, we interacted each variable in the main effects models with each power measure, to determine how relationship power conditioned associations between the independent variables and outcomes. We then derived a final model that included the significant power interaction terms, which most succinctly describe how the multiple dimensions of power condition the associations of the other variables with the outcome, as well as all the significant main effect terms. To maintain a minimum level of social and demographic background control, relationship duration and the female respondent's age and race and ethnicity were retained regardless of significance level.

In additional analyses, we repeated the same procedures, except testing for interactions between each partner's characteristics and his or her beliefs about his or her control over sex and contraception. Doing so allowed a comparison with the model containing power interactions, to see how similarly measures of relationship power and beliefs about controlling sex and contraception are associated with each risk-taking behavior.

Although the coefficients in these models adequately convey the direction of the effects and whether they are statistically significant, they are difficult to interpret substantively. Thus, we calculated predicted probabilities of the extent to which a couple with a certain characteristic engaged in each risk-taking behavior.* For continuous measures, we calculated predicted probabilities for "low"

*In performing these simulations, we gave each respondent her and her partner's own value on all of the characteristics included in the logit model, except on the characteristic of interest. For example, to get the predicted probability that a couple whose female partner is black, Hispanic or of another race or ethnicity had had anal sex in the previous four weeks, we gave all couples their actual values on all characteristics and beliefs, except race and ethnicity. We then calculated a predicted probability from the parameter estimates in the model.

TABLE 1. Selected characteristics of partners in heterosexual dating couples, National Couples Survey, 2005–2006

Characteristic	Female (N=335)		Male (N=335)	
	% or mean	SD	% or mean	SD
OUTCOMES				
Anal sex in past four weeks	22	41	27	44
STD protective behaviors in past four weeks				
Did nothing to protect themselves	62	49	61	49
Used condoms	30	46	32	47
Decided to engage in less risky sexual practices	8	28	7	26
SOCIAL/DEMOGRAPHIC				
Relationship duration (range, 0–343 mos.)	33.72	32.41	35.15	37.59
Age (range, 18–62)	26.61	4.70	28.77	6.66
Race/ethnicity				
Black	49	50	49	50
Hispanic	4	20	8	27
Other	47	50	43	49
Not religious	32	47	48	50
Mother's education				
<high school graduate	12	32	12	33
High school graduate	29	45	34	47
Some college	24	43	24	43
College graduate	33	47	28	45
No mother	2	15	3	16
Father's education				
<high school graduate	13	34	23	42
High school graduate	23	42	23	42
Some college	18	39	18	38
College graduate	33	47	23	42
No father	13	34	13	33
FRAMING EVENTS				
Lifetime no. of sex partners (range, 1–100)	13.97	18.27	22.18	25.39
Prior STD infection	22	41	19	39
Had known someone with AIDS	44	50	51	50
PERCEPTIONS OF AIDS RISK/SEVERITY				
Perceived chance of getting AIDS from one encounter with an infected partner				
% chance for a man	72.73	32.85	63.46	36.19
% chance for a woman	76.58	30.07	71.73	32.38
Perceived severity of AIDS (range, 12–39)	27.95	3.71	27.30	3.95
RELATIONSHIP POWER				
Education (range, 1–20 yrs.)	13.46	2.77	13.33	2.81
Log of income (range, 0–11.6)	8.29	3.59	8.73	3.23
Relationship commitment (range, 1–5)	2.94	0.86	3.11	0.81
Relationship alternatives (range, –1.5 to 1.6)†	–0.13	0.97	–0.16	0.89
Gender role ideology (range, 8–32)	17.20	5.34	18.18	5.15
Compliance-gaining strategies				
Partner's (range, –1.2 to 2.9)†	–0.26	0.87	0.05	0.86
Respondent's (range, –1.3 to 2.9)†	–0.13	0.90	–0.03	0.87
CONTROL OVER SEX/CONTRACEPTION				
Control over sex (range, 16–50)	36.27	6.04	33.92	5.42
Control over contraception (range, 3–15)	6.33	2.88	7.51	2.44
Decisions about sex/contraception (range, –2.6 to 2.7)†	–0.32	0.89	0.20	0.84

†Factored measure with a mean approaching 0 and standard deviation close to 1. Notes: SD=standard deviation. For continuous measures, higher scores indicate respondents' greater perceived severity, lower perceived relationship commitment relative to their partners, greater perceived relationship alternatives, more traditional gender role beliefs, more frequent use of coercive tactics and greater perceived likelihood that their partners make the decisions about sex and contraception.

