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Reproductive Coercion by Male Sexual Partners: Associations With Partner Violence and College Women's Sexual Health

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Abstract

Reproductive coercion (RC) involves indirect and direct partner behaviors that interfere with effective contraceptive use. RC has been identified as a correlate of intimate partner violence (IPV) among ethnically diverse women sampled from urban health clinics or shelters. Research is needed to determine whether RC is experienced more generally by young women and, if so, whether RC is associated with IPV, multiple indicators of sexual health, or both. In the present study, sexually active undergraduate women ($N = 223$, 80% Caucasian/White) provided self-report data on their sexual health and behaviorally specific lifetime experiences of both RC and partner physical violence. About 30% reported experiencing RC from a male sexual partner. Most commonly, RC involved condom manipulation or refusal within an adolescent dating relationship. Experiences of RC and partner violence were not independent; half of the women who reported RC also reported experiencing partner physical violence. Women with a history of RC reported a significantly reduced rate of contraceptive use during last vaginal sex and lower contraceptive and sexual self-efficacy. Additional research on the sociocultural and relational contexts of RC is needed.

Keywords

intimate partner violence; sexual health; contraception; contraceptive efficacy

Reproductive coercion (RC) involves acts of "power and control in a relationship related to reproductive health" (Chamberlain & Levenson, 2012, p. 5). Acts of RC compromise women's autonomous sexual decision making; these behaviors also increase risk for adverse outcomes such as sexually transmitted infections (STIs) and unintended pregnancy. Examples of indirect acts of RC include verbally pressuring a woman to get pregnant, hiding or otherwise preventing access to birth control, or accusing a woman of infidelity if she asks to use a condom (Chamberlain & Levenson, 2012; Miller et al., 2010; Moore, Frohwirth, & Miller, 2010). RC behaviors also may manifest as direct contraceptive interference, such as

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when partners “manipulate contraception to render it ineffective” (Moore et al., 2010, p. 1738). For example, partners may refuse to use condoms, remove condoms during sex, or break condoms on purpose (Chamberlain & Levenson, 2012; Miller et al., 2010; Moore et al., 2010).

The available data suggest that a substantial minority of women are affected by partner RC. More specifically, in a large survey of women in the United States, almost 9% of respondents reported an intimate partner had refused to use a condom or had tried to get the respondents pregnant when they did not want to be pregnant (Black et al., 2011). In general, however, researchers have focused on studying RC in samples of young, poor women with histories of intimate partner violence (IPV). In most past studies, IPV has been defined broadly to include *physical violence* such as hitting, kicking, or punching during a verbal conflict (e.g., Straus, Hamby, Boney-McCoy, & Sugarman, 1996) and *sexual violence* such as forced sex without consent (e.g., Koss et al., 2007).

Across multiple past studies, experiences of RC and IPV have tended to covary. For example, among women in battered women’s shelters, younger age was associated with partner interference with birth control; in turn, partners who interfered with women’s birth control also forced women into unwanted sex (Thiel de Bocanegra, Rostovtseva, Khera, & Godhwani, 2010). Similarly, among adolescent women selected for a history of IPV, 26% reported male partner contraceptive interference, primarily in long-term dating relationships (Miller et al., 2007; see also Moore et al., 2010). Among gang-affiliated Latina adolescents, IPV was common, as was partner verbal pressure to become pregnant, physical interference with effective contraception, and unintended pregnancy (Miller et al., 2011).

Experiences of RC may adversely affect young women’s physical and psychological well-being. To date, most researchers have studied women with histories of IPV or with other risk factors. Studies of young college women may be important because many women in this age group may have experienced lifetime IPV, a correlate of RC (e.g., Sinozich & Langton, 2014). Only one study has assessed college women’s experiences of partner RC (Sutherland, Fantasia, & Fontenot, 2015). These researchers found that 8% of respondents reported lifetime RC; most commonly, male partners had told women not to use birth control. College women who reported lifetime RC were more likely than other college women to report lifetime partner IPV (defined broadly to include physical, sexual, and emotional abuse or forced sex). In addition, despite low rates of unintended pregnancy (6.6%), women who reported RC were more likely than other women to have had an unintended pregnancy. These results, in combination with the descriptive data provided by Black et al. (2011), provide preliminary evidence that RC may affect women across relational and sociocultural contexts.

