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Sexual coercion and forced in-pair copulation as anti-cuckoldry tactics in humans

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Introduction

Rape in humans may or may not be generated by specialized psychological adaptation (Alexander & Noonan, 1979; Palmer, 1991; Thornhill & Palmer, 2000; Thornhill & Thornhill, 1992). Although several hypotheses have been proposed, there are only two likely candidates for evolutionary explanations of rape in humans. One hypothesis posits that rape is generated by an adaptation that functions as a facultative male reproductive tactic that contributes directly to reproductive success by increasing sexual partner number (e.g. Shields & Shields, 1983; Thornhill & Thornhill, 1983). The other hypothesis posits that rape was not directly selected for over evolutionary history, but instead is a byproduct of other male psychological adaptations, particularly those associated with sexual variety and aggression (Palmer, 1991; Thornhill & Palmer, 2000).

Although the debate continues about whether human rape is generated by specialized adaptation or is generated as a byproduct, a special case of human rape presents an equally interesting question. If human rape is either due to selection pressures to increase sexual partner number, or due to other psychological adaptations, such as those associated with obtaining numerous sexual partners, then why do men in committed sexual relationships sometimes rape their partners? Researchers estimate that between 10 and 17% of women experience rape in marriage (Finkelhor & Yllo, 1985; Painter & Farrington, 1999; Russell, 1982). Moreover, particular subgroups of women may be especially at risk of experiencing rape in their marriage: 23–50% of physically abused women experience rape by their husbands (Bowker, 1983; Campbell,

1989; Frieze, 1983; Pagelow, 1981; Shields & Hanneke, 1983). The not uncommon occurrence of rape by an intimate partner poses an interesting evolutionary question, given that men in committed sexual relationships already have sexual access to their partners and thus will not increase sexual partner number by raping them.

Although sometimes referred to as *marital rape*, *spouse rape*, or *wife rape*, we use the term *forced in-pair copulation* (FIPC) to refer to the forceful act of sexual intercourse by a man against his partner's will. Before considering the case of FIPC in humans, we review briefly the animal literature on FIPC. Examining the adaptive problems and resultant evolved solutions to these problems in non-human animals may provide insight into the adaptive problems and evolved solutions in humans (and vice versa). Shackelford and LeBlanc (2001), for example, argued that because humans share with some avian species a similar mating system (social monogamy) and similar adaptive problems (e.g. paternity uncertainty in males, mate retention, cuckoldry), humans and some birds may share similar solutions to these adaptive problems. Identifying the contexts and circumstances in which FIPC occurs in non-human species may help us to understand why FIPC occurs in humans.

FIPC in non-human animals

Instances of FIPC are relatively rare in the animal kingdom, primarily because males and females of most species (over 95%) do not form long-term pair-bonds (Andersson, 1994). Without the formation of a pair-bond, FIPC, by definition, cannot occur. Many avian species form long-term pair-bonds, and researchers have documented FIPC in several of these species (Bailey, Seymour, & Stewart, 1978; Barash, 1977; Birkhead, Hunter, & Pellatt, 1989; Cheng, Burns, & McKinney, 1983; Goodwin, 1955; McKinney, Cheng, & Bruggers, 1984; McKinney & Stolen, 1982). FIPC is not performed randomly, however. FIPC reliably occurs immediately after extra-pair copulations, intrusions by rival males, and female absence in many species of waterfowl (e.g. Bailey *et al.*, 1978; Barash, 1977; Cheng *et al.*, 1983; McKinney, Derrickson, & Mineau, 1983; McKinney & Stolen, 1982; Seymour & Titman, 1979) and other avian species (e.g. Birkhead *et al.*, 1989; Goodwin, 1955; Valera, Hoi, & Kristin, 2003). FIPC following observed or suspected extra-pair copulation in these avian species is often interpreted as a sperm-competition tactic (Barash, 1977; Cheng *et al.*, 1983; Lalumière, *et al.*, 2005; McKinney *et al.*, 1984).

