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Gender, Contraceptive Attitudes, and Condom Use in Adolescent Romantic Relationships: A Dyadic Approach

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Abstract

Although sexual risk behavior occurs in a dyadic context, most studies of adolescent sexual behavior focus on individuals. This study uses couple data ($N = 488$ couples) from the National Longitudinal Study of Adolescent Health to examine how partners' contraceptive attitudes correlate over time and whether male or female partners' attitudes are better predictors of condom use. Net of their own prior attitudes, partners' prior attitudes predicted both male and female adolescents' Wave 2 attitudes. This association was stronger for female than for male adolescents, suggesting that female attitudes were influenced more by males' prior attitudes than vice versa. When entered together, only male adolescents' attitudes predicted dyadic condom use. Findings suggest that male partners may have greater influence on adolescent contraceptive decisions, and that prevention programs should emphasize the relational context of sexual behavior.

High rates of unplanned pregnancies and sexually transmitted infections (STIs) make adolescent condom use an important research and policy concern (Abma, Martinez, Mosher, & Dawson, 2004; Upchurch, Mason, Kusunoki, & Johnson, 2004). A substantial body of research has broadened our understanding of adolescent sexual and condom use behaviors, yet these studies typically focus on individuals as the unit of analysis. Sexual risk behaviors typically occur in dyadic contexts, but theories, studies, and interventions focusing on these behaviors primarily concentrate on individuals (Furman, 2002; Lefkowitz, Gillen, & Vasilenko, 2011; Udry & Bearman, 1998). For example, theories like the Health Belief Model, Theory of Reasoned Action, and Theory of Planned Behavior examine how individual attitudes, beliefs and intentions predict condom use and other sexual risk behaviors (Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Rosenstock, Strecher, & Becker, 1994), and many studies focus on individual-level risk and protective factors (for review, see Buhi & Goodson, 2007; Zimmer-Gembeck & Helfand, 2008). Omitted from these perspectives is an understanding of how sexual decisions are negotiated by male and female adolescents within relationships (Welsh, Haugen, Widman, Darling, & Grello, 2005).

In order to accurately predict and prevent sexual risk behaviors, it is important to recognize and understand the processes of influence, negotiation, compromise, and decision making occurring at the dyadic level. Moreover, a couple focus is necessary for determining whether decision-making processes are gendered or vary according to partners' differential access to resources and social status. In this study, we extend prior research with a couple-level examination of whether and how individuals' contraceptive attitudes are influenced by their partners' attitudes, and whether and how male and female partners' attitudes differentially predict the couple's condom use.

The emergence and growing importance of romantic relationships are defining features of adolescence (Furman, 2002). Adolescents prioritize romantic and sexual relationships, making these domains critical for understanding adolescent development (Collins, 2003). In addition, romantic partners can act as primary socialization agents. Prior research suggests that adolescents become more similar to their romantic partners over time in multiple areas, including depression, smoking, and delinquency (Aikins, Simon, & Prinstein, 2010; Haynie, Giordano, Manning, & Longmore, 2005; Simon, Aikins, & Prinstein, 2008). Similar socialization processes could operate for partners' sexual or contraceptive attitudes, impacting their subsequent sexual behavior. Partner influence would be particularly problematic in situations where a more powerful or persuasive partner has more negative attitudes about contraception, and thus could influence a partner not to use condoms. Thus, in cases where couples have disparate views, one partner's attitudes may play a larger role in determining sexual behavior.

Gender may be a central determinant in the process by which one partner's attitudes influence the other partner's attitudes and the couple's sexual behavior, as sexual scripts are highly gendered (Wiederman, 2005). However, there are competing views on whether male or female partners have greater influence on sexual behavior. Perspectives from the social exchange tradition (Blau, 1964; Homans, 1961) predict that female adolescents yield greater influence in sexual decision making than their male partners do. Social exchange theorists typically view social interactions in economic terms, with sex viewed as a scarce resource. Baumeister and Vohs (2004) argue that because men desire sex more than women do, sex is essentially a female-controlled resource, and thus women have more control over the conditions under which sexual behaviors occur. This view is consistent with ideas of women as gatekeepers set forward by traditional sexual double standards (Crawford & Popp, 2003). These perspectives suggest that because female adolescents are tasked with halting unwanted sexual behaviors, their attitudes may have more impact on condom use behaviors than their male partners' attitudes.