Additional research with general samples of young women is needed to comprehensively understand how lifetime RC and IPV experiences might affect young women’s sexual health. Early experiences of limited control over sexual and reproductive decision making could predict poorer sexual outcomes as well as sexual behaviors and attitudes throughout adulthood. As such, the current study sought to replicate and extend Sutherland et al.’s (2015) study of college women in two ways. First, we planned to investigate the potential

associations of RC and IPV with multiple indices of women's sexual health. It was expected that lifetime RC would be positively associated with unintended pregnancy, a sexual health outcome, and negatively associated with contraceptive use at last vaginal sex, a sexual health behavior. Lifetime RC was also expected to be negatively associated with two different sexual health attitudes: contraceptive self-efficacy and attitudes about negotiating condom use. Contraceptive self-efficacy involves believing in one's ability to plan for sexual activity and assume responsibility for the direction of sexual activity and contraceptive use (Levinson, 1986). In contrast, attitudes about negotiating condom use involve believing that it is easy to talk with partners about whether to use a condom (Helweg-Larsen & Collins, 1994). Because experiences of RC may teach women that they may have limited power and control over contraceptive use, it was hypothesized that lifetime RC would be negatively associated with these behavioral and attitudinal indicators of sexual health.

Second, within a college sample, we also sought to explore the patterns of relationship among RC, IPV, and sexual health. IPV is negatively associated with women's sexual health, including risk for unintended pregnancy and for inconsistent contraceptive use (see Coker, 2007, for a systematic review). For example, in a national longitudinal study of sexually active dating women aged 11 to 21 years, lifetime involvement with a physically violent partner predicted past pregnancy (Roberts, Auinger, & Klein, 2005). Similarly, in one ethnically diverse sample of female gynecological patients from a Philadelphia clinic, those who reported lifetime partner IPV were more likely to report not using contraception; women commonly reported that partners wanted them to be pregnant or were unwilling to use birth control (Gee, Mitra, Wan, Chavkin, & Long, 2009). Because RC was not systematically assessed in these studies, however, it is unclear whether the violent partners in these samples also enacted RC behaviors.

Some researchers have postulated that RC might mediate the association between IPV and women's sexual and reproductive health (Moore et al., 2010); if so, RC might have an even stronger relationship with sexual health outcomes than IPV. In other research, the association between RC and sexual health outcomes has been examined separately for women who did and did not report IPV. These findings have been mixed. Although one study found that RC was related to unintended pregnancy only among women who also reported IPV (Miller et al., 2010), two subsequent studies found that RC was related to unintended pregnancy both in the presence and absence of IPV (Kazmerski et al., 2015; Miller et al., 2014). Overall, studies examining the independent and interactive associations of RC and IPV with women's sexual health have been inconsistent. Results suggest at least three possibilities. First, RC might explain the association between IPV on women's sexual health. Second, the association between RC and sexual health might depend on the presence of IPV or otherwise interact with IPV. Third, IPV and RC might each contribute unique variance in women's sexual health such that women who experience both have the worst outcomes. These different possibilities suggest that the relative effects of RC and IPV on sexual health warrant further study.

Following Sutherland et al. (2015), the current research assessed lifetime RC by one or more male sexual partners in a college sample of women who had previously had consensual vaginal sex with a male partner. Based on past research, Hypothesis 1 was that lifetime RC

would be positively associated with lifetime partner physical violence. Assessing physical violence avoids possible redundancy with assessing RC; in contrast, measures of sexual violence may potentially overlap with some behaviorally specific forms of RC (e.g., forced sex without a condom). Because both unintended pregnancy and contraceptive use during last vaginal sex have been identified as correlates of lifetime physical IPV (Roberts et al., 2005), RC was expected to be positively associated with unintended pregnancy (Hypothesis 2) and to be negatively associated with contraceptive use during last vaginal sex (Hypothesis 3). Women who have experienced RC may feel less efficacious about their contraceptive and sexual behaviors with partners (Hypothesis 4). Furthermore, given that condom use requires partner cooperation, women who have experienced RC may also feel less positively about negotiating condom use (Hypothesis 5). Finally, because research has been inconsistent regarding whether RC is related to sexual health outcomes in the absence of IPV (see Miller et al., 2010; Miller et al., 2014), we planned to test for the potential independent and interactive associations of RC and physical violence with multiple indicators of women's sexual health.

Method

Participants

Data were collected from 223 undergraduate women attending a small public liberal arts college in upstate New York. The criterion for inclusion was a report of past consensual vaginal sex with at least one male partner. Participants' average age was 19.09 years (SD = 1.21, range: 17–25). Women self-identified as Caucasian/White (80.3%), Asian (6.3%), Hispanic/Latina (5.8%), African American/Black (4.9%), and Other (2.7%).

