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Punishment, Proprietariness, and Paternity:

Men's Violence against Women from an Evolutionary Perspective

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Abstract

In this article, we use an evolutionary perspective to examine intimate partner violence, focusing on men's violence against women. Previous examinations of intimate partner violence have typically used a proximate level of analysis, emphasizing the immediate, non-evolutionary causes of intimate partner violence. Complementing this approach, an evolutionary perspective offers an understanding of how such psychology and behavior could have arisen via natural selection. Here, we argue that (1) the recurring adaptive problem of paternity uncertainty plays a central role in intimate partner violence, (2) physical violence functions to punish and deter female sexual infidelity, and (3) sexual violence may function as an anti-cuckoldry tactic, with its occurrence related to suspicion of female sexual infidelity.

Key words: intimate partner violence, paternity uncertainty, evolutionary psychology

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Since its introduction 150 years ago, Darwin's (1859) theory of evolution by natural selection has changed—and continues to change—our understanding of the natural world. As the theory crosses disciplines, its implications continue to revolutionize how nonhuman and human life is perceived. In the process, social scientists have recognized the value of using an evolutionary perspective to guide their work, and the application of an evolutionary perspective has been used to predict successfully diverse human behaviors, including altruism, mating, and violence (see, for review, Buss, 2008). In this article, we use the tools provided by evolutionary science to explore why violence occurs between intimate partners. Although alternative approaches to violence between intimate partners have yielded a wealth of information as to influences of culture and social roles (e.g., Archer 2006a; Gage & Hutchinson, 2006), an evolutionary perspective allows us to view intimate partner violence as a predictable form of aggression produced by evolved mechanisms. Our goal is not to detail all causes of intimate partner violence, but to discuss an important "ultimate" or evolutionary cause of female-directed violence: paternity uncertainty. Specifically, we focus our discussion on physical and sexual intimate partner violence. We begin with a functional account of aggression.

Clutton-Brock and Parker (1995) argued that across animal species (both human and nonhuman) use of aggression often functions as a form of punishment that deters the targeted individual from repeating a behavior that conflicts with the interests of the aggressor. Analyzing occurrences of aggression across species, Clutton-Brock and Parker documented not only that use of aggression and violence occurs in situations in which an individual's fitness (probability of survival and reproduction) is at risk, but also that the intensity of the aggression varies with the degree to which fitness is threatened. When considered in context of intimate relationships, we expect violence to occur with the detection of fitness-reducing behavior. Furthermore, we can deduce that violence within intimate relationships should vary with severity of the threat to fitness.

Perhaps aside from death, cuckoldry—the unwitting investment of resources into genetically unrelated offspring—was the most severe recurrent threat to fitness our male ancestors faced. Some of the costs associated with cuckoldry include misdirection of the male's time, effort, and recourses to rearing a rival's offspring, loss of time, effort, and resources the man spent attracting his partner, and reputational damage if such information becomes known to others. Taking into consideration the sum of these fitness costs, it becomes clear how selection could have favored evolution of strategies and tactics aimed at avoiding cuckoldry and decreasing paternity uncertainty. We begin by discussing an emotion that serves this function: sexual jealousy.

Male Sexual Jealousy and Paternity Uncertainty

Jealousy is an emotion that is experienced when a valued relationship is threatened by a real or imagined rival, and generates contextually contingent responses aimed at reducing or eliminating the threat. It functions to maintain relationships by motivating behaviors that deter rivals from poaching and that deter mates from infidelity or outright departure from the relationship (Buss, Larsen, Westen, & Semmelroth, 1992; Daly, Wilson, & Weghorst, 1982; Symons, 1979). Because ancestral men and women faced adaptive problems of retaining partners and maintaining relationships, modern men and women do not differ in the frequency or intensity of their jealousy (Shackelford, LeBlanc, & Drass, 2000; White, 1981). A sex difference, however, emerges when considering the two types of jealousy—emotional and sexual—and this sex difference coincides with men's and women's differing adaptive problems regarding relationships (Buss, 2000; Symons, 1979). Ancestral women's challenge of securing paternal investment needed to raise offspring exerted a significant selection pressure for women to be more sensitive to and more distressed by cues associated with a partner's *emotional* infidelity. Ancestral men's challenge of paternity uncertainty, however, exerted a significant selection pressure for men to be more sensitive to and more distressed by cues associated with a partner's *sexual* infidelity. Because emotional infidelity and sexual infidelity were likely to have been correlated throughout evolutionary history (i.e., if an individual were engaging in one form of infidelity, he or she was often engaging in the other), researchers studying sex differences in jealousy have used forced-choice methods in which participants are asked to select