and “high” values, defined roughly as one standard deviation below and above the mean value of the measure.*

RESULTS

Descriptive Statistics

Twenty-two percent of women and 27% of their male partners reported that they (the couple) had had anal sex in the prior four weeks (Table 1, page 77). Sixty-two percent of women reported that the couple had done nothing in the prior four weeks to protect themselves from STDs; 30% had used condoms, and 8% had decided to engage in less risky sex practices. The proportions reported by male partners were 61%, 32% and 7%, respectively, indicating, as with anal sex, some discrepancy in reporting. As noted above, the outcome measures in the multivariate analyses reported here are based on the female partner's reports.

The average relationship duration was 34 months as reported by the female partner and 35 months as reported by the male partner.† The mean age of females was 27 and of males was 29. Nearly half of the couples were black, as defined by either partner; the rest were mostly nonblack and non-Hispanic. On average, both women and men had had 13 years of schooling; distributions with respect to parental education were similar. Males had a higher mean personal income than females, and a greater proportion of males than of females reported not being religious (48% vs. 32%).

The mean lifetime number of sexual partners was 14 for women and 22 for men. Roughly one-fifth of males and females had had a STD; 44% of females and 51% of males had known someone with AIDS. On average, females perceived that men's and women's chances of getting AIDS from an infected partner were 73% and 77%, respectively; males perceived men's and women's risk at 63% and 72%. Females' perception of AIDS severity was only slightly higher than males'. Females and males had similar average commitment to making their relationship last and perception of relationship alternatives. Males tended to report having a more traditional gender role ideology than females. On average, females were less likely than males to report that their partner uses more coercive tactics to get what he wants; they were also less likely than males to report that they use those tactics themselves. On average, females reported having more control over sex and less control over contraception than males; females were less likely than males to say that their partner makes the decisions about sex and contraception.

*For example, we evaluated the effect of relationship duration when the couple had been together for one month compared with 48 months.

†In our multivariate models, we used females' reports to define relationship duration. Despite some discrepancies between males' and females' reports of relationship duration, using males' instead of females' did not alter our findings. All other measures are constructed for each partner on the basis of self-reports.

Anal Sex

The probability that a couple had had anal sex in the prior four weeks was not associated with relationship duration, the female partner's age or her race and ethnicity (Table 2). The probability of anal sex was significantly lower, however, if the female partner perceived women's chance of acquiring AIDS from an infected partner to be 75% rather than 25% (0.22 vs. 0.29). In addition, a couple's probability of anal sex decreased with increased education of the male partner's father (from 0.37 for men whose fathers had not graduated from high school to 0.07 for men whose fathers had graduated from college), suggesting that anal sex is practiced by couples of lower socioeconomic origin. Furthermore, the probability of anal sex was higher if the

TABLE 2. Predicted probability that dating couples had anal sex in the past four weeks, as estimated from logit regression analyses including sources of relationship power, by selected characteristics

Characteristic	Probability
ALL COUPLES	0.219
Relationship duration	
1 month (low)	0.222
48 months (high)	0.218
FEMALES	
Age	
20 (low)	0.227
35 (high)	0.209
Race/ethnicity	
Black	0.192
Hispanic	0.269
Other	0.272
Perceived chance a woman will get AIDS from one encounter with an infected partner*	
25% (low)	0.291
75% (high)	0.219
MALES	
Father's education**	
<high school graduate	0.373
High school graduate	0.214
Some college	0.178
College graduate	0.066
No father	0.218
Gender role ideology**	
Less traditional (low)	0.070
More traditional (high)	0.343
Education x perceived chance woman will get AIDS**	
12 yrs. x 25% chance	0.247
12 yrs. x 75% chance	0.228
16 yrs. x 25% chance	0.281
16 yrs. x 75% chance	0.140
Income x had known someone with AIDS**	
Low x had not known someone	0.230
Low x had known someone	0.197
High x had not known someone	0.255
High x had known someone	0.153

*p<.05. **p<.01. Notes: Probabilities are predicted using the estimated logit regression model for the specific evaluation points shown in the table to illustrate the net effects of the variables in the model. Significance indicates improvement in overall model fit when a given characteristic or interaction is included. For continuous measures, low and high values represent roughly one standard deviation below and above the mean value of the measure.

male partner held a more traditional rather than less traditional gender role ideology (0.34 vs. 0.07).