Measures

Reproductive coercion (RC).—RC was assessed with 12 items adapted from Miller et al. (2010) and Moore et al. (2010). Respondents were asked to list the number of male partners with whom they experienced different forms of indirect and direct pressure or acts that could increase their risk for pregnancy. Women were asked to identify how many partners had engaged in each of the following behaviors: (a) "told you not to use any birth control (like the pill, shot, ring, etc.)," (b) "said he would leave you if you did not get pregnant," (c) "told you he would have a baby with someone else if you didn't get pregnant," (d) "hurt you physically because you did not agree to get pregnant," (e) "tried to force or pressure you to become pregnant," (f) "took off the condom while you were having sex," (g) "put holes in the condom that you two were going to use," (h) "broke a condom on purpose while you were having sex," (i) "took your birth control away from you," (j) "kept you from going to the doctor's office or clinic to get birth control," and (k) "made you have sex without a condom." The final item was "Have you ever hidden birth control from a sexual partner because you were afraid he would get upset with you for using it?"

To assess behaviorally specific acts of direct contraceptive interference, unlike Miller et al. (2010), the phrase "in order to promote pregnancy" was not included for Items 6 to 11 in the present study. Recommended RC assessments do not uniformly specify partner intent (e.g., "Has your partner ever messed with your birth control or tried to get you pregnant when you

didn't want to be?" "Does your partner refuse to use condoms when you ask?"; Chamberlain & Levenson, 2012, p. 19). Regardless of why partners may remove or refuse to use condoms or other birth control methods, such behaviors function to increase a woman's risk for negative sexual health outcomes, including pregnancy. Items used to assess direct contraceptive interference match a description of RC as including acts of both contraceptive manipulation and sabotage (Moore et al., 2010). These items also match the extensive literature on assessing interpersonal violence. IPV is presumed to be driven by intent to exert power and control over a partner, but the gold-standard IPV measures use behaviorally specific items without the mention of intent (e.g., Koss et al., 2007; Straus et al., 1996). Following the IPV literature, women's behaviorally specific experiences of partner influence over contraceptive access or use was assessed independent of women's perceptions of partner intent. Following past research (e.g., Miller et al., 2010; Sutherland et al., 2015), a non-zero response to any of the 12 items was scored as reflecting the presence of lifetime RC.

Participants who identified experiences of RC also were asked (a) their age at the time they were first involved with their most recent partner who enacted one or more of these behaviors, (b) their partner's age at that time, (c) the length of the relationship (in months), and (d) whether this relationship was a "hook up" defined as "a sexual encounter (that may or may not include sexual intercourse) between two people, usually lasting only one night without the expectation of developing a relationship" (Paul & Hayes, 2002, p. 640).

Partner physical violence.—Partner physical violence experiences were assessed using the 12-item Physical Assault subscale from the Revised Conflict Tactics Scale (CTS2; Straus et al., 1996). In the current study, participants were asked to report on the behavior of any dating or sexual partners with whom they were involved since age 12. This subscale includes 5 minor (e.g., grabbed, slapped) and 7 severe (e.g., choked, kicked) items. Each item is rated on 6-point scale: 0 = *never*, 1 = *once*, 2 = *twice*, 3 = *3 to 5 times*, 4 = *6 to 10 times*, 5 = *11 to 20 times*, and 6 = *more than 20 times*. Scales are scored by summing the midpoints of each category of response (e.g., 3–5 times is scored as a 4, and 6–10 times is scored as an 8). Higher scores indicate more frequent experiences of partner physical violence. In addition, responses to physical assault items were dichotomized to indicate the presence or absence of partner violence. The Physical Assault subscale shows strong internal consistency across 31 international sites (Straus, 2004). Evidence for convergent validity is based on a significant negative association between scores for physical assault and an index of social integration (Straus et al., 1996).

Unintended pregnancy.—Based on past research by Miller et al. (2010), participants were asked, "In total, how many times have you been pregnant?" (p. 317). In addition, to assess participants' experiences of unintended pregnancy, participants were asked, "How many times have you been pregnant when you didn't want to be?" (p. 317). In the current sample, all women who reported pregnancy also reported unintended pregnancy. Finally, to assess outcomes of unintended pregnancy, participants were asked, "How many pregnancies that you have been involved in have resulted in an abortion?" All of the participants in the

current sample who experienced unintended pregnancy reported having an abortion. History of unintended pregnancy was coded as present or absent.

Contraceptive use.—Participants were asked about their use of various contraceptive methods during last vaginal sex. Items were adapted from past research (e.g., Roberts et al., 2005; Thiel de Bocanegra et al., 2010; Woolf & Maisto, 2008), including *condoms, birth control pills, vaginal sponge, intrauterine device (IUD), diaphragm, Levonorgestrel implant, patch, vaginal ring, Depo-Provera shot*, and *tubal ligation.* There was also an option for women to specify an "other" type of contraception used, although no one endorsed this. In the present study, contraceptive use was dichotomized as present or absent. That is, women who reported using at least one reliable method of contraception (i.e., any of the methods listed above) that could prevent pregnancy were coded as using contraception, whereas women who did not use any of the methods listed above were coded as not using contraception.