Sperm competition is a form of male–male postcopulatory competition. Sperm competition occurs when the sperm of two or more males simultaneously occupy the reproductive tract of a female and compete to fertilize

her egg (Parker, 1970). Males can compete for mates, but if two or more males have copulated with a female within a sufficiently short period of time, males must compete for fertilizations. Thus, the observation in many avian species that FIPC immediately follows extra-pair copulations was understood as a sperm-competition tactic because the in-pair male's FIPC functioned to place his sperm in competition with sperm from an extra-pair male (Birkhead *et al.*, 1989; Cheng *et al.*, 1983). Reports of FIPC in non-human species are theoretically beneficial in that they make it difficult to claim that a male raped his partner because he wanted to humiliate, punish, or control her – as is often argued by some social scientists who study rape in humans (e.g. Pagelow, 1988).

Mounting evidence suggests that sperm competition has been a recurrent and important feature of human evolutionary history. Psychological, behavioral, physiological, anatomical, and genetic evidence reveals that ancestral women sometimes mated with multiple men within sufficiently short time periods so that sperm from two or more males simultaneously occupied the reproductive tract of one woman (Baker & Bellis, 1993; Gallup *et al.*, 2003; Goetz *et al.*, 2005; Pound, 2002; Shackelford *et al.*, 2004; Shackelford, Pound, & Goetz, 2005c; Shackelford *et al.*, 2002; Smith, 1984; Wyckoff, Wang, & Wu, 2000). This adaptive problem led to the evolution of adaptive solutions to sperm competition. For example, men display copulatory urgency, perform semen-displacing behaviors, and adjust their ejaculates to include more sperm when the likelihood of female infidelity is high (Baker & Bellis, 1993; Gallup *et al.*, 2003; Goetz *et al.*, 2005; Shackelford *et al.*, 2002).

FIPC in humans

Noting these instances of FIPC followed by extra-pair copulations in waterfowl and documentation that FIPC in humans often followed accusations of female infidelity (e.g. Finkelhor & Yllo, 1985; Russell, 1982), Wilson and Daly (1992) suggested, in a footnote, that "sexual insistence" in the context of a relationship might act as a sperm-competition tactic in humans as well. Sexual coercion in response to cues of his partner's sexual infidelity might function to introduce a male's sperm into his partner's reproductive tract at a time when there is a high risk of cuckoldry.

Thornhill and Thornhill (1992) also hypothesized that FIPC may be an anti-cuckoldry tactic designed by sperm competition. Thornhill and Thornhill argued that a woman who resists or avoids copulating with her partner might thereby be signaling to him that she has been sexually unfaithful and that the FIPC functions to decrease his paternity uncertainty (see also Gallup and

Burch, Chapter 7 of this volume). Thornhill and Thornhill argued that the fact that the rape of a woman by her partner is more likely to occur during or after a breakup – times in which men express great concern about female sexual infidelity – provides preliminary support for the hypothesis. Finkelhor and Yllo (1985), for example, found that over two-thirds of the women in their sample were raped by their partners at the end of the relationship, whereas only 31% were raped early in the relationship and 40% were raped in the middle of the relationship. Thornhill and Thornhill also cited research by Frieze (1983) indicating that women who were physically abused and raped by their husbands rated them to be more sexually jealous than did women who were abused but not raped. Similar arguments were presented by Thornhill and Palmer (2000), and Lalumière *et al.* (2005) suggested that antisocial men who suspect that their female partner has been sexually unfaithful may be motivated to engage in FIPC.