In contrast, other perspectives suggest that male adolescents have more power in negotiating sexual behavior and condom use. For example, although sex is a resource that men desire more than women do, maintaining a romantic relationship may be, on average, more important to women than men. Female adolescents are socialized to maintain relationships and avoid conflict with female peers, at the cost of their own feelings or desires, and female adolescents engage in more prosocial behavior than male adolescents (Gilligan, 1982; Rose & Rudolph, 2006). Male adolescents, on the other hand, engage in peer relationships marked by competition, and may take more dominant interaction styles into their romantic

relationships (Maccoby, 1990; Rose & Rudolph, 2006). Consistent with this idea, women are more likely to comply with a partner's request for sex, often citing as a reason for compliance a desire to establish intimacy or a fear that the partner would lose interest in the relationship if they did not have sex (Impett & Peplau, 2003). In addition, the presence of a sexual double standard where sex is more acceptable for men than women may place women into gatekeeper roles, but also make them less able to negotiate condom use when they do have sex. Women have, on average, more positive attitudes about condoms than men do (Manlove, Ryan, & Franzetta, 2003; Petersen & Hyde, 2010). However, experimental and qualitative research has shown that both male and female adolescents and young adults believe that it is inappropriate for women to suggest condom use to their partner and think that a man will like his partner less if she suggests using condoms (Hynie & Lydon, 1995; Marston & King, 2006). These findings are consistent with the sexual double standard in which women but not men who are contraceptively prepared are labeled promiscuous (Hynie & Lydon, 1995). Thus, female adolescents may comply with their partners' desires to forego condom use because they fear sexual stigma or the loss of a valued relationship.

Research findings on this topic have been equivocal, contributing to the theoretical controversy. Some individual-level studies show that female adolescents' attitudes are predictive of their sexual and condom use behavior, whereas male adolescents' are not (Manlove et al., 2003). Other studies, however, show that sexual attitudes are significant predictors of sexual behavior for both male and female adolescents (Campbell, Peplau, & DeBro, 1992; Gillmore et al., 2002). Still other research shows that attitudinal factors predict sex for both male and female adolescents, but that different factors are important: for male adolescents, sexual attitudes, peer norms and self-efficacy may be important, whereas relationship factors and the meaning of sexual behaviors may be more important to female adolescents (Gebhardt, Kuyper, & Greunsven, 2003). Because existing studies focus on the individual without attention to his/her partner's attitudes, it is difficult to determine the gendered relationship processes taking place within a dyad.

To our knowledge, no study has assessed the influence of partners' contraceptive attitudes on the romantic dyad's condom use behavior. The few studies that have taken a dyadic approach have focused on couple decision making or intercourse, and even these have provided equivocal results. Although not focused on sexual behavior specifically, one study of relationship power in adolescent couples found that male adolescents were higher in decision-making power than their female partners were (Bentley, Galliher, & Ferguson, 2007), which suggests that male adolescents may exert more influence on sexual decision making. However, another study found that female, but not male, adolescents' desire for sex predicted whether a couple engaged in sexual intercourse, suggesting that female adolescents were sexual gatekeepers (Burrington, Kreager, & Haynie, 2012). Other research suggests that both partners' traits or attitudes play roles in the dyad's sexual behavior; female adolescents' risk behaviors and male adolescents' sexual attitudes were more often associated with sexual behavior (Cleveland, 2003). However, dyadic studies of sexual behavior often focus on whether or not intercourse occurred, so less is known about how male and female partners' attitudes predict condom use.

In this study, we use couple data from the National Longitudinal Study of Adolescent Health (Add Health) to address three questions about adolescent contraceptive attitudes and condom use. First, we examine the extent to which male and female adolescents' prior contraceptive attitudes are associated with their partners' current contraceptive attitudes. Second, we test whether these associations differ by gender. Third, we examine whether male or female partners' contraceptive attitudes are stronger predictors of the dyad's condom use behavior. We make no specific predictions, but results from these analyses will arbitrate the competing hypotheses from prior theory and research reviewed above.

Method

Participants

This study uses data from the first two waves of Add Health, a nationally representative school-based survey of U.S. adolescents enrolled in grades 7 through 12 in the 1994–95 school year (Wave 1) who were followed up approximately one year later (Wave 2). Further details are available elsewhere (Harris et al., 2009). To address the stratified sampling design, all statistics are population weighted to adjust for stratified sampling and participant non-response (Chantala, 2006).