The associations between two other characteristics and anal sex were conditioned by the male's power in the relationship. Males with more power than other males, as assessed by education level, had a lower probability of anal sex if they perceived women's chance of acquiring AIDS from an infected partner to be 75% rather than 25%. Furthermore, although male partners who had known someone with AIDS were less likely than those who had not to report anal sex, the difference in probabilities was much larger among males with high income (0.15 vs. 0.26) than among those with low income (0.20 vs. 0.23).

In analyses including partners' beliefs about level of control over sex and contraception, the probability that a couple had had anal sex in the prior four weeks was again not associated with relationship duration, female partner's age or her race and ethnicity (Table 3). It remained associated with the education level of the male's father and was marginally associated with the female's perceived risk of AIDS. In addition, male's education was inversely related to the probability of reporting anal sex (0.23 for 12 years and 0.16 for 16 years). Furthermore, a couple's probability of having had anal sex was higher with the female's increased lifetime number of sex partners (0.18 for one partner and 0.20 for 10 partners), suggesting that prior risk-taking is related to subsequent risk-taking.

The probability of anal sex was greater if the female believed that her partner made the decisions about sex and contraception than if she believed that she made them (0.26 vs. 0.14). However, the data suggest that the female's perceived control over sex conditions the relationship between perceived severity of AIDS and anal sex. Among women who reported low control over sex, the probability of anal sex was similar regardless of their perception of AIDS severity (0.22–0.24); but among women who reported high control over sex, the probability of anal sex was inversely related to their perceptions of the severe consequences of acquiring AIDS (0.29–0.16). The male's perception of control over sex also seems to be important. A couple's probability of anal sex was similar if the male partner reported low control over sex—regardless of his high or low perceived risk of AIDS—and if he reported high control over sex but a high perceived risk of AIDS (0.23–0.27). However, if a male partner reported high control and a low perceived risk of AIDS, the couple had a much greater probability of anal sex (0.45).

STD Protective Behaviors

The probability that a couple had decided to take measures to protect themselves from STDs in the prior four weeks was not significantly associated with relationship duration or female partner's age (Table 4, page 80). Compared with women who had had one sexual partner, those who had had 10 had a greater probability of reporting that they and their partners had decided to engage in less risky sex

TABLE 3. Predicted probability that dating couples had anal sex in the past four weeks, as estimated from logit regression analyses including beliefs about which partner controls the couple's sexual and contraceptive behaviors, by selected characteristics

Characteristic	Probability
ALL COUPLES	0.218
Relationship duration	
1 month (low)	0.242
48 months (high)	0.210
FEMALES	
Age	
20 (low)	0.238
35 (high)	0.195
Race/ethnicity	
Black	0.212
Hispanic	0.304
Other	0.219
Lifetime no. of sex partners*	
1 (low)	0.182
10 (high)	0.202
Perceived chance a woman will get AIDS from one encounter with an infected partner †	
25% (low)	0.279
75% (high)	0.218
Belief about who is more likely to make couple's decisions about sex/contraception**	
Female	0.143
Male	0.257
Perceived control over sex x perceived severity of AIDS†	
Low control x low perceived severity	0.215
Low control x high perceived severity	0.235
High control x low perceived severity	0.288
High control x high perceived severity	0.157
MALES	
Education*	
12 years (low)	0.231
16 years (high)	0.155
Father's education**	
<high school graduate	0.397
High school graduate	0.244
Some college	0.118
College graduate	0.080
No father	0.219
Perceived control over sex x perceived chance a man will get AIDS*	
Low control x 25% chance	0.268
Low control x 75% chance	0.230
High control x 25% chance	0.447
High control x 75% chance	0.232

*p≤.05. **p≤.01. †p≤.10. Notes: Probabilities are predicted using the estimated logit regression model for the specific evaluation points shown in the table to illustrate the net effects of the variables in the model. Significance indicates improvement in overall model fit when a given characteristic or interaction is included. For continuous measures, low and high values represent roughly one standard deviation below and above the mean value of the measure.

practices (0.07 vs. 0.06) and a lower probability of saying that they had done nothing to protect themselves (0.63 vs. 0.64). Increased male partner's education and income were associated with greater probabilities of having done nothing to prevent STDs and lower probabilities of having decided to engage in less risky sex practices.