FIPC and sexual coercion in intimate relationships

FIPC is just one aspect of a constellation of behaviors that comprise sexual coercion in intimate relationships (Koss & Oros, 1982; Shackelford & Goetz, 2004; Weis & Borges, 1973), but the explicit use of force to obtain sexual intercourse is likely the most costly, to both the victims and perpetrators. The severity of FIPC is demonstrated in the finding that physically abused women who experience FIPC have significantly more negative health symptoms and gynecological problems than women who are physically abused but not raped by their partners (e.g. Campbell & Soeken, 1999). Moreover, FIPC may be more traumatizing than forced copulation by a stranger (Bart, 1975; Russell, 1982). Given the potentially devastating costs associated with FIPC, sexual coercion is likely to take more subtle forms. Shackelford and Goetz (2004), for example, documented that men sexually coerce their partners by hinting about withholding benefits, threatening defection, and manipulating their partner's commitment to the relationship (e.g. "If you love me, you'll have sex with me"). By using more discreet forms of sexual coercion (as opposed to using explicit force), men may avoid inflicting on their partners the costs associated with FIPC and they may avoid their partner's defection from the relationship.

Given this reasoning, subtle forms of sexual coercion in the context of an intimate relationship are likely more prevalent than more explicit forms such as FIPC. Therefore, not only may FIPC function as a sperm-competition tactic, but all forms of sexual coercion in the context of an intimate relationship may be a product of sperm competition. This leads to the first hypothesis.

Hypothesis 1: Men's sexual coercion in the context of an intimate relationship is related positively to his partner's infidelities.

Sexual coercion and mate retention

Research has documented that men engage in an assortment of behaviors designed to prevent their partner's infidelity. Using an act-nomination procedure, Buss (1988) identified specific "mate-retention" behaviors that men use to guard or to retain their mates. Subsequent research has found that men increase their mate-retention behaviors when their partner is of greater reproductive value (as indexed by her age and physical attractiveness), when she is more likely to engage in extra-pair copulations, and when she is near ovulation (Buss & Shackelford, 1997; Gangestad, Thornhill, & Garver, 2002; Goetz *et al.*, 2005). Moreover, research has documented that men use mate-retention behaviors in conjunction with, and not alternatively to, other anti-cuckoldry tactics (e.g. Goetz *et al.*, 2005; Shackelford *et al.*, 2005). In other words, men who perceive that their likelihood of being cuckolded is high use an arsenal of anti-cuckoldry tactics to guard their paternity. If sexual coercion is a sperm-competition tactic designed to "correct" a partner's sexual infidelity, then men who sexually coerce their partners also should perform more mate-retention behaviors. This leads to the second hypothesis.

Hypothesis 2: Men's sexual coercion in the context of an intimate relationship is related positively to their mate-retention behaviors.

It may be that a proportion of sexually coercive behaviors (in the context of an intimate relationship) are performed by antisocial men who aim to punish, humiliate, or control their partners *independent of their perception of cuckoldry risk*. We are not arguing that all sexual coercion and FIPCs are the output of evolved psychological mechanisms designed to reduce the risk of being cuckolded. Instead, we are suggesting that a significant amount of sexual coercion might be the result of male-evolved psychology associated with guarding their paternity.

A secondary goal of this research was to obtain from a relatively young sample of adults the prevalence estimates of FIPC. Previous studies assessing the prevalence of FIPC have only assessed FIPC in marriages and have restricted their sample to women (Finkelhor & Yllo, 1985; Painter & Farrington, 1999; Russell, 1982). This research will contribute uniquely to the existing literature by securing prevalence estimates for FIPC from men and women who are in

a committed relationship (for a minimum of 1 year) and not necessarily married.

This chapter highlights some of our recent research (see Goetz & Shackelford, 2006), in which we investigated men's sexual coercion, their risk of sperm competition, and their mate-retention behaviors in two studies. Study 1 (Appendix 1) focused on men's reports of their own sexual coercion in the current relationship, their perception of their partners' infidelities, and their own mate-retention behaviors. Study 2 (Appendix 2) focused on women's reports of their partners' sexual coercion in the current relationship, their own infidelities, and their partners' mate-retention behaviors.