Romantic pairs—Students surveyed at Wave 2 were asked to nominate up to three “special romantic relationships” occurring in the 18 months prior to survey administration. Approximately 55% ($N = 8,285$) of respondents reported at least one romantic relationship. Of these, approximately half ($N = 4,229$) nominated one or more partners attending a sampled school. The primary dependent variables (i.e., contraceptive attitudes, condom use) and the sampling weights necessary for population estimates were only available for a subset of participants who completed the in-home questionnaires, leaving 848 available romantic pairs (subsequently referred to as couples) with necessary data for these analyses. Furthermore, 11 same-sex couples were excluded from the analyses, due to the focus on gender differences. To remove unobserved between-couple correlations, only one romantic pair was selected per respondent. Reciprocal couples (i.e., where both partners nominated the other) were retained where possible. If the romantic nominations were unreciprocated, the most recently reported relationship was retained. The final sample consisted of 488 couples, 172 (35%) of which were reciprocal. The sample is clearly not representative of all adolescent dating couples, but prior analyses (Kreager & Haynie, 2011) suggest that it is representative of adolescents dating a partner from the same school. The sample had a mean age of 15.88 for female adolescents and 16.36 for male adolescents at Wave 1, and a majority of participants were White (see Table 1, “All Couples” columns for descriptive statistics). For the third research question examining condom use, we use a subsample of couples who engaged in intercourse with this partner ($N = 257$; see Table 1, “Sexually Active Couples” columns). In cases where partners provided inconsistent reports of whether intercourse occurred ($N = 16$), we took a conservative approach and coded the couple as sexually active. We examined whether individuals in non-sexually active couples differed from individuals in sexually active ones on study and control variables. As would be expected from prior research on predictors of sexual behavior, male and female adolescents who had not had sex were less likely to be Black, had more educated parents, higher grades

and vocabulary scores, stronger college expectations, were in shorter relationships that were less likely to be reciprocated, and had perceived fewer barriers to contraceptive use; female adolescents who had not had intercourse were also more likely to be Asian, less physically developed and more religious.

Measures

Contraceptive attitudes—At Waves 1 and 2, participants completed an 8-item scale tapping perceived barriers to contraceptive use (e.g., “In general, birth control is too much of a hassle to use”). All items were assessed on a five-point Likert-type scale (1 = *strongly agree*, 5 = *strongly disagree*), with higher scores indicating fewer perceived barriers to contraceptive use ($\alpha = .60$). Both partners’ Wave 1 mean scores on this scale are the primary independent variables, and the Wave 2 mean scores are the primary outcome for models of partner influence on attitudes (Research Questions 1 and 2).

Condom use—The outcome variable in the third research question is a dichotomous indicator of whether or not a couple used a condom every time they had sex with this partner, measured at Wave 2. We used this stringent coding of condom use because STIs or pregnancy can result from a single occurrence of unprotected sex, and thus this variable represents consistent condom use in which couples attempted to protect themselves at every possible occasion. This variable is relationship-specific and applies only to the 257 couples who had engaged in sexual intercourse together. It is coded ‘1’ if partners reported condom use during every instance of sexual intercourse, and ‘0’ otherwise. For reciprocal relationships where partners did not agree on condom use ($n = 32$), the conservative report of inconsistent condom use was selected. In supplementary analyses, we also examined the broader measure of contraceptive use, which adds use of birth control pills, intrauterine devices, and withdrawal methods to condom use. However, as condom use is the only method that also prevents STI transmission and only six couples (2%) reported other contraception and not condom use, we present only models of condom use. Models of contraception are virtually identical to those presented and are available from the authors upon request.

Couple-level variables—*Reciprocity* is an indicator of partner reciprocity of romantic nomination that is included to both look for differences across reciprocated and non-reciprocated couples, and as an indicator of partners’ acknowledgment and investment in the romantic relationship. Non-reciprocity rates were similar across gender, with 161 male adolescents (51% of non-reciprocated couples) and 155 female adolescents (49% of non-reciprocating couples) nominating a romantic partner who did not return the nomination. *Relationship duration* captures the length of the romantic relationship, in years, from its beginning date to the date of the Wave 2 survey. For reciprocal couples (where both partners reported relationship dates), relationship duration was averaged across the partners’ reports; for non-reciprocal couples, a single report was used.

Individual-level controls—We controlled for several Wave 1 variables that have been shown to be associated with adolescent sexual behavior in prior studies (for review, see Zimmer-Gembeck & Helfand, 2008). Dichotomous indicators of *race/ethnicity* (for each

variable, 1 = Black, Hispanic, Asian or other race; White = 0 as the reference group) and *gender* (1 = female, 1 = male) and *partner age* (measured in years) are included in all analyses. *Two-parent biological family* captures partners living with both biological parents at Wave 1 (1 = living with both parents, 0 = not living with both parents). *Parental education* measures the highest educational level achieved by either parent or one parent for single-parent families (0 = *less than eighth grade*, 3 = *some college* and 5 = *post-graduate education*). *Parent attachment* is self-reported closeness to mother and/or father on a five-point Likert scale (1 = *not close at all* to 5 = *extremely close*). *Physical development* is measured for female adolescents by self-reported breast development, body curvature, and development relative to female adolescents the same age and for male adolescents by self-reported underarm and facial hair growth, lowered voice, and development relative to male adolescents the same age, using items similar to those in the Pubertal Development Scale (Petersen, Crockett, Tobin-Richards, & Boxer, 1987). The gendered scores were Z-transformed to place them on equal metrics; thus, these standardized scores represent deviations from gender-specific mean levels of physical development. *BMI* is self-reported weight (converted to kilograms) divided by height (converted to meters) squared. *Virgin at W1* is a self-reported indicator of virginity status at Wave 1 (had not engaged in sexual intercourse = 1). *Religiosity* is perceived importance of religion measured on a 4-point scale (1 = *not important* at all to 5 = *very important*). *Grades* is a self-report of grades in four courses (English, Math, Science, and History), measured on a four-point scale (1 = *D or F* to 4 = *A*). *Vocabulary test score* is derived from an abbreviated Peabody picture vocabulary test, and is rated on a continuous scale similar to an IQ test. Because the values of this scale were larger than for the other measures, we divided each score by 10 to make coefficients more interpretable. Finally, *college expectations* capture the subjective likelihood of college attendance on a 5-point scale, where 1 = *low* and 5 = *high*.