Contraceptive and sexual self-efficacy.—Contraceptive and sexual self-efficacy was assessed with the 18-item Contraceptive Self-Efficacy scale (Levinson, 1986). Items pertain to respondents' conscious acceptance of sexual activity by planning for it, assumption of responsibility for the direction of sexual activity, and responsibility for contraceptive use. A sample item is, "When I am with a partner, I feel that I can always be responsible for what happens sexually with us." Participants rated each item on a 1 (*not at all true of me*) to 5 (*completely true of me*) scale. Following Impett, Schooler, and Tolman (2006), items that initially referred to specific forms of contraception (e.g., pills, foam) were modified to refer to contraception more generally, and the term *boyfriend* was changed to sexual partner to avoid heterosexism (see also Watson, Matteny, Gagne, Brack, & Ancis, 2013). Levinson, Wan, and Beamer (1998) provided evidence for the predictive validity of this measure in relation to contraceptive behavior across four different samples of adolescents across both clinic and community settings. The estimate of internal consistency in the current sample was adequate (Cronbach's α = .81). In the current study, responses to items were summed so that higher scores reflected greater efficacy.

Attitudes about negotiating condom use.—Attitudes about negotiating condom use were assessed with the five-item Embarrassment About Negotiating Use subscale from the Multidimensional Condom Attitudes Scale (Helweg-Larsen & Collins, 1994). A representative item is "I'm comfortable talking about condoms with my partner." Responses to each item were made on 7-point scale (1 = *strong disagreement*, 7 = *strong agreement*) and averaged such that higher values indicate more favorable attitudes. The authors reported good internal consistency for this subscale (Cronbach's α = .86) across two samples. In addition, the authors reported that scores on this subscale were positively associated with future intent to use condoms. The estimate of internal consistency in this sample was good (Cronbach's α = .84).

Finally, basic demographic items (e.g., age, race/ethnicity) were administered along with sexual history items (e.g., number of dating partners, number of vaginal sex partners, number of oral sex partners, number of causal hook up partners).

Procedure

Participants were recruited for "A Study of Women's Contraceptive Attitudes and Experiences With Former Partners" at a public college through a voluntary psychology department pool. All data were collected in a single research session lasting an hour or less. Research sessions were administered in small groups on campus in classrooms by a female undergraduate researcher. Participants provided informed consent (or assent, in the case of minors whose parents provided consent for them to participate in the research pool), completed self-report paper-and-pencil measures, and received a full written debriefing that included information about resources for coping with IPV. All study procedures were approved by the local Institutional Review Board.

Analytic Plan

First, we planned to test whether experiencing RC with one or more past partners was associated with specific demographic or sexual history variables that might confound the expected associations between RC and sexual health. We also planned to describe the number of RC relationships that women experienced and the type, timing, and duration of the most recent relationship involving RC. Next, we planned to test for expected univariate associations between RC and both lifetime IPV and four sexual health indicators. Finally, we planned to test for the independent and interactive effects of RC and IPV on these sexual health indicators.

Results

Overall, 29.6% (n = 66) of women reported lifetime RC with a male sexual partner. Specific items endorsed are listed in Table 1. About 32.3% (n = 72) reported lifetime partner physical violence. With regard to sexual health, 3.1% (n = 7) of sample reported an unintended past pregnancy; all ended in abortion. Reported contraceptive use was high; 91.5% (n = 204) reported using at least one reliable contraceptive method during last vaginal sex. Average contraceptive and sexual self-efficacy also was high (M = 74.18, SD = 9.85), and attitudes about negotiating condom use were favorable (M = 6.23, SD = 1.02).

Within the subsample of women who reported RC, most reported one RC partner (65.2%, n = 43), although 22.7% (n = 15) reported two RC partners, 6.1% (n = 4) reported three RC partners, and 6.1% (n = 4) reported four or more RC partners. When asked about the most recent partner who enacted RC, 90.9% (n = 60) reported this was a committed dating partner; only 9.1% (n = 6) reported RC occurred during a hook up. On average, when they were first involved with their most recent partner who enacted RC, women reported being 17.29 years old (SD = 1.57, range: 13–20), whereas partners were, on average, 18.42 years old (SD = 2.24, range: 15–25). Dating relationships involving RC lasted an average of 15.28 months (SD = 15.75, range: 1–36).