Comparisons between men's self-reports (study 1) and women's partner-reports (study 2)

Because research indicates that men's reports of their sexual coercion and mate retention may be less reliable or less accurate than women's reports of their partners' coercive behaviors and mate-retention behaviors (Dobash *et al.*, 1998; Magdol *et al.*, 1997), it may be appropriate to place greater weight on women's reports. We performed Fisher's *r*-to-*z* transformations to compare the magnitude of correlations generated by men's self-reports (study 1; Appendix 5.1) and women's partner-reports (Study 2; Appendix 5.2). For hypothesis 1, the correlation obtained from the men's data ($r = 0.25$) was not significantly different than the correlation obtained from the women's data ($r = 0.32$); $z = -0.86$ (*not significant*). The magnitudes of the relationship between men's sexual coercion and his partner's infidelities were not significantly different between the samples. For hypothesis 2, the correlation obtained from the men's data ($r = 0.15$) was significantly lower than the correlation obtained from the women's data ($r = 0.34$); $z = -2.30$ ($P < 0.05$). The magnitude of the relationship between men's sexual coercion and mate retention was significantly greater for women's partner-reports than for men's self-reports.

Next, we performed Fisher's *r*-to-*z* transformations to identify differences between the correlations of sexual coercion with each of the 19 mate-retention tactics for the data provided by men (correlations in the first column of Table 5.1; see Appendix 5.1) and the correlations of sexual coercion with each of the 19 mate-retention tactics for the data provided by women (correlations in the second column of Table 5.1). We identified significant differences in correlations for nine mate-retention tactics: vigilance, concealment of mate, monopolization of time, emotional manipulation, commitment manipulation, resource display, sexual inducements, submission and debasement, and possessive ornamentation. For each of these tactics, correlations of sexual coercion

with mate retention for the self-report data provided by men were significantly lower than correlations of sexual coercion with mate retention for the partner-report data provided by women.

Finally, we tested the difference between the prevalence estimates of FIPC generated by men's self-reports and women's partner-reports. The prevalence of FIPC obtained from the men's self-report data (7.3%) was not significantly different than the prevalence of FIPC obtained from the women's partner-report data (9.1%); $z = -0.75$ (*not significant*). Although the prevalence of FIPC is numerically greater according to women's partner-reports, the percentages were not significantly different between the samples.

General discussion

FIPC has been documented in several avian species and reliably occurs immediately after an observed or suspected extra-pair copulation (see Lalumière *et al.*, 2005, for a review). This behavior has been interpreted as a sperm-competition tactic because the in-pair male's FIPC functions to place his sperm in competition with sperm from an extra-pair male (Birkhead *et al.*, 1989; Cheng *et al.*, 1983). FIPC is not unique to birds; researchers estimate that between 10 and 17% of women experience FIPC in marriage (Finkelhor & Yllo, 1985; Painter & Farrington, 1999; Russell, 1982). Narratives provided by victims of FIPC reveal that a remarkable proportion of FIPCs follow accusations of female infidelity and suggest a strong and reliable link between male sexual jealousy and the occurrence of FIPC (see Bergen, 1996; Finkelhor & Yllo, 1985; Frieze, 1983; Russell, 1982; Walker, 1979). Consequently, several researchers have interpreted FIPC in humans as a sperm-competition tactic (Lalumière *et al.*, 2005; Thornhill & Thornhill, 1992; Wilson & Daly, 1992).

The current studies tested specific hypotheses derived from the general hypothesis that sexual coercion in the context of an intimate relationship may function as a sperm-competition tactic. We hypothesized that men's sexual coercion in the context of an intimate relationship is related positively to his partner's infidelities and that men's sexual coercion is related positively to their mate-retention behaviors. The results from study 1 and study 2 (see Appendices 5.1 and 5.2) supported the hypotheses. According to men self-reports and women's partner-reports, men who used more sexual coercion in their relationship are mated to women who had been or were likely to be unfaithful, and these men also are likely to use more mate-retention behaviors.

Although the correlations of the tests of the hypotheses and the prevalence of FIPC were only significantly different between the sexes in the test of hypothesis 2 (i.e. the relationship between sexual coercion and mate retention),

the correlations and prevalence of FIPC were numerically greater for women's partner-report data. Because women's reports are likely to be more accurate and more reliable than men's reports (Dobash *et al.*, 1998; Magdol *et al.*, 1997), it may be appropriate to place greater weight on women's reports of men's sexual coercion and mate retention.