TABLE 4. Predicted probability that dating couples engaged in specific STD protective behaviors in the past four weeks, as estimated from multinomial logit regression analyses including sources of relationship power, by selected characteristics

Characteristic	STD protective behavior		
	Did nothing	Used condoms	Less risky sex practices
ALL COUPLES	0.617	0.299	0.084
Relationship duration			
1 month (low)	0.571	0.332	0.096
48 months (high)	0.639	0.284	0.078
FEMALES			
Age			
20 (low)	0.596	0.319	0.085
35 (high)	0.644	0.275	0.082
Lifetime no. of sex partners*			
1 (low)	0.642	0.300	0.058
10 (high)	0.629	0.302	0.070
Gender role ideology x race/ethnicity*			
Less traditional x black	0.521	0.336	0.143
Less traditional x Hispanic	0.856	0.046	0.098
Less traditional x other	0.859	0.085	0.057
More traditional x black	0.544	0.262	0.193
More traditional x Hispanic	0.652	0.283	0.065
More traditional x other	0.550	0.421	0.029
Education x perceived severity of AIDS*			
12 yrs. x low severity	0.623	0.298	0.079
12 yrs. x high severity	0.613	0.313	0.074
16 yrs. x low severity	0.696	0.231	0.074
16 yrs. x high severity	0.553	0.273	0.174
MALES			
Education*			
12 years (low)	0.604	0.306	0.090
16 years (high)	0.681	0.275	0.044
Income*			
Low	0.622	0.302	0.076
High	0.643	0.298	0.059
Commitment to making relationship last x prior STD infection*			
Respondent more committed x no prior STD	0.626	0.243	0.131
Respondent more committed x prior STD	0.718	0.264	0.018
Partner more committed x no prior STD	0.615	0.351	0.034
Partner more committed x prior STD	0.404	0.239	0.356
Partner's use of compliance-gaining strategies x had known someone with AIDS†			
Partner low use of strategies x had not known someone	0.679	0.263	0.058
Partner low use of strategies x had known someone	0.556	0.314	0.130
Partner high use of strategies x had not known someone	0.655	0.250	0.094
Partner high use of strategies x had known someone	0.592	0.343	0.065

* $p \leq .05$. † $p \leq .10$. Notes: Probabilities are predicted using the estimated multinomial logit regression model for the specific evaluation points shown in the table to illustrate the net effects of the variables in the model. Significance indicates improvement in overall model fit when a given characteristic or interaction is included. For continuous measures, low and high values represent roughly one standard deviation below and above the mean value of the measure.

Several associations were conditioned by relationship power. A woman's perception of AIDS severity had no association with the couple's protective behavior if she had low education. However, among better educated (i.e., more powerful) women, those who perceived high severity of AIDS had a lower probability than those who perceived low severity of having done nothing (0.55 vs. 0.70); they had higher probabilities of having used condoms (0.27 vs. 0.23) and having decided to engage in less risky sex practices (0.17 vs. 0.07).

Gender role ideology moderates the relationship between a woman's race and ethnicity and her and her partner's STD protective behaviors. Among women who held more traditional beliefs (i.e., had less power), the couple's probability of having done nothing to protect themselves from STDs differed little by race and ethnicity. There were differences by race and ethnicity, however, among couples who did protect themselves: Nonblack, non-Hispanic women had a greater probability of having used condoms than did black and Hispanic women (0.42 vs. 0.26–0.28), whereas black women had a greater probability than Hispanics and other women of having decided to engage in less risky sex practices (0.19 vs. 0.03–0.07). Among couples in which the woman held less traditional, more egalitarian beliefs (i.e., had more power), black women had a much greater probability than Hispanic and other women of reporting condom use (0.34 vs. 0.05–0.09), a slightly greater probability of reporting a decision to engage in less risky sex practices (0.14 vs. 0.06–0.10), and a much lower probability of having decided not to take preventive measures (0.52 vs. 0.86 each).

Male power was also important. Among couples in which the male reported having a more committed partner (i.e., he has more power), the probability of having decided to engage in less risky sex practices was much greater if the male had had a prior STD than if he had not (0.36 vs. 0.03); the probability of having done nothing was lower in this situation (0.40 vs. 0.62). Having had an STD made little difference in the couple's behavior when the male partner reported being more committed to the relationship. Furthermore, for men who reported that their female partner seldom used coercive strategies to get what she wanted (i.e., he had more power), having known someone with AIDS was marginally associated with the probability of having decided to engage in less risky sex practices; there were no other significant differences for the interaction of compliance-gaining strategies and males' knowledge of someone with AIDS.