A series of univariate analyses were conducted to test whether women who did and did not experience RC with one or more past partners differed in terms of demographic attributes or sexual histories. Results are listed in Table 2. There were no significant between-group differences in age, race/ethnicity, or number of casual hook up partners. However, compared

with women who reported no RC, women who reported RC reported a greater number of dating partners, vaginal sex partners, and oral sex partners.

To test whether these sexual history variables might confound the expected associations between RC and indicators of sexual health, zero-order correlations were conducted. Although number of vaginal sex and oral sex partners were significantly inter-correlated and positively related to number of dating partners, neither was significantly associated with unintended pregnancy, contraceptive use, contraceptive and sexual self-efficacy, or attitudes about negotiating condom use. In contrast, number of dating partners was negatively associated with contraceptive use, $r(221) = -.16$, $p < .02$, and with contraceptive and sexual self-efficacy, $r(221) = -.13$, $p < .05$, but not with attitudes about negotiating condom use, $r(221) = -.08$, $p = .22$. As such, number of dating partners was included as a control variable in testing the associations between RC and both contraceptive use and contraceptive and sexual self-efficacy in multivariate analyses.

Consistent with Hypothesis 1, RC and partner physical violence were not independent, $\chi^2(1) = 13.45$, $p = .01$. Among the women who reported past RC, half reported partner violence (50.0%, $n = 33$). In contrast, just below a quarter of women who did not report past RC reported partner violence (24.8%, $n = 39$).

Hypotheses 2 and 3 were that past RC experiences would be positively associated with unintended pregnancy and negatively associated with contraceptive use at last vaginal sex. Although too few unintended pregnancies were reported to test Hypothesis 2, a chi-square analysis showed that RC was not independent of contraceptive use, $\chi^2(1) = 11.23$, $p = .001$. About 81.8% ($n = 54$) of women who reported RC used at least one reliable form of contraception at last vaginal sex, as compared with 95.5% ($n = 150$) of women who reported no past RC. These results were consistent with Hypothesis 3.

Hypothesis 4 was that RC would be negatively associated with contraceptive and sexual self-efficacy, and Hypothesis 5 was that RC would be negatively associated with attitudes about negotiating condom use. A 2 (any RC) × 2 (any partner physical violence) multivariate analysis of variance (MANCOVA) was conducted to examine whether the expected effects of RC were independent of or interacted with partner physical violence. Number of dating partners was included as a covariate. Contraceptive and sexual self-efficacy and attitudes about negotiating condom use were the two dependent measures. Results showed an overall main effect of RC, $F(2, 215) = 3.37$, $p = .04$. In contrast, there was no main effect of partner physical violence, $F(2, 215) = 0.85$, $p = .42$, and no RC × Partner Physical Violence interaction, $F(2, 215) = 0.17$, $p = .85$. Number of dating partners was not a significant covariate, $F(2, 215) = 1.00$, $p = .37$.

Univariate follow-up tests showed that women who had experienced RC reported significantly less contraceptive and sexual efficacy ($M = 70.94$, $SD = 10.77$) than women who did not report RC ($M = 75.70$, $SD = 9.40$), $F(1, 221) = 6.67$, $p = .01$. This result fully supported Hypothesis 4. In contrast, women who had experienced RC did not differ from other women in terms of their attitudes about condom negotiation, $F(1, 221) = 0.69$, $p = .41$. These findings did not support Hypothesis 5.

Finally, additional analyses were conducted to test for the potential effects of partner violence alone and in interaction with RC on contraceptive use. Contraceptive use at last vaginal sex was the criterion variable in a logistic regression analysis in which both any RC (0 = *absent*, 1 = *present*) and level of partner physical violence were entered as main effect predictors. Number of dating partners was entered as a control variable given that women who reported RC reported a greater number of partners than women who did not report RC. The overall model was significant, $\chi^2(3) = 12.49$, $p = .006$, Nagelkerke $R^2 = .12$. As shown in Table 3, the odds for contraceptive use were significantly reduced for women who reported any partner RC. In contrast, neither level of partner physical violence nor number of dating partners significantly predicted contraceptive use. In a next block, the product of the centered main effect terms (RC and partner physical violence) was added to the model to test for potential interactive effects of RC and partner violence on contraceptive use. Adding this interaction term led to a significant change in the model, $\chi^2(1) = 10.42$, $p = .001$, change in Nagelkerke $R^2 = .10$. The interaction term significantly predicted contraceptive use, and the final overall model was significant, $\chi^2(4) = 22.92$, $p = .000$, Nagelkerke $R^2 = .22$.