One limitation of the current research is in its design. We present correlational analyses that prevent strong statements about causal relationships. We speculate that women's infidelities cause men to use sexual coercion as a paternity guard. The data are consistent with this interpretation, but we cannot yet rule out an alternative, reverse causal relationship – that men's sexual coercion causes women to become unfaithful. A methodology that includes repeated assessments of the key variables over time, such as a daily diary study, would allow for the identification of causal relationships.

A clear future direction is to identify the environmental inputs that activate the proposed psychological mechanisms associated with sexual coercion and FIPC. Cues to a partner's sexual infidelity may be unequivocal, such as admission or observation of the infidelity, but most cues are probably more cryptic, such as apathy toward her partner, sudden decreased sexual interest in her partner, and subtle changes in her normal routine (Shackelford & Buss, 1997). It would be valuable to identify the specific cues that motivate, in some men, sexual coercion and FIPC.

Another future avenue of research could involve measuring phallometry in men convicted of FIPC. Phallometry is the research method of measuring erectile responses while presenting stories or pictures of sexual and non-sexual stimuli. Meta-analyses of phallometric studies strongly suggest that rapists respond differently to sexual stimuli than non-rapists (Hall, Shondrick, & Hirschman, 1993; Lalumière & Quinsey, 1994). If FIPC is unrelated to rape in general (e.g. stranger rape), then men convicted of FIPC should show phallometric responses that differ from men convicted of stranger rape. For example, men convicted of FIPC might have phallometric responses more like "normal" men, because the motivation underlying FIPC is different than that underlying general forced copulation.

Conclusion

Because cuckoldry poses a substantial reproductive cost for males of paternally investing species, men are expected to have evolved a host of adaptations to confront the adaptive problem of cuckoldry. One such adaptation may be a sperm-competition tactic whereby sexual coercion and FIPC function to increase the likelihood that the in-pair male, and not a rival male, sires the offspring that his partner might produce.

Appendix 5.1 Study 1: men's self-reports

METHODS

Participants

Two hundred and forty six men, each of whom was in a committed, sexual relationship with a woman for at least one year, participated in this study. About half of the participants were drawn from a university in southern Florida and the other half from surrounding communities. The mean age of the participants was 25.1 years (SD = 7.1 years), the mean age of the participants' partners was 23.8 years (SD = 6.7 years), and the mean relationship length was 46.3 months (SD = 49.1 months).

Materials

Participants completed a survey that included several sections. The first section requested demographic information, including the participant's age, his partner's age, and the length of his current relationship. The second section asked four questions to assess his partner's past sexual and emotional infidelities and her likelihood of committing a sexual and emotional infidelity in the future: "As far as you know, has your current partner had sexual intercourse with someone other than you since you have been involved in a relationship together?," "As far as you know, has your current partner fallen in love with someone other than you since you have been involved in a relationship together?," "How likely do you think it is that your current partner will in the future have sexual intercourse with someone other than you, while in a relationship with you?," and "How likely do you think it is that your current partner will in the future fall in love with someone other than you, while in a relationship with you?" Responses were recorded using a 10-point Likert-type scale ranging from 0 (definitely no/not at all likely) to 9 (definitely yes/extremely likely).

To assess men's mate-retention behaviors, the third section of the survey included the Mate Retention Inventory (MRI; Buss, 1988; Buss & Shackelford, 1997; Shackelford, Goetz, & Buss, 2005a), which asked how often the participant had performed 104 mate-retention acts in the last month, ranging from 0 (never) to 3 (often). Example acts include: "Did not let my partner talk to other men," "Held my partner's hand when other men were around," and "Introduced my partner as my spouse or romantic partner." Buss (1988) grouped these 104 acts into 19 tactics of mate retention. Previous research has established the reliability, validity, and utility of the MRI as an assessment of mate-retention behaviors (Buss, 1988; Buss & Shackelford, 1997; Shackelford *et al.*, 2005a).