Analytic Procedure

Actor-partner interdependence models (APIMs)—To address the first research question, examining how a partner's prior (Wave 1) attitudes influence an individual's current (Wave 2) attitudes, we used APIMs estimated for partners' contraceptive attitudes within the romantic dyad (Kenny, Kashy, & Cook, 2006). Approached as multi-level models, APIMs consist of individual data at level one and dyadic data at level two. The models allow partner outcomes and characteristics to be correlated and simultaneously estimate actor effects (i.e., the effects of individuals' characteristics on their own outcomes) and partner effects (i.e., the effects of partners' characteristics on the individuals' outcomes). Formally, the models are expressed as follows, starting with the individual level (Level 1):

$$Y_{ij} = \beta_{0j} + \beta_{1j} (\text{Female}) + \beta_{2j} (\text{Prior Attitudes}) + \beta_{3j} (\text{Partner Attitudes}) + \beta_{4j} (\text{Female} \times \text{Partner Attitudes}) + \beta_{5j} (\text{Black}) \dots \beta_{19j} (\text{College Expectations}) + r_j. \quad (1)$$

Here our primary outcome Y is Wave 2 contraceptive attitudes for individual j of couple i . Beta parameters represent predictors that are specific to each individual. β_{0j} refers to the average contraceptive attitudes when all covariates are zero, and β_{1j} captures gender differences in contraceptive attitudes. Of particular interest for our research questions, β_{2j} represents each individual's prior contraceptive attitudes (actor effects) and β_{3j} represents

the impact of partners' prior contraceptive attitudes (partner effects). An association between partners' prior attitudes and actors' future attitudes, net of their prior attitudes, would be suggestive of partner influence. β_{4j} is the interaction of gender and partner attitudes, which is estimated to test whether partner influence is stronger for male or female adolescents. Fifteen other beta parameters ($\beta_{5j} \dots \beta_{19j}$) represent individual-level control variables, and r_{ij} is the individual-level error term that is normally distributed with a mean of zero. Following Kenny et al. (2006), gender is effect coded (1 = female, -1 = male) to allow for easier interpretation of the intercept and gender interaction terms.

The Level 2 equations can be written as

$$\beta_{0j} = \gamma_{00} + \gamma_{01} + \gamma_{02} + u_{0j} \quad \text{and} \quad (2)$$

$$\beta_{1j} = \gamma_{10} \text{ to } \beta_{19j} = \gamma_{190} \quad (3)$$

Here γ_{00} indicates the mean couple-level attitudes for our sample, γ_{01} and γ_{02} reflect the effects of a couple-level indicator of relationship reciprocity and duration, and u_{0j} indicates random variation in couple-level intercepts. All covariates were grand mean centered.

Models are estimated using hierarchical linear modeling (HLM) in the HLM v6.08 statistical package (Raudenbush, Bryk, & Congdon, 2004). This software allows for the inclusion of sampling weights at both levels of analysis (see Chantala, 2001). To reduce the influence of outliers, we followed Chantala's (2001) recommendation to trim level-two (pair) weights at the 80th percentile. In addition, approximately 15% of the couples had missing values on one or both partners' covariates. Missing values are multiply imputed into five datasets using the ICE command in STATA v.9.2 (Royston, 2005) and these datasets are simultaneously analyzed in HLM.

Logistic regression—To address the third research question, whether male or female partners' attitudes were stronger predictors of condom use, we used logistic regressions. Because condom use is a couple-level outcome, female and male adolescents' covariates are entered separately into the models. Of primary interest is the relative effect of female and male adolescents' contraceptive attitudes on the likelihood of condom use, net of controls. Models were estimated in Stata v.9.2 using SVY commands to adjust for survey design effects and MIM commands for multiply-imputed datasets. To ease model interpretation, we present odds ratios in addition to coefficient estimates for our fully specified model.