To explicate this significant interaction, the sample was stratified via the presence or absence of RC. Among women who reported no RC, a logistic regression analysis was conducted in which both level of partner violence and number of dating partners were entered as predictors of contraceptive use. The logistic regression model was significant, $\chi^2(2) = 9.99$, $p = .007$, Nagelkerke $R^2 = .20$. Partner violence reduced the odds of contraceptive use ($B = -0.24$, $SE = 0.07$, odds ratio [OR] = 0.78, $p = .001$, 95% confidence interval [CI] = [0.68, 0.90]), whereas number of dating partners did not ($B = -0.12$, $SE = 0.16$, OR = 0.89, $p = .47$, 95% CI = [0.65, 1.23]). Among women who reported RC, a parallel regression analysis was not significant, $\chi^2(2) = 3.05$, $p = .22$, Nagelkerke $R^2 = .03$. In the presence of RC, neither partner violence nor number of dating partners significantly predicted contraceptive use.

Discussion

The present study investigated college women's lifetime experiences of male partner RC and correlates of such experiences. Experiences of RC were positively associated with experiences of partner physical violence. Furthermore, RC was uniquely associated with multiple indicators of sexual health, even beyond the effect of partner physical violence. The current results converge with the larger literature focused on IPV and women's sexual health (e.g., Gee et al., 2009). The current results also converge with the literature on gender-based power inequalities that affect women's abilities to negotiate contraceptive use and avoid unprotected sex (e.g., Amaro, 1995; Wingood & DiClemente, 2000; Woolf & Maisto, 2008).

In the present study, any past experience of RC was positively associated with any past experience of partner physical violence. Among the women who reported past RC, half reported partner physical violence; in contrast, just below a quarter of women who did not report past RC reported partner violence. This finding matches with the results of Sutherland et al. (2015), who found that 57% of college women who reported RC also reported IPV, defined broadly. Importantly, the focus on physical and not sexual IPV in the current study

suggests that the association between RC and IPV could not be explained by overlapping definitions. The observed association between RC and partner physical violence in the current study extends past research showing the same association between RC and IPV defined more broadly among ethnically diverse women recruited from battered women's shelters (e.g., Moore et al., 2010; Thiel de Bocanegra et al., 2010) and family planning clinics (e.g., Miller et al., 2010; Silverman et al., 2011) as well as women in college (Sutherland et al., 2015). Our results also specifically suggest that women who experience RC are likely to have experienced destructive physical conflict with partners and not necessarily conflict regarding whether and how to engage in sex. Overall, the positive association between RC and IPV has been consistently shown for women across different types of backgrounds.

In addition to an association with partner violence, in the current study, lifetime RC was negatively associated with multiple indicators of women's sexual health. Rates of unintended pregnancy in this sample were very low and could not be tested in terms of associations with RC. However, in the current study, women who reported RC reported reduced rates of contraceptive use during last vaginal sex compared with women who did not report RC. This finding extends past research on RC and unintended pregnancy with samples of women in college (Sutherland et al., 2015) and selected for partner violence (e.g., Miller et al., 2007) to show that RC also is negatively associated with contraceptive use.

In the current study, the significant association between RC and contraceptive use remained in multivariate analyses that included number of dating partners as a control variable and partner violence as a predictor. In addition, the association between RC and contraceptive use did not depend on experiences of partner violence. This finding matches with results reported by Kazmerski et al. (2015) and Miller et al. (2014) who showed that RC increased risk for unintended pregnancy regardless of the presence or absence of IPV. The current data extend this pattern to a new sexual health variable: contraceptive use. In multivariate analyses investigating the effects of RC and partner violence on contraceptive use, RC was the primary predictor. Partner violence was negatively associated with contraceptive use only in the absence of RC. The association of partner violence and contraceptive use matches with past research in which RC was not directly assessed (e.g., Gee et al., 2009). Overall, these results suggest that either RC or partner violence may decrease college women's contraceptive use, but among women who experience both, RC has the primary predictive effect.

The current study also extended past research on lifetime RC by examining two sexual health attitudes: contraceptive self-efficacy and attitudes about negotiating condom use. Despite overall high contraceptive and sexual self-efficacy, women who reported past RC reported significantly less self-efficacy than women who reported no past RC. Importantly, this significant relationship between RC and self-efficacy remained even after considering the potential effects of number of dating partners and partner violence in multivariate analyses. The current findings therefore suggest that one way in which RC may be associated with women's sexual health is through adversely affecting women's feelings of agency during contraceptive and sexual interactions. Because many of the women reported RC experiences in relationships that began before they started college, it seems possible that

RC experiences with one partner may negatively impact women's feelings of contraceptive and sexual self-efficacy in future sexual relationships with new partners. This is an important direction for future research.