To assess men's sexual coercion in the current relationship, the last section of the survey included the male version of the Sexual Coercion in Intimate Relationships Scale (SCIRS; Shackelford & Goetz, 2004). The SCIRS asked how often the participant performed 34 sexually coercive acts in the last month. Responses were recording using a six-point Likert-type scale with the following values: 0 = act did not occur in the past month, 1 = act occurred 1 time in the past month, 2 = act occurred 2 times in the past month, 3 = act occurred 3 to 5 times in the past month, 4 = act occurred 6 to 10 times in the past month, and 5 = act occurred 11 or more times in the past month. Items in the SCIRS vary in subtlety, ranging from hinting and subtle manipulations to outright physical force. Example items include: "I hinted that I would withhold benefits that my partner depends on if she did not have sex with me," "I told my partner that if she loved me, she would have sex with me," and "I threatened to have sex with another woman if my partner did not have sex with me." Previous research has established the reliability, validity, and utility of the SCIRS as an assessment of sexual coercion in intimate relationships (Shackelford & Goetz, 2004).

Procedure

Three criteria must have been met to qualify for participation. The prospective participant must be (1) male, (2) at least 18 years of age, and (3) currently involved in a committed, sexual relationship with a woman for at least 1 year. Upon the prospective participant's arrival at the scheduled time and location, the researcher confirmed that the prospective participant met the three participation criteria. If the criteria were met, the researcher handed the participant a consent form, the survey, and a security envelope. The participant was instructed to read and sign the consent form, complete the survey, place the completed survey in the envelope, and then seal the envelope. The participant was instructed not to seal the consent form inside the envelope to maintain anonymity. Upon completion of the survey, the researcher explained to the participant the purpose of the study, answered any questions, and thanked the participant for his participation.

RESULTS AND DISCUSSION

Prior to analyses, we created the composite variable *female infidelity* ($\alpha = 0.72$). Female infidelity is the sum of four variables: (1) partner's past sexual infidelity, (2) partner's past emotional infidelity, (3) partner's likelihood of future sexual infidelity, and (4) partner's likelihood of future emotional infidelity.

We calculated scores for men's sexual coercion using responses to the SCIRS (Shackelford & Goetz, 2004). The alpha reliability for the summed responses

to the 34 items of the SCIRS was $\alpha = 0.95$. We calculated scores for 19 mate-retention tactics using the 104 items in the MRI (Buss, 1988; Shackelford *et al.*, 2005a). The alpha reliability for the entire inventory (with responses summed across items) was $\alpha = 0.96$. Alpha reliabilities for the 19 mate-retention tactics varied in this study from $\alpha = 0.51$ to 0.90, with a mean of $\alpha = 0.75$.

Hypothesis 1 stated that men's sexual coercion in the context of an intimate relationship is related positively to their partner's infidelities; Consistent with this hypothesis, men's sexual coercion correlated positively with their perceptions of their partner's infidelities; $r\ (244) = 0.25$ ($P < 0.001$, two-tailed; all P values generated to test the hypotheses in both studies were two-tailed). Men who reported that their partners had been or were likely to be unfaithful reported using more sexual coercion with their partners.

Hypothesis 2 stated that men's sexual coercion in the context of an intimate relationship is related positively to their mate-retention behaviors. Consistent with this hypothesis, men's sexual coercion correlated positively with their mate-retention behaviors; $r\ (244) = 0.15$ ($P < 0.05$). Men who reported using more sexual coercion in their relationship reported using more mate-retention behaviors. Although the focus of hypothesis 2 was the relationship between men's sexual coercion and their broad use of mate-retention behaviors, we also report in Table 5.1 correlations between men's sexual coercion and the 19 mate-retention tactics identified by Buss (1988) and his colleagues (Buss & Shackelford, 1997; Shackelford *et al.*, 2005a). Nine of the 19 mate-retention tactics showed significant positive correlations with men's use of sexual coercion in the current relationship: vigilance, monopolization of time, jealousy induction, punish mate's infidelity threat, emotional manipulation, derogation of competitors, sexual inducements, intrasexual threats, and violence against rivals.