Results

To test our first and second research questions examining how individuals' attitudes influenced their partners' attitudes, Wave 2 contraceptive attitudes were predicted in three APIMs, with results presented in Table 2. In the first model, individual control variables were entered as predictors of current contraceptive attitudes. Being female, non-Asian, and more physically developed; having higher vocabulary scores and educational aspirations; and being in the relationship for a longer period predicted more positive attitudes toward

contraceptive use. In the second model, we added individuals' prior contraceptive attitudes and their partners' prior contraceptive attitudes. Prior attitudes were strongly predictive of current attitudes; however, there was a significant impact of partner attitudes over and above the influence of actors' prior attitudes. Finally, in the third model we added a gender by partners' attitudes interaction. The interaction was significant and suggested that female adolescents were more influenced by their romantic partners' attitudes than were male adolescents. Note that in order to assess how gender differences in the impact of control variables may impact these findings, we ran additional models with gender interaction terms for each control variable (i.e. with gender interactions for all variables in the model with the exception of own prior attitudes). Only two (gender $\times$ parental education and gender $\times$ BMI) were significant, and inclusion of these results did not affect the overall pattern of results described above.

Figure 1 provides a visual representation of the gender interaction presented in model 3 with predicted values for Wave 2 contraceptive attitudes by gender and partners' prior attitudes, keeping all other covariates at their means. Male adolescents are only expected to have slightly higher Wave 2 contraceptive attitudes when their partner had higher Wave 1 contraceptive attitudes compared to having a partner with lower attitudes. In contrast, female adolescents' Wave 2 attitudes show a strong positive association with their partners' prior attitudes. Female adolescents dating a partner with attitudes two standard-deviations below the mean are expected to have attitudes one standard deviation below the mean at the subsequent wave, controlling for their own prior attitudes and other covariates. Similarly, a female adolescent dating a male adolescent with relatively high contraceptive attitudes is herself expected to have significantly higher attitudes one year later.

To test our third research question examining the association between male and female partners' contraceptive attitudes and condom use, logistic regressions of couple-level condom use were calculated in three models; results are presented in Table 3. The first model examines the role of female partners' attitudes and characteristics on the couple's condom use, the second examines the role of male partners' attitudes and characteristics, and the third model includes predictors from both male and female partners (see Table 3). Note that because of the small number of Asian adolescents who were sexually active, Asians are included in the Other race/ethnicity category in this analysis. In models 1 and 2, where female and male characteristics are entered separately, having more positive contraceptive attitudes predicted consistent condom use for both male and female partners. When entered together in model 3, however, male partners' attitudes remained significant, whereas female partners attitudes were attenuated to non-significance ($\beta = 39\%$).

Discussion

In this study we examined adolescent contraceptive attitudes and condom use from a dyadic perspective. Our primary findings suggest that male adolescents' attitudes play a greater role in couples' future attitudes and behaviors than do female adolescents' attitudes. Specifically, although partners' earlier attitudes predicted individuals' subsequent attitudes for both male and female adolescents, this association was greater for female adolescents. In addition, when entered in a model together, male, but not female, partners' contraceptive attitudes

predicted couple-level condom use. This finding does not support the idea of women as gatekeepers in the domain of condom use, whereby women have more control of sexual behavior because of their male partners' greater interest in sex (Baumeister & Vohs, 2004). Scholars have suggested that female adolescents have greater interest than their male partners in maintaining the relationship (Gilligan, 1982), and that adolescent girls may have difficulty expressing their own preferences in regard to their sexuality and sexual behavior (Tolman, 2002). Thus, female adolescents may be more easily influenced by their partners' attitudes and more likely to comply with their partners' ideas about sexual behavior (Impett & Peplau, 2003). In addition, traditional masculinity may emphasize male dominance or power in relationships, which may impact negotiation within a heterosexual relationship (Pleck, Sonenstein, & Ku, 2003). Our findings echo research on a more extreme version of gender asymmetries in romantic or sexual relationships, in which intimate partner violence and abuse has been linked to inconsistent condom use in female adolescents, who may be unable to negotiate condom use (Teitelman, Dichter, Cedarbaum, & Campbell, 2007). It is important to note, however, that in our study, the male influence on condom use is not universally negative. When male adolescents have more positive contraceptive attitudes than their female partners, they may actually influence their partners to engage in safer sex behavior than the female adolescents' attitudes alone would predict.

However, it is possible that changes in female adolescents' contraceptive attitudes are influenced not only by their partners' attitudes but also by their actual condom use with that partner. Individuals may adjust their attitudes or beliefs about sexual behavior after they engage in behaviors that go against their beliefs as a way to relieve cognitive dissonance (Edwards & Barber, 2010; Hardy & Raffaelli, 2003). For example, female adolescents who are supportive of condom use but then, influenced by their partner, have sex without a condom, may reduce their dissonance by becoming less accepting of condoms; similarly, male adolescents may influence their partner to use a condom, which may increase their acceptance of condoms. Future research could better untangle the effects of partner attitudes and actual sexual behaviors.