which infidelity type upsets them most, although some researchers such as Sagarin, Becker, Guadagno, Nicastle, and Millevoihave (2003) and Wiederman and Allgeier (1993) also have found a sex difference using continuous measures. At least two dozen empirical studies have shown the sex difference in jealousy, documenting that men experience more jealousy and distress in response to a partner's sexual infidelity, whereas women experience more jealousy and distress in response to a partner's emotional infidelity. These data are corroborated by experimental data (e.g., Schützwohl & Koch, 2004), physiological data (Buss et al., 1992), patterns of divorce (Betzig, 1989), and the behavioral output of jealousy (e.g., Buss & Shackelford, 1997). Men's sensitivity, distress, and reactions to sexual infidelity are not surprising given the serious reproductive costs associated with cuckoldry.

Sexual jealousy, by itself, cannot prevent cuckoldry. Emotions guide information processing and ultimately direct behavior (Cosmides & Tooby, 2000; Tooby & Cosmides, 1990). One behavioral manifestation of sexual jealousy is partner-directed violence. In line with Clutton-Brock and Parker (1995), we argue that men's partner-directed violence functions to punish and deter infidelity.

Physical Violence

Male sexual jealousy or "male sexual proprietariness" (Daly et al., 1982) is one of the most frequently cited causes of intimate partner violence, both physical and sexual (e.g., Buss, 2000; Daly & Wilson, 1988; Daly et al., 1982; Dobash & Dobash, 1979; Dutton, 1998; Dutton & Golant, 1995; Frieze, 1983; Gage & Hutchinson, 2006; Russell, 1982; Walker, 1979). Physical violence is a tactic used by men to restrict an intimate partner's behavior, especially her sexual behavior outside the intimate relationship (Buss & Malamuth, 1996; Daly & Wilson, 1988; Wilson & Daly, 1996) and is best understood as the behavioral output of male sexual jealousy (Buss, 1996, 2000). Men are hypothesized to have evolved psychological mechanisms dedicated to generating risk assessments of a partner's sexual infidelity. These information-processing mechanisms include, for example, assessments of time spent apart from the partner, presence of potential mate poachers, the partner's "mate value" or attractiveness as a sexual partner or long-term romantic partner, and the partner's likelihood of committing infidelity (e.g., Goetz & Shackelford, 2006; Peters, Shackelford, & Buss, 2002; Schmitt & Buss, 2001; Shackelford & Buss, 1997;

Shackelford, Goetz, McKibbin, & Starratt, 2007; Trivers, 1972; Wilson & Daly, 1993). Moreover, the male mind might be designed to be hypersensitive to cues of sexual infidelity, motivating more false positives (a man incorrectly concludes infidelity has occurred) than false negatives (a man incorrectly concludes infidelity has not occurred) because the ancestral benefits of the former error outweigh the ancestral costs of the latter error (Haselton & Nettle, 2006). Together with risk assessment of a partner's sexual infidelity, contextual factors—such as social and reputational costs, proximity of the partner's kin capable of retaliation, and economic dependency (Figueredo & McCloskey, 1993; Wilson & Daly, 1993)—are processed during decisions to inflict violence on a partner.

Further evidence supporting the relationship between male sexual jealousy and men's partner-directed violence was provided by Archer (2006b). Through use of self-report measures, levels of aggressiveness were measured alongside evolutionary predictors of violence (i.e., impulsiveness, competiveness, dominance, and sexual jealousy). Results indicated that men with greater sexual jealousy also more frequently displayed physical aggression (a measure considering both same-sex and partner-directed aggression). Kaighobadi, Starratt, Shackelford, and Popp (2008) also reported that accusations of female sexual infidelity predict female-directed violence. Based on both men's self-reports and women's partner-reports, men who consistently accused their partners of sexual infidelity were more likely to be physically violent towards them.