A secondary goal of this study was to obtain a prevalence estimate of FIPC in a sample of young adults. We asked men if they had ever physically forced their current partner to have sex with them or if they had ever initiated sex with their current partner when she was unaware (e.g. when she was asleep, drunk, or on medication) and continued against her will. Eighteen of the 246 men in this sample (7.3%) admitted to engaging in at least one FIPC with their current partner. Previous studies generating prevalence estimates of FIPC assessed whether FIPCs occurred in the current or previous marriages (Finkelhor & Yllo, 1985; Painter & Farrington, 1999; Russell, 1982). Data presented in the current study are unique in that they were secured from a sample of relatively young men who are in a committed relationship (for a minimum of one year) and not necessarily married. The prevalence of FIPC in this study may be lower than that reported in previous studies because we sampled men, who

Table 5.1. *Correlations between men's sexual coercion and men's mate retention according to men self-reports (study 1) and women's partner-reports (study 2).*

Mate-retention tactic	Men's reports of sexual coercion	Women's reports of sexual coercion	Difference between correlations (z)
Vigilance	0.18†	0.35‡	−2.08*
Concealment of mate	0.06	0.56‡	−6.49‡
Monopolization of time	0.22‡	0.43‡	−2.68†
Jealousy induction	0.26‡	0.36‡	−1.26
Punish mate's infidelity threat	0.23‡	0.33‡	−1.23
Emotional manipulation	0.15*	0.46‡	−3.93‡
Commitment manipulation	0.04	0.23‡	−2.20*
Derogation of competitors	0.14*	0.18†	−0.47
Resource display	−0.05	0.12*	−1.94*
Sexual inducements	0.16†	0.33‡	−2.06*
Appearance enhancement	−0.01	0.12*	−1.48
Love and care	−0.10	−0.05	−0.57
Submission and debasement	0.09	0.24‡	−1.75*
Verbal possession signals	0.07	0.07	0.00
Physical possession signals	−0.04	0.06	−1.14
Possessive ornamentation	0.03	0.22‡	−2.20*
Derogation of mate	0.11	0.05	0.69
Intrasexual threats	0.17†	0.30‡	−1.56
Violence against rivals	0.14*	0.04	1.14

Note: $N = 246$ for study 1, $N = 276$ for study 2. Difference between correlations was assessed via Fisher's r-to-z transformation procedure.

* $P < 0.05$; † $P < 0.01$; ‡ $P < 0.001$ (two-tailed).

are known to underreport sexual coercion of intimate partners (e.g. Dobash *et al.*, 1998), and because we measured whether it occurred in the current relationship and not whether it had ever occurred in any relationship.

Appendix 5.2 Study 2: women's partner-reports

Men's self-reports of their violence, controlling behavior, and sexual coercion may not be accurate depictions of reality (Dobash *et al.*, 1998; Edleson & Brygger, 1986; Magdol *et al.*, 1997; O'Leary & Arias, 1988; Shackelford *et al.*, 2005b). The reliability of men's reports of their sexual coercion and mate-retention behaviors, in particular, can be questioned on several fronts. First, men may be reluctant to report their sexual coercion, or if they do, they may underreport the most severe forms of sexual coercion (e.g. Dobash *et al.*, 1998; Edleson & Brygger, 1986). Second, men sometimes underreport their mate-retention behaviors and controlling behaviors, whereas women report these behaviors with relative accuracy (e.g. Magdol *et al.*, 1997; Shackelford *et al.*, 2005b). Women's reports of their partners' sexual coercion and mate-retention behaviors may reflect more accurately the incidence of such behaviors. In addition, men's perceptions of their partner's infidelities may not be accurate. Using an independent sample of women in committed, sexual relationships, study 2 examined women's observations of their partner's sexual coercion and mate-retention behaviors. These independent reports offered an additional test of the hypothesis tested in study 1.