In analyses including partners' beliefs about level of control over sex and contraception, longer relationship duration, which was not significant in previous analyses, was associated with a couple's higher probability of having done nothing to protect themselves against STDs (0.56–0.65) and their lower probability of having used condoms (0.27–0.34; Table 5). The other significant findings from this model highlight and support some of the main results reported in Table 4. Females' lifetime number of partners and males' education exhibited the same associations with the outcome as in Table 4. When females reported that their partners made the decisions about sex and contraception, probability of condom use did not differ by race and ethnicity; but when females reported making those decisions, black females had a much greater probability of condom use than Hispanics and other females. These findings are similar to those regarding the interaction between gender role ideology and race and ethnicity.

In addition, among women who perceived low control over sex, perception of AIDS severity was unrelated

to the couple's protective behavior; however, among women who reported high control, perceiving more severe consequences of AIDS was associated with a lower probability of not protecting themselves from STDs and a greater probability of deciding to engage in less risky sex practices. Finally, among men who reported that their partners made the decisions about sex and contraception, male's prior STD status had little effect; but when males reported making such decisions, prior STD infection was marginally associated with a lower probability of taking no preventive measures and with a greater probability of deciding to engage in less risky practices.

Using Male Reports of the Outcomes—Does It Matter?

As in any couples survey, partners' reporting of the outcomes examined disagreed somewhat. To determine whether we would have come to the same conclusions if we had used the males' reports of the outcomes instead of the females',* we estimated models corresponding to those presented in Tables 2–5 that included both men and women in individual-level models, used their respective reports of each outcome and adjusted the standard errors for clustering at the couple level. We then added a main effects term indicating the respondent's gender, along with interaction terms of gender with every other variable. We then assessed whether the introduction of these variables significantly improved the fit of the model without the gender main effect and interaction terms. This procedure is equivalent to estimating separate models using the female's and male's reports of each outcome and then comparing the results, but has the advantage of providing information about whether any differences by gender in the relationships of personal and partner characteristics with the outcome are statistically significant.

We found no improvement in the overall fit of the models after taking respondent gender into account.† Furthermore, the gender main effect term was never significant, and only a few of the gender interaction terms were significant in any model. Thus, overall, our results were relatively unaffected by using female reports of the outcomes.

DISCUSSION

Our results show that a couple's sexual behaviors are not controlled totally by either partner. Therefore, relying solely on women's or men's reports would miss important partner influences, and proxy reports might be inaccurate enough to distort the partner's influence.

Several of each partner's characteristics are significantly related to the couple's sexual risk-taking. Importantly, partners' power and perception of control over sex and contraception are significant moderators of some of females' and males' characteristics, experiences and beliefs.

*Differences in reports of the outcome by females and males are the only thing that can change the results, because all of our models contain predictor variables based on each partner's reports.

†Full results of these analyses are available from the authors.

TABLE 5. Predicted probability that dating couples engaged in specific STD protective behaviors in the past four weeks, as estimated from multinomial logit regression analyses including beliefs about which partner controls the couple's sexual and contraceptive behaviors, by selected characteristics

Characteristic	STD protective behavior		
	Did nothing	Used condoms	Less risky sex practices
ALL COUPLES			
Relationship duration*	0.622	0.292	0.085
1 month (low)	0.563	0.341	0.096
48 months (high)	0.648	0.271	0.080
FEMALES			
Age			
20 (low)	0.622	0.286	0.092
35 (high)	0.622	0.300	0.078
Lifetime no. of sex partners†			
1 (low)	0.668	0.266	0.065
10 (high)	0.641	0.284	0.075
Belief about who makes decisions about sex/contraception x race/ethnicity*			
Female more likely to decide x black	0.435	0.481	0.085
Female more likely to decide x Hispanic	0.726	0.130	0.143
Female more likely to decide x other	0.830	0.098	0.072
Male more likely to decide x black	0.547	0.311	0.142
Male more likely to decide x Hispanic	0.587	0.381	0.032
Male more likely to decide x other	0.691	0.294	0.016
Perceived control over sex x perceived severity of AIDS*			
Low control x low perceived severity	0.639	0.277	0.084
Low control x high perceived severity	0.644	0.312	0.044
High control x low perceived severity	0.648	0.316	0.036
High control x high perceived severity	0.561	0.266	0.174
MALES			
Education*			
12 years (low)	0.595	0.314	0.092
16 years (high)	0.715	0.231	0.054
Belief about who makes decisions about sex/contraception x prior STD infection†			
Female more likely to decide x no prior STD	0.636	0.282	0.082
Female more likely to decide x prior STD	0.603	0.321	0.076
Male more likely to decide x no prior STD	0.638	0.297	0.065
Male more likely to decide x prior STD	0.545	0.301	0.154

*p≤.05. †p≤.10. Notes: Probabilities are predicted using the estimated multinomial logit regression model for the specific evaluation points shown in the table to illustrate the net effects of the variables in the model. Significance indicates improvement in overall model fit when a given characteristic or interaction is included. For continuous measures, low and high values represent roughly one standard deviation below and above the mean value of the measure.