Although our findings fit with prior research on compliance and gendered relationship styles (Gilligan, 1982; Impett & Peplau, 2003; Maccoby, 1990), they differ from past research from the same sample, which has shown that female but not male adolescents' desire for sex predicts whether or not the couple engages in sexual intercourse (Burrington et al., 2012). Thus, it is possible that female adolescents do play a gatekeeper role in making decisions about whether sexual behavior occurs, but may have less influence on whether they use condoms when they are sexually active. This interpretation is consistent with gendered sexual scripts which suggest that women are responsible for curtailing men's stronger sexual desires, but that men are responsible for condom use (Hynie & Lydon, 1995; Marston & King, 2006). Because girls and women are socialized to reject men's advances and refrain from sexual behavior (Crawford & Popp, 2003; Lamb, Graling, & Lustig, 2011), they may be accustomed to asserting their opinions with regard to whether or not to have sex, but may be less comfortable discussing contraceptive use and asserting themselves to use condoms. Thus, gendered influences on sexual behavior may be complex and vary for different aspects of sexual behavior. Future work should include multiple facets of sexual behavior in a single couple-level study to better understand these complex associations.

Our findings also demonstrate the importance of studying sexual behavior as a dyadic process. In models similar to prior individual-level research on sexual behavior, we found that both male and female adolescents' contraceptive attitudes predicted condom use; however, when both partners' attitudes were included in the models, only male partners' attitudes were significant predictors of condom use. These findings show how individual-level analyses may be missing crucial processes of sexual decision making by including only one of the partners involved in the dyadic behavior. Thus, future research should include information about both partners in a sexual or romantic relationship in order to fully understand the dynamics of sexual behaviors.

This study also has implications for prevention and sexuality education programs. Some abstinence-only programs focus on control of female adolescents' sexuality, under assumptions that male adolescents' sexual desire is natural and female adolescents must be the ones to stop such behaviors (Lamb et al., 2011). However, our research suggests that programs need to focus on changing male adolescents' attitudes toward contraceptive use, as they may play a stronger role in condom use decisions. It is therefore important for programs to promote condom use and negotiation strategies for both male and female adolescents, as well as gender-specific messages such as the acceptability of carrying or suggesting condoms for female adolescents and ways to deal with peer pressure to have sex or not use condoms for male adolescents (MacPhail & Campbell, 2001). In addition, because sexual behavior occurs with a partner, prevention programming should incorporate knowledge about relationship processes.

There are several limitations to this study that provide directions for future research. Although the overall Add Health sample provides a good representation of adolescents, the generalizability of this particular subsample is limited due to the inclusion criteria of having both partners in the study at both waves. As such, this study provides valuable information about couples at the same school, which could be useful to incorporate into school-based programs. Because we do not have information about partners who do not attend the same school, we may be missing some high-risk couples, such as those with age asymmetries between partners (DiClemente et al., 2002; Marín, Coyle, Gómez, Carvajal, & Kirby, 2000). We also do not have information about non-relationship sex, and the processes involved in these sexual partnerships may be different than for those in romantic relationships. Because the majority of sex occurs within a romantic relationship (Morrison et al., 2003) and sex without a condom is more common in longer or more committed relationships (Bauman & Berman, 2005), this study does focus on a context in which much of condom non-use occurs. In addition, our sample of couples is not necessarily representative of all dating couples because of the inclusion of non-reciprocated couples. However, the fact that these partners did influence each other provides support for these partners' involvement in one another's lives, and for including non-reciprocated couples in studies of partner influence. Similarly, some couples provided inconsistent reports of whether they had sex or used a condom, and future research should attempt to better understand reasons for inconsistent reporting. Also, although we looked longitudinally at how attitudes predict later behaviors, some couples may have been in a relationship or had sex before attitudes were measured at Wave 1, making it difficult to decisively determine directionality. The reliability of the contraceptive attitudes measure was relatively low, and thus may be assessing multiple

aspects of contraceptive attitudes, which could be explored separately with more extensive measures. Finally, because of our focus on gender differences, this study focuses on heterosexual couples, but future research should examine sexual behaviors and condom use in sexual minority couples.