METHODS

Participants

Two hundred and seventy six women, each of whom was in a committed, sexual relationship with a man for at least 1 year, participated in this study. About half of the participants were drawn from a university in southern Florida and the other half from surrounding communities. The mean age of the participants was 22.3 years (SD = 5.7 years), the mean age of the participants' partners was 24.4 years (SD = 6.9 years), and the mean relationship length was 41.3 months (SD = 39.6 months). None of the women in study 2 were partners of the men who participated in study 1, making the two studies independent.

Materials

The survey for study 2 paralleled the one used in study 1. Participants in study 2 reported on their past infidelities and likelihood of committing future infidelities, their partner's mate-retention behaviors, and their partners' sexual coercion in the current relationship.

Procedure

Paralleling study 1, three criteria must have been met to qualify for participation. The prospective participant must be (1) female, (2) at least 18 years of age, and (3) currently involved in a committed, sexual relationship with a man for at least 1 year. Upon the prospective participant's arrival at the schedule time and location, the researcher confirmed that the prospective participant met the three participation criteria. The same procedure was followed as in study 1.

RESULTS AND DISCUSSION

As in study 1, we created the composite variable *female infidelity* ($\alpha = 0.74$) by summing four variables: (1) past sexual infidelity, (2) past emotional infidelity, (3) likelihood of future sexual infidelity, and (4) likelihood of future emotional infidelity.

We then calculated scores for men's sexual coercion using women's responses to the SCIRS (Shackelford & Goetz, 2004). The alpha reliability for the summed responses to the 34 items of the SCIRS was $\alpha = 0.97$. We calculated scores for 19 mate-retention tactics using the 104 items in the MRI (Buss, 1988; Shackelford *et al.*, 2005a). The alpha reliability for the entire inventory (with responses summed across items) was $\alpha = 0.97$. Alpha reliabilities for the 19 mate-retention tactics varied in this study from $\alpha = 0.50$ to 0.91, with a mean of $\alpha = 0.78$.

Hypothesis 1 stated that men's sexual coercion in the context of an intimate relationship is related positively to their partner's infidelities. Consistent with this hypothesis, women's reports of their partner's sexual coercion correlated positively with their infidelities; $r\,(274) = 0.32$ ($P < 0.001$). Women who reported that they had been or were likely to be unfaithful reported that their partners used more sexual coercion.

Hypothesis 2 stated that men's sexual coercion in the context of an intimate relationship is related positively to their mate-retention behaviors. Consistent with this hypothesis, women's reports of their partners' sexual coercion correlated positively with their partners use of mate-retention behaviors; $r\,(274) = 0.34$ ($P < 0.001$). Women who reported that their partner used more sexual coercion in their relationship reported that their partners used more mate-retention behaviors. Although the focus of hypothesis 2 was the relationship between men's sexual coercion and their broad use of mate-retention behaviors, we also report in Table 5.1 correlations between women's reports of their partners' sexual coercion and the 19 mate-retention tactics identified by Buss (1988) and his colleagues (Buss & Shackelford, 1997; Shackelford *et al.*,

2005). Fourteen of the 19 mate-retention tactics showed significant positive correlations with women's reports of their partners' use of sexual coercion in the current relationship: vigilance, concealment of mate, monopolization of time, jealousy induction, punish mate's infidelity threat, emotional manipulation, commitment manipulation, derogation of competitors, resource display, sexual inducements, appearance enhancement, submission and debasement, possessive ornamentation, and intrasexual threats.

As in study 1 a secondary goal of study 2 was to obtain a prevalence estimate of FIPC in a sample of young adults. We asked women if their current partners had ever physically forced them to have sex or if their current partners had ever initiated sex with them when they were unaware (e.g. when they were asleep, drunk, or on medication) and continued against their will. Twenty five of 276 of women in this sample (9.1%) admitted that they had experienced at least one FIPC by their current partner. The prevalence of FIPC in this study approaches Finkelhor and Yllo's (1985) figure of 10% despite the fact that we measured whether it occurred in the current relationship and not whether it has ever occurred in any relationship.

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