Indeed, without taking relationship power into account, we would miss the importance of knowledge of someone with AIDS, prior STD and perception of AIDS severity, for example, which are related to sexual risk-taking only if a certain partner has enough relationship power to influence the sexual situation.

We find that couples of lower socioeconomic status, as measured by the male partner's own and his father's education, have an elevated probability of having engaged in anal sex in the last four weeks. Some previous research suggests that increased socioeconomic status is associated with increased willingness to engage in a variety of non-traditional sexual activities, including nonvaginal sex.^{46,47} Typically, such findings have pertained to ever having experienced anal sex. Individuals of higher socioeconomic status may be more likely than others to experiment with

anal sex, but less likely to engage in the behavior on a regular basis—an idea also supported by previous research.⁴⁶

Framing events and perceived risk are also significantly related to a couple's anal sex behavior: Couples in which the female partner has had a greater number of sexual partners have a relatively higher probability of reporting anal sex, and couples in which the female perceived high risk of getting AIDS have a relatively lower probability of the behavior. Power of one partner or the other and perceived control over sex and contraception are also important. Anal sex is negatively related to the female's perception of AIDS severity only when the female has more control over sex. Further, a male's greater perception of AIDS risk and his having known someone with AIDS are most strongly related to anal sex when he has more power or has more control over sex.

The gender role ideology of the male partner is very strongly related to whether the couple has anal sex; couples in which the male has a more traditional gender role ideology have a higher probability of engaging in this behavior. Males overall may have a stronger preference for anal sex than females, as evidenced by females' reports that they are more likely to have anal sex when their partner decides about sex and contraception.

Increased lifetime number of sex partners reported by females is associated with increased probability that the couple has decided to engage in less risky sex practices. This suggests that a woman who has had many partners better understands that she and her current partner may be at increased risk of STD infection because of her history. Higher male education and income are associated with a couple's increased probability of doing nothing to protect against STDs and reduced probability of deciding to engage in less risky sex practices, suggesting a lower perceived risk of infection among those of higher socioeconomic status.

Women of different races and ethnicities may use their relationship power differently. Hispanics and other women who have more egalitarian gender role ideology may give their partners more say in regard to condom use, and their partners may opt not to use condoms because condoms interfere with sexual pleasure.⁴⁸ Black women who have less traditional gender role ideology, however, may be more insistent about condom use; greater use among blacks is consistent with the literature.⁴⁹ A standard interpretation is that blacks perceive themselves as having a higher risk of STDs than whites because they have a higher disease prevalence.

Our findings may help inform new couples-based prevention interventions, to more effectively fight STD transmission. Most STD prevention messages direct little attention toward the relationship status of sex partners and the need to promote safer sex within affectionate rather than just casual relationships.^{22,50,51}

Importantly, although using condoms and being monogamous certainly reduce the incidence of new infections, public health efforts have largely underestimated the difficulty people have in following these recommendations. Individuals, especially women, may find it difficult to introduce or sustain safer-sex practices because of partners'

negative reactions, such as terminating the relationship or engaging in intimate partner violence.⁵² In addition, interventions that expect participants to share new knowledge with their sexual partner assume that they have the necessary communication skills.⁵¹ Individuals may be unable to practice safer-sex behavior with their partner because of factors such as gender role expectations or power imbalances in the relationship.

Couples-based interventions that take into consideration relationship, especially power, dynamics may enable individuals to initiate and sustain safer-sex practices. Several STD prevention interventions for heterosexual couples have been efficacious in reducing risky sexual behavior and increasing safer sex practices.⁵²⁻⁵⁴ Furthermore, they show that it is feasible to recruit for and conduct couples-based STD prevention interventions. Couples-based interventions further grounded in research that accounts for the many relationship influences forming the context for human sexual behavior and attitudes may help redress the continuing problem of STD infection in the United States.