In addition to improving on these limitations, research on this topic can be extended in several ways. First, future studies could better understand how discrepancies in couples' attitudes predict sexual behaviors by examining these behaviors in couples with different patterns of attitudes. For instance, it is possible that influence may differ depending on whether the female adolescent partner or the male adolescent partner holds more positive contraceptive attitudes. Second, it is important to better understand the developmental nature of partner influences on sexual behavior, by understanding how these processes change over time within a partnership or differ for adolescents at different ages. Similarly, it is important to understand how these processes may change over the course of a couple's relationship, as well as how relationship factors like commitment, communication, and power play a role. Finally, we explored the role of gender in determining which partner's attitudes better predict condom use behaviors, but it is important to examine other potential sources of asymmetry between partners, such as age differences and differential popularity or social status. Research has documented the role of intimate partner violence and relationship power on inconsistent condom use, and information on these constructs could help in better understanding the dyadic process of condom negotiation (Pulerwitz, Amaro, DeJong, Gortmaker, & Rudd, 2002; Teitelman et al., 2008).

Despite these limitations, this study provides important information about the dyadic nature of contraceptive attitudes and condom use. We found that romantic partners may be socializing agents for attitudes about contraception, but that female adolescents may be more influenced by their partners than male adolescents. We also found that, when examined together, male, but not female, adolescents' attitudes predicted couples' condom use, suggesting that male adolescents are a more important target of prevention programs than they have been treated in the past (Lamb et al., 2011). These findings also demonstrate the importance of examining sexual risk behavior at the level of the dyad, because individual-level analyses can miss important dynamic processes.

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Figure 1.
Predicted values of Wave 2 contraceptive attitudes by partner's prior attitudes and gender.

Table 1

Descriptive Statistics for Couples From Add Health Wave 2, Population Weighted

Variable	All Couples (N = 488)				Sexually Active Couples ^a (N = 257)			
	Female adolescents		Male adolescents		Female adolescents		Male adolescents	
	M (SD)	%	M (SD)	%	M (SD)	%	M (SD)	%
Wave 1 Variables								
White		60		60		54		54
Black		17		20**		21		24*
Hispanic		15		13		14		13
Asian		6		5		4		4
Other Race/Ethnicity		2		2		7		5
Age	15.88 (1.06)		16.36 (1.09)	***	15.97 (1.13)		16.52 (1.10)	***
Two-Parent Biological Family		63		67		58		62
Parental Education	2.97 (1.27)		3.03(1.22)		2.74 (0.71)		2.79 (1.17)	
Parent Attachment	4.51 (0.65)		4.68 (0.46)	***	4.47 (0.71)		4.67 (0.47)	***
Physical Development	.06 (0.78)		0.24 (0.65)	**	0.14 (0.76)		0.25 (0.65)	
BMI	21.79 (3.72)		22.80 (3.63)	***	22.02 (3.90)		23.20 (3.73)	***
Virgin at W1		53		41***		35		23**
Religiosity	2.99 (1.06)		2.93 (1.10)		2.93 (1.07)		2.83 (1.12)	
Grades	2.91 (0.73)		2.66 (0.74)	***	2.78 (0.74)		2.55 (0.71)	***
Vocabulary Test Score	10.22 (1.39)		10.30 (1.33)		10.08 (1.31)		10.14 (1.34)	
College Expectations	4.43 (0.93)		4.02 (1.22)		4.26 (1.07)		3.78(1.36)	***
Prior Contraceptive Attitudes	3.69 (0.56)		3.65 (0.56)		3.71 (0.54)		3.63 (0.58)	
Wave 2 Variables								
Contraceptive Attitudes	3.80 (0.55)		3.66 (0.56)	***	3.83 (0.53)	.53	3.64 (0.57)	***
Condom Use (Always)						49		49
Reciprocal Couple		34		34		39		39
Relationship Duration	0.80 (0.99)		0.80 (0.99)		1.06 (1.21)		1.06 (1.21)	

Note. Significance tests indicate results of a paired test examining significant differences between male and female partners.

^a Sexually active couples columns refer to the subsample of couples who reported engaging in intercourse with this partner at the Wave 2 survey.

$p < .001$ (two-tailed)

$^*10' > d$

**

$^{*}50' > d$

*

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Table 2
Actor-Partner Interdependence Model of Contraceptive Attitudes in Adolescent Couples

Fixed Effects	Model 1 β	(SE)	Model 2 β	(SE)	Model 3 β	(SE)
<i>Individual-Level Variables</i>						
Female β_{1j}	0.06**	(.02)	0.05**	(.02)	-0.19	(.11)
Prior Contraceptive Attitudes β_{2j}			0.38***	(.04)	0.38***	(.04)
Partner's Contraceptive Attitudes β_{3j}			0.09**	(.03)	0.09**	(.03)
Female x Partner's Contraceptive Attitudes β_{4j}					0.07*	(.03)
Black β_{5j}	0.01	(.06)	0.03	(.05)	0.03	(.05)
Hispanic β_{6j}	-0.09	(.06)	-0.05	(.06)	-0.05	(.06)
Asian β_{7j}	-0.36***	(.08)	-0.21**	(.07)	-0.21**	(.07)
Other Race/Ethnicity β_{8j}	-0.05	(.18)	-0.03	(.15)	-0.02	(.15)
Age β_{9j}	0.01	(.02)	0.00	(.02)	0.00	(.02)
Two-Parent Biological Family β_{10j}	0.00	(.04)	0.01	(.04)	0.01	(.04)
Parental Education β_{11j}	-0.01	(.02)	-0.02	(.02)	-0.02	(.02)
Parent Attachment β_{12j}	0.05	(.03)	0.04	(.03)	0.04	(.03)
Physical Development β_{13j}	0.06*	(.03)	0.03	(.03)	0.03	(.03)
BMI β_{14j}	-0.01	(.01)	0.00	(.01)	0.00	(.01)
Virgin at W1 β_{15j}	-0.03	(.04)	0.02	(.04)	0.02	(.04)
Religiosity β_{16j}	0.00	(.02)	0.00	(.02)	0.00	(.02)
Grades β_{17j}	0.01	(.03)	0.00	(.03)	0.01	(.03)
Vocabulary Test Score β_{18j}	0.08***	(.02)	0.04**	(.02)	0.04*	(.02)
College Expectations β_{19j}	0.07***	(.02)	0.05*	(.02)	0.05*	(.02)
<i>Couple-Level</i>						
Reciprocal γ_{01}	0.03	(.04)	0.01	(.04)	0.01	(.04)
Relationship Duration γ_{02}	0.03*	(.01)	0.02	(.01)	0.02	(.01)
Intercept	3.71***	(.02)	3.71***	(.02)	3.71***	(.02)

Fixed Effects	Model 1		Model 2		Model 3	
	β	(SE)	β	(SE)	β	(SE)
Random Effects Variance Components						
Level 1 (r)	0.18		0.16		0.16	
Level 2 (u_0)	0.07***		0.06***		0.06***	
ICC	0.28		0.27		0.27	

$N = 976$ partners, 488 couples

* $p < .05$,

** $p < .01$,

*** $p < .001$ (two-tailed)

Table 3
Logistic Regression Models of Consistent Condom Use in Sexually Active Adolescent Couples

	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>	
	β	(SE)	β	(SE)	β	OR
<i>Female Characteristics</i>						
W2 Contraceptive Attitudes	0.69*	(.27)			0.42	1.52
Black	-0.08	(.43)			0.37	(.70)
Hispanic	-0.46	(.64)			0.18	(.88)
Other Race/Ethnicity	-0.68	(.43)			0.12	(1.32)
Age	0.01	(.14)			0.04	(.19)
Two-Parent Biological Family	0.26	(.33)			0.26	(.38)
Parental Education	-0.01	(.14)			-0.02	(.15)
Parent Attachment	-0.19	(.23)			-0.01	(.27)
Physical Development	-0.06	(.17)			-0.11	(.17)
BMI	0.02	(.04)			0.02	(.04)
Virgin at W1	0.18	(.21)			0.14	(.22)
Religiosity	-0.14	(.14)			-0.10	(.17)
Grades	0.14	(.29)			0.31	(.31)
Vocabulary Test Score	-0.04	(.11)			-0.20	(.14)
College Expectations	0.01	(.14)			-0.03	(.14)
<i>Male Characteristics</i>						
W2 Contraceptive Attitudes			0.78**	(.23)	0.80**	2.26
Black			-0.07	(.35)	-0.31	(.68)
Hispanic			-0.11	(.59)	-0.19	(.59)
Other Race/Ethnicity			-1.00	(.52)	-1.34	(1.57)
Age			-0.15	(.14)	-0.16	(.16)
Two-Parent Biological Family			0.11	(.32)	0.17	(.30)
Parental Education			-0.01	(.13)	-0.03	(.13)
Parent Attachment			-0.52	(.29)	-0.63*	(.31)
Physical Development			-0.08	(.28)	-0.08	(.29)
BMI			-0.01	(.03)	-0.03	(.04)

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	Model 1		Model 2		Model 3		OR
	β	(SE)	β	(SE)	β	(SE)	
Virgin at W1							
Religiosity			-0.46	(.31)	-0.44	(.35)	
Grades			0.18	(.14)	0.20	(.16)	
Vocabulary Test Score			-0.21	(.22)	-0.23	(.24)	
College Expectations			0.24	(.15)	0.26	(.16)	
College Expectations			0.12	(.11)	0.13	(.12)	
<i>Couple Characteristics</i>							
Reciprocal Couple					-0.45	(.29)	0.64
Relationship Duration					-0.18	(.13)	0.84
Constant	-1.16	(3.22)	-0.51	(3.24)	-0.93	(4.20)	

N = 257 couples

p < .05,

** p < .01,

*** p < .001 (two-tailed)