Unexpectedly, neither past RC nor past partner physical violence was associated with college women's attitudes about condom negotiation. The null association between RC and attitudes about condom negotiation is notable given that most of the RC behaviors endorsed in the current sample involved condom manipulation or interference. The null association between partner violence and attitudes about condom negotiation also is notable given that the results of a recent meta-analysis suggest that partner IPV was negatively associated with women's use of male condoms, a form of contraception that requires male partner cooperation (Maxwell, Devries, Zionts, Ahusen, & Campbell, 2015). Null results are ambiguous and therefore should be interpreted with caution. Nonetheless, the current pattern of findings suggests that general attitudes about being able to use contraception, rather than specific attitudes about negotiating condom use, are negatively associated with exposure to past RC.

A primary difference between the current study and past research with college women was in overall rates of RC. Only about 8% of college women studied by Sutherland et al. (2015) reported lifetime RC; most often, they were told not to use birth control. In contrast, about 30% of the current sample reported lifetime RC by a male sexual partner; most often, they experienced direct contraceptive interference. Measurement differences likely account for these divergent findings. In the current study, items assessing direct contraceptive interference did not include the stem "so that you would get pregnant." Removing this stem matches with recommended health assessment questions (Chamberlain & Levenson, 2012) but differs from assessments in past research by Sutherland et al. (2015) and Miller et al. (2010). Because women in the current study may have reported lifetime RC without perceiving their partner wanted them to get pregnant, our analyses show that behaviorally specific RC experiences, regardless of actual or perceived partner intent, are meaningfully associated both with partner violence and multiple indicators of women's sexual health. The current results match with and extend the results of past studies in which women endorsed experiences of contraceptive interference only if partners were perceived as intending to promote pregnancy (e.g., Miller et al., 2010; Sutherland et al., 2015).

It should also be noted, however, that some women in these past studies also may have reported RC without perceiving that their partner wanted them to get pregnant. Not every item assessing RC from Miller et al. (2010) specifies partner intent. For example, intent is not specified in the modal RC item endorsed in the Sutherland et al. (2015) sample: being told not to use birth control. There may be multiple reasons why a partner might tell a woman not to use birth control, including concern about health side effects of hormonal contraception, risk for infidelity associated with using birth control, or some other reason. Regardless of a partner's specific motives for this behavior (or a woman's perceptions of these motives), this behavior may still function to influence her decision making in a way that can compromise her sexual health. Additional research is needed to better understand the reasons why partners enact RC behaviors as well as female partners' perceptions of

partner intent. Such studies may help clarify the relative effects of behaviors, actual intent by partners, and perceived intent by women on women's sexual health and other outcomes.

Limitations of the current study should be acknowledged. First, the low rates of unintended pregnancy limited our ability to identify effects of either RC or partner violence on this outcome. Second, our sample was comprised of a homogeneous group of primarily White women in college recruited from a psychology subject pool; therefore, results may be limited in terms of external generalizability. Third, the meaning and effect of partner RC behaviors may depend on the reasons why the women wanted to use the contraceptive method(s). For example, some women may have wanted to use condoms primarily to prevent STIs, not pregnancy, if they were already using some other form of contraception. Additional sexual and reproductive health outcomes that may be associated with RC, including intent to use contraception and STI contraction, should be addressed in future research.

Future research also is needed to understand the relational contexts of RC. For most women in the current sample, RC occurred within adolescent dating relationships beginning in high school and lasting, on average, more than a year. Women who experienced past RC reported having more dating partners and more sexual partners (but not more casual hook up partners) than women who reported no RC. Few women reported RC by a causal partner, a finding that matches with past research showing that most RC occurs in long-term dating relationships (Miller et al., 2007). Dating partners may be more likely than causal partners to feel entitled to exert control over women's contraceptive decision making. Because we found that young women who are involved with a greater number of dating partners were at increased risk for RC, future research is needed to identify specific characteristics of dating relationships (e.g., patterns of conflict) that forecast RC experiences. For example, Moore et al. (2010) found that women with past experiences of IPV tended to report their choices about contraception were not important to their current partners who commonly refused to pull out or manipulated condoms during sex. Research is also needed to investigate the impact of different types of conflict on women's sexual health.