REFERENCES

1. Forste R and Tanfer K, Sexual exclusivity among dating, cohabiting, and married women, *Journal of Marriage and the Family*, 1996, 58(1):33-47.
2. Blumstein P and Schwartz P, *American Couples: Money, Work, Sex*, New York: William Morrow, 1983.
3. Harvey SM et al., Relationship power, sexual decision making and condom use among women at risk for HIV/STDs, *Women and Health*, 2002, 36(4):69-84.
4. Ochs E and Binik Y, The use of couple data to determine the reliability of self-reported sexual behavior, *Journal of Sex Research*, 1999, 36(4):374-384.
5. Harvey SM et al., He said, she said: concordance between sexual partners, *Sexually Transmitted Diseases*, 2004, 31(3):185-191.
6. Seal D, Interpartner concordance of self-reported sexual behavior among college dating couples, *Journal of Sex Research*, 1997, 34(1):39-55.
7. Beckman LJ, Husbands' and wives' relative influence on fertility decisions and outcomes, *Population and Environment*, 1984, 7(3):182-197.
8. Greene ME and Biddlecom AE, Absent and problematic men: demographic accounts of male reproductive roles, *Population and Development Review*, 2000, 26(1):81-115.
9. Miller WB and Pasta DJ, The relative influence of husbands and wives on the choice and use of oral contraception, diaphragm, and condoms, *Journal of Applied Social Psychology*, 1996, 26(19):1749-1774.
10. Miller WB et al., Tubal ligation or vasectomy: how do married couples make the choice? *Fertility and Sterility*, 1991, 56(2):278-284.
11. Severy LJ and Silver SE, Two reasonable people: joint decision-making in contraceptive choice and use, in: Severy LJ, ed., *Advances in Population: Psychosocial Perspectives*, London: Jessica Kingsley Publishers, 1994, pp. 207-227.
12. Sobel ME and Arminger G, Modeling household fertility decisions: a nonlinear simultaneous probit model, *Journal of the American Statistical Association*, 1992, 87(417):38-47.
13. Thomson E, Dyadic models of contraceptive choice, in: Brinberg D and Jaccard JJ, eds., *Dyadic Decision Making*, New York: Springer-Verlag, 1989.