Research has linked sexual jealousy with intimate partner violence; additional work indicates that third-party observers expect male sexual jealousy and physical violence in an intimate relationship to co-occur. In a series of studies, Puente and Cohen (2003) found that when participants were presented with scenarios that depicted intimate partner violence, they tended to be more accepting of the violence when the male aggressor was described as jealous. When the man was described as acting out of jealousy, participants were not only less willing to convict the man of a crime, but also reported that the woman would be less inclined to file charges. Jealous abusers also were perceived by participants as more romantically in love with their partner than abusers with non-jealous motives. Puente and Cohen's studies demonstrate that, intuitively, people expect (and sometimes accept) a relationship between jealousy and

intimate partner violence. We argue that an evolutionary perspective offers an explanation for this intuition, as intimate partner violence is motivated by jealousy.

Intimate Femicide

Occasionally, men's use of violence against their partner is lethal. Male sexual jealousy is a frequently cited cause of intimate femicide across cultures (Daly & Wilson, 1988; Serran & Firestone, 2004). Killing an intimate partner is certainly costly, but under specific circumstances, its benefits could have outweighed its costs enough for selection to produce psychology associated with partner-killing by men. According to Daly and Wilson (Daly & Wilson, 1988; Wilson & Daly, 1998; Wilson, Daly, & Daniele, 1995), killing an intimate partner is not the product of evolved psychological mechanisms, but is a byproduct of mechanisms selected for their nonlethal outcomes. This byproduct or slip-up hypothesis argues that men who kill their partners have "slipped up" in that their violence—which was intended to control their partner—inadvertently resulted in their partner's death. Although Daly and Wilson argue against the notion that male psychology might be designed specifically to motivate killing a partner under certain contexts, they contend that lethal intimate partner violence is ultimately the result of male sexual jealousy motivated by attempts to control a partner's sexual behavior.

The byproduct hypothesis is attractive in that it would seem too costly for a man to kill his intimate partner. These costs might include incurring the wrath of her kin and the local community and, if they have children together, depriving the children of maternal investment. These severe costs notwithstanding, if killing an intimate partner is a slip-up or accident as argued by Daly and Wilson, why are so many intimate femicides apparently premeditated? Hiring someone to kill your partner, aiming at and shooting your partner with a firearm, slitting your partner's throat, and poisoning your partner are not accidents. Although some intimate femicides are an accident, far too many are apparently premeditated. This is one observation that led Buss and Duntley (1998, 2003; see also Buss, 2005) to suggest that many partner homicides by men result from evolved psychological mechanisms specifically designed to motivate killing under certain conditions. Discovering a partner's sexual infidelity, Buss and Duntley argue, may be a special circumstance which might motivate partner homicide by men. Homicide

adaptation theory does not argue that discovering a partner's infidelity invariantly leads to partner-killing, but that this situation activates evolved mechanisms associated with weighing the costs and benefits of homicide, and that under certain circumstances, partner-killing by men might be the designed outcome (for full treatment, see Buss, 2005).

Daly and Wilson's (1988; Wilson & Daly, 1998; Wilson, Johnson, & Daly, 1995) and Buss and Duntley's (1998, 2003; Buss, 2005) competing hypotheses have not yet been tested concurrently so that a single hypothesis remains that best accounts for the data (but see Shackelford, Buss, & Weekes-Shackelford, 2003), and our intention here was not to critically evaluate their hypotheses. We intended to argue that partner-killing by men, by design or by accident, is sometimes the behavioral output of male sexual jealousy motivated by perceptions of paternity uncertainty.

Factors Affecting the Severity of Violence

Male sexual jealousy is exacerbated by presence of genetically unrelated children or stepchildren. Men whose partners currently are raising children sired by previous partners "may resent their predecessors' children as living violations of their monopoly" over their partners (Daly, Singh, & Wilson, 1993, p. 209). In addition to problems associated with increased sexual jealousy, unrelated co-resident children also may generate conflict over parental investment. Unrelated men may be less willing to invest time and resources in children than are the children's genetic mother. These conflicts over parental investment may lead to increased violence as well (Brewer & Paulsen, 1999; Daly, Wiseman, & Wilson, 1997).

Women living with children sired by previous partners are overrepresented among victims of domestic violence (Brownridge, 2004; Daly et al., 1993; Figueredo & McCloskey, 1993). This pattern exists whether those women also have children with their current partner (Daly et al., 1993). When physical violence is separated by method of inflicting violence (slapping, throwing objects, etc.), preliminary evidence suggests that women in stepfamilies are at higher risk of the most severe forms of physical violence (Brownridge, 2004). Women living with children sired by previous partners also are at

greater risk of femicide than women living with children related genetically to their current partner (Brewer & Paulsen, 1999; Daly et al., 1997).

Women with children sired by previous partners have been separately shown to be at greater risk of severe forms of physical violence and of femicide, but research has yet to connect the two. Future research may benefit from using a sample of women that included both victims of partner violence and victims of femicide to determine whether risk factors for violence (such as the presence of children sired by previous partners) differ between these two subgroups.

Male sexual jealousy also is exacerbated by the uncertainty present in cohabitating rather than marital relationships. Women who live with but are not married to their partners are at greater risk of partner-inflicted physical violence and homicide than women who live with their husbands (Wilson, Daly, & Wright, 1993; Wilson, Johnson, & Daly, 1995; Shackelford, 2001; Shackelford & Mouzos, 2005; Brownridge, 2008). Recent evidence suggests, however, that differences in the patterns of partner-inflicted violence between cohabitating and married women are declining as number of women in cohabitating relationships increases (Brownridge, 2008).

Physical Violence in Nonhuman Animals

Studies on nonhuman animals have demonstrated that physical violence within pair-bonds is neither exclusive to humans nor to a specific sex (e.g., Eggert & Sakaluk, 1995; Shellman-Reeve, 1999; Wagner, 1992; cited in Alcock, 2005). The male burying beetle, for example, is often the target of violence when his partner's survival or reproduction is threatened (Eggert & Sakaluk, 1995). When discovering the fleshy carcass of an animal that would provide ample resources for future offspring, male burying beetles have the opportunity to sire more offspring if they can attract more than one female to their surplus of food (Trumbo & Eggert, 1994). Mate attraction can be accomplished with release of male pheromones during times of the day in which the beetle is active (Haberer, Schmitt, Peschke, Schreier, & Müller, 2008). If sufficient resources are present, the male will continue to release pheromones even after attracting and copulating with one female (Trumbo & Eggert, 1994). Efforts to obtain an additional mate, however, are met by the resident female with physical violence, including pushing, pinching, and

undercutting the male (Eggert & Sakaluk, 1995). These forms of aggression hinder the male from prolonged release of his sexually attractant pheromones. Aggressive female interference with her partner's pheromone release helps secure resources for herself and future offspring.

A similar phenomenon occurs in razorbills (a seabird) in which both sexes invest in the incubation and feeding of the nestling and the male provides additional investment well beyond the female (Cramp, 1985). In this species, males are the valued sex due to their higher parental investment. Accordingly, it is again the females that display violent and proprietary behavior toward their partner. Females can be seen disrupting the extra-pair copulation (or "extramarital affair") attempts of their mates by pushing, pecking, and even impaling their mates (Wagner, 1992). Wagner describes two specific instances: "One female prevented her mate from mounting an arriving female by stabbing him with her bill as he approached her. Another female stabbed her mate after she disrupted his extra-pair copulation" (p. 535).

These cases demonstrate that intimate partner violence is neither exclusive to humans nor exclusive to males. Intimate partner violence is the result of a natural process—Darwinian selection. These cases also call into question the default hypothesis that physical violence between pair-bonded individuals is caused by socialization. Proponents of the socialization hypothesis would not argue that burying beetles and razorbills are socialized to inflict partner-directed violence, and it may be erroneous to assume this default position for human intimate partner violence. In every species studied to date (including humans), intimate partner violence occurs when the actions of one partner (either male or female) threaten the survival or reproduction of the other.

Mate Retention

Men's mate retention behavior is another example of the behavioral output of jealousy and a means through which reproductive threats to fitness can be minimized. Buss (1988) identified specific mate guarding behaviors, such as vigilance (e.g., dropping by unexpectedly to check up on a partner), concealment of mate (e.g., taking a partner away from a social gathering where other men are present), and monopolization of time (e.g., insisting that a partner stay home rather than go out). These mate

guarding behaviors vary in ways that suggest that they have evolved as paternity guards. For example, a man guards his partner more intensely when she is of greater reproductive value (as indexed by her youth and attractiveness) and when the perceived probability of her extra-pair copulation is greater (Buss & Shackelford, 1997). In addition, men who are mated to women who possess characteristics that make them more likely to commit sexual infidelity guard their partners more intensely (Goetz et al., 2005). Men also guard their partners more intensely after spending a greater proportion of time apart from them—a situation that increases likelihood of female sexual infidelity (Starratt, Shackelford, Goetz, & McKibbin, 2007)—and when she is near ovulation, a time when an extra-pair copulation or sexual infidelity would be most costly for the in-pair man (Gangestad, Thornhill, & Garver, 2002).

Recognizing that men's mate retention behaviors are manifestations of jealousy, Shackelford, Goetz, Buss, Euler, and Hoier (2005) investigated associations between men's mate retention behaviors and intimate partner violence, specifically how some mate retention behaviors and seemingly innocuous romantic gestures may be harbingers of violence. Securing self-reports from men, partner-reports from women, and cross-spouse reports from married couples, Shackelford and his colleagues found across three studies that men's use of particular mate retention behaviors was related to partner violence in predictable ways. For example, men who dropped by unexpectedly to see what their partner was doing or who told their partner that they would "die" if she ever left him were most likely to use serious violence against their partners, whereas men who attempted to retain their partners by expressing affection and displaying resources were least likely to use violence against their partners. These findings corroborated those by Wilson, Johnson, and Daly (1995), who found that women who affirmed statements such as, "He insists on knowing who you are with and where you are at all times" and "He tries to limit your contact with family or friends" were twice as likely to have experienced serious violence by their partners. In accordance with these studies, Kaighobadi et al. (2008) found that the relationship between accusations of female infidelity and female-directed violence is mediated by non-violent direct guarding behaviors (a category of mate retention behaviors presented by Buss, 1988). They concluded that there may be a

temporal hierarchy of behaviors leading to violence, initiated by suspicions of infidelity, followed by men's non-violent mate retention behaviors and ending with men's violence against their partners.

Sexual Violence

Between 10% and 26% of women experience rape in marriage (Abrahams, Jewkes, Hoffman, & Laubscher, 2004; Dunkle et al., 2004; Finkelhor & Yllo, 1985; Hadi, 2000; Painter & Farrington, 1999; Russell, 1982; Watts, Keough, Ndlovu, & Kwaramba, 1998). Rape also occurs in non-marital intimate relationships. Goetz and Shackelford (2006) secured prevalence estimates of rape in intimate relationships from a sample of young men and from an independent sample of young women in a committed relationship for at least one year, but not necessarily married. Goetz and Shackelford documented that 7.3% of men admitted to raping their current partner at least once, and 9.1% of women reported that they had experienced at least one rape by their current partner. Although these percentages are astonishingly high, they likely do not reflect the true incidence of partner rape. Questions concerning sexual coercion and rape in relationships are emotionally loaded and can be subject to social desirability, and therefore such percentages may be underestimates of the prevalence of rape in intimate relationships among young men and women.

Several hypotheses have been proposed to explain why, across cultures, reliable percentages of women are sexually coerced by their partners. Some researchers have hypothesized that sexual coercion in intimate relationships is motivated by men's attempts to dominate and control their partners (e.g., Basile, 2002; Bergen, 1996; Frieze, 1983; Gage & Hutchinson, 2006; Gelles, 1977; Meyer, Vivian, & O'Leary, 1998; Watts et al., 1998) and that this expression of power is the product of men's social roles (e.g., Brownmiller, 1975; Johnson, 1995; Yllo & Straus, 1990). Results relevant to this hypothesis are mixed. Several studies have found that physically abusive men are more likely than non-abusive men to sexually coerce their female partners (Apt & Hurlbert, 1993; DeMaris, 1997; Donnelly, 1993; Finkelhor & Yllo, 1985; Koziol-McLain, Coates, & Lowenstein, 2001; Shackelford & Goetz, 2004), supporting the domination and control hypothesis. Gage and Hutchinson (2006), however, found that women's risk of sexual coercion by their partners is not related to measures assessing the relative dimensions of power in a

relationship, such as who maintains control over decision making. That is, women mated to men who hold the dominant position in the relationship are not more likely to experience sexual coercion than women mated to men who do not hold the dominant position in the relationship, thus contradicting the domination and control hypothesis. Although many researchers agree that *individual men* may sexually coerce their partners to maintain dominance and control, proponents of the domination and control hypothesis often argue that men are motivated *as a group* to exercise "patriarchal power" or "patriarchal terrorism" over women (e.g., Brownmiller, 1975; Johnson, 1995; Yllo & Straus, 1990).

An alternative hypothesis has been advanced by researchers studying sexual coercion from an evolutionary perspective: sexual coercion in intimate relationships may be related to paternity uncertainty, with its occurrence related to a man's suspicions of his partner's sexual infidelity (