Future research also is needed to explore the different sociocultural contexts of RC. Patterns of generalizability across samples of women may vary, in part, based on base rates of various sexual and reproductive health outcomes. For example, in the present sample, rates of unintended pregnancy were low (3%), and contraceptive use was high (92%). These findings do not match well with Roberts et al. (2005), who reported that 22% of their sample of sexually active female adolescents reported unintended pregnancy, and about 63% reported contraceptive use. However, our low rate of unintended pregnancy is consistent with the low rate in another college sample (Sutherland et al., 2015). It may be that women who enter college may be less likely than women generally to experience unintended pregnancy and more likely to use contraception during vaginal sex. Greater contraceptive use among college students may be, at least in part, related to greater access to free or affordable health care. Future studies with other populations of women are needed to identify sexual health correlates of RC among other groups, such as women who are non-college educated, older, married, or some combination.

In addition to directions for future research, the present results also suggest applied implications for health care settings that serve college students. Many college women have access to health education as well as sexual health and counseling services on campus. The current findings support the importance of teaching both male and female undergraduates generally about healthy relationships (e.g., respect, boundaries) and specifically about open communication about contraceptive use. In addition, students would benefit from being educated about different types of RC, skills to help them end a sexual encounter that may be unsafe, and how to access emergency contraception. Health care providers should be trained to assess students for IPV and RC in their routine evaluations so they are able to identify and support women who may be at risk for sexual health problems (Miller & Silverman, 2010). Women who report that it is not possible for them to communicate openly with partners about contraceptive use would benefit from discussing use of contraceptive methods that partners are less likely to detect or manipulate, such as IUDs or Depo-Provera injections. Integrated teams of women's health and mental health providers should be available in college health clinics to support women who experience RC and to promote harm reduction strategies and resources for partner violence for women who would benefit from such resources (Chamberlain & Levenson, 2012).

In conclusion, our data provide evidence for an association between past experiences of RC, number of dating partners, and partner physical violence among college women. Our data also show that past experiences of RC decreased the odds of contraceptive use during women's last vaginal sex and were associated with reduced contraceptive and sexual self-efficacy. Additional research on RC with women across all backgrounds may help educators and health care providers to promote women's sexual and reproductive health.

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Table 1.

Behaviorally Specific Reproductive Coercion Experiences Endorsed by Women ($N = 223$).

	n	%
Took off the condom while you were having sex	46	21 (46 / 223)
Made you have sex without a condom	32	14
Told you not to use any birth control (such as the pill, shot, ring, etc.)?	15	7
Tried to force or pressure you to become pregnant?	3	1
You hid birth control because you were afraid they would get upset with you for using it	2	1
Broke condoms on purpose while you were having sex	2	1
Told you they would have a baby with someone else if you did not get pregnant	1	<1
Said they would leave you if you did not get pregnant?	1	<1
Kept you from going to the doctor's office or clinic to get birth control	1	<1
Took your birth control away from you	1	<1

Table 2.

Demographic and Sexual History Variables as a Function of RC Experiences.

	Past RC			
	Present (*n* = 66)	**Absent (*n* = 157)**	**Test**	***p***
Racial/ethnic minority (% yes; *n*)	17.8 (28)	24.2 (16)	$\chi^2(1) = 1.20$	.27
Age (*M, SD*)	19.02 (1.03)	19.12 (1.28)	$t(221) = -0.60$	.55
Number of dating partners	4.02 (3.03)	3.03 (2.01)	$t(221) = 2.86$	.005
Number of hook up partners	5.74 (6.01)	4.15 (5.69)	$t(221) = 1.88$	.06
Number of vaginal sex partners	4.30 (3.97)	3.06 (3.21)	$t(221) = 2.86$	.023
Number of oral sex partners	4.70 (3.79)	3.46 (3.76)	$t(221) = 2.23$	.03

Note. RC = reproductive coercion.

Table 3.

Logistic Regression Models Predicting Contraceptive Use ($N = 223$).

Variable	Coefficient	*SE*	*p*	Odds Ratio[a]	95% CI
Initial model					
Number of dating partners	−0.11	0.86	.20	0.90	[0.75, 1.06]
Any RC	−1.41	0.52	.006	0.24	[0.09, 0.67]
Partner violence	−0.01	0.33	.73	0.99	[0.93, 1.05]
RC × Partner Violence added to the initial model					
Number of dating partners	−0.16	0.89	.07	0.85	[0.72, 1.01]
Any RC	−1.72	0.58	.003	0.18	[0.06, 0.56]
Partner violence	−0.25	0.07	.001	0.78	[0.68, 0.90]
RC × Partner Violence	0.28	0.86	.001	1.32	[1.12, 1.57]

Note. CI = confidence interval; RC = reproductive coercion.

[a]Odds ratios are adjusted for other terms included in the model, and odds ratios for continuous variables reflect the multiplicative increase in odds for contraceptive use for every one point change in the variable.