14. Thomson E, Fertility desires and fertility: hers, his and theirs, *Demography*, 1990, 27(4):579–588.
15. Thomson E, Couple childbearing desires, intentions and births, *Demography*, 1997, 34(3):343–354.
16. Katz BP et al., Partner-specific relationship characteristics and condom use among young people with sexually transmitted disease, *Journal of Sex Research*, 2000, 37(1):69–75.
17. Ku L et al., The dynamics of young men's condom use during and across relationships, *Family Planning Perspectives*, 1994, 26(6):246–251.
18. Amaro H and Raj A, On the margin: power and women's HIV risk reduction strategies, *Sex Roles*, 2000, 42(7/8):723–749.
19. Logan T et al., Women, sex, and HIV: social and contextual factors, meta-analysis of published interventions, and implications for practice and research, *Psychological Bulletin*, 2002, 128(6):851–885.
20. Soler HD et al., Relationship dynamics, ethnicity and condom use among low-income women, *Family Planning Perspectives*, 2000, 32(2):82–101.
21. Pulerwitz J et al., Measuring sexual relationship power in HIV/STD research, *Sex Roles*, 2000, 42(7/8):637–660.
22. Noar SM, Zimmerman RS and Atwood KA, Safer sex and sexually transmitted infections from a relationship perspective, in: Harvey J et al., eds., *The Handbook of Sexuality in Close Relationships*, Mahwah, NJ: Lawrence Erlbaum Associates, 2004, pp. 519–544.
23. Sheeran PC et al., Psychosocial correlates of heterosexual condom use: a meta-analysis, *Psychological Bulletin*, 1999, 125(1):90–132.
24. Harris KM, Design features of Add Health, unpublished manuscript, Chapel Hill, NC: Carolina Population Center, University of North Carolina at Chapel Hill, 2005.
25. Christopher F and Sprecher S, Sexuality in marriage, dating, and other relationships: a decade review, *Journal of Marriage and the Family*, 2000, 62(4):999–1017.
26. DeLamater J and Hyde J, Conceptual and theoretical issues in studying sexuality in close relationships, in: Harvey J et al., eds., *The Handbook of Sexuality in Close Relationships*, Mahwah, NJ: Lawrence Erlbaum Associates, 2004, pp. 7–30.
27. Agnew CR, Power over interdependent behavior within the dyad: who decides what a couple does? in: Severy LJ and Miller WB, eds., *Advances in Population: Psychosocial Perspectives*, Vol. 3, London: Jessica Kingsley Publishers, 1999, pp. 163–188.
28. Becker S, Couples and reproductive health: a review of couple studies, *Studies in Family Planning*, 1996, 27(6):291–306.
29. Miller WB, Reproductive decisions: how we make them and how they make us, in: Severy LJ, ed., *Advances in Population: Psychosocial Perspectives*, Vol. 2, London: Jessica Kingsley Publishers, 1994, pp. 1–27.
30. Vohs K et al., Sex in 'his' versus 'her' relationships, in: Harvey J et al., eds., *The Handbook of Sexuality in Close Relationships*, Mahwah, NJ: Lawrence Erlbaum Associates, 2004, pp. 455–474.
31. Sprecher S and Felmlee D, The balance of power in romantic heterosexual couples over time from 'his' and 'her' perspectives, *Sex Roles*, 1997, 37(5/6):361–379.
32. Presser HB, Employment schedules among dual-earner spouses and the division of household labor by gender, *American Sociological Review*, 1994, 59(3):349–364.
33. Ross CE, The division of labor at home, *Social Forces*, 1987, 65(3):816–833.
34. Lucke JC, Gender roles and sexual behavior among young women, *Sex Roles*, 1998, 39(3/4):273–297.
35. Shearer CL et al., Are traditional gender role attitudes associated with risky sexual behavior and condom-related beliefs? *Sex Roles*, 2005, 52(5/6):311–324.
36. Drigotas SM and Rusbult CE, Level of commitment, mutuality of commitment and couple well-being, *Personal Relationships*, 1999, 6(3):389–409.
37. Howard JA et al., Sex, power, and influence tactics in intimate relationships, *Journal of Personality and Social Psychology*, 1986, 51(1):102–109.
38. Halperin DT, Heterosexual anal intercourse: prevalence, cultural factors, and HIV infection and other health risks, part 1, *AIDS Patient Care and STDs*, 1999, 13(12):717–730.
39. Mayer KH and Anderson DJ, Heterosexual HIV transmission, *Infectious Agents and Disease*, 1995, 4(4):273–284.
40. Udry JR, The marital happiness/disruption relationship by level of marital alternatives, *Journal of Marriage and the Family*, 1983, 45(1):221–222.
41. King LA and King DW, Sex Role Egalitarianism Scale, *Psychology of Women Quarterly*, 1997, 21(1):71–87.
42. Catania JA et al., The assessment of locus of control: situational specificity in the sexual context, *Journal of Sex Research*, 1984, 20(3):310–324.
43. Blood RO and Wolfe DM, *Husbands and Wives*, New York: The Free Press, 1960.
44. Rubin DB, *Multiple Imputation for Nonresponse in Surveys*, New York: John Wiley and Sons, 1987.
45. Schafer JL, *Multiple Imputation: A Primer*, London: Chapman and Hall, 1997.
46. Billy JOG et al., The sexual behavior of men in the United States, *Family Planning Perspectives*, 1993, 25(2):52–60.
47. Laumann EO et al., *The Social Organization of Sexuality*, Chicago: University of Chicago Press, 1994.
48. Grady WR et al., Contraceptive characteristics: the perceptions and priorities of men and women, *Family Planning Perspectives*, 1999, 31(4):168–175.
49. Tanfer K et al., Condom use among U.S. men, 1991, *Family Planning Perspectives*, 1993, 25(2):61–66.
50. Kelly J and Kalichman S, Increased attention to human sexuality can improve HIV/AIDS prevention efforts: key research issues and directions, *Journal of Consulting and Clinical Psychology*, 1995, 63(6):907–918.
51. El-Bassel N et al., HIV prevention for intimate couples: a relationship-based model, *Families, Systems, and Health*, 2001, 19(4):379–395.
52. El-Bassel N et al., The efficacy of a relationship-based HIV/STD prevention program for heterosexual couples, *American Journal of Public Health*, 2003, 93(6):963–969.
53. Harvey SM et al., A randomized study of a pregnancy and disease prevention intervention for Hispanic couples, *Perspectives on Sexual and Reproductive Health*, 2004, 36(4):162–169.
54. Witte SS, Promoting female condom use to heterosexual couples: findings from a randomized clinical trial, *Perspectives on Sexual and Reproductive Health*, 2006, 38(3):148–154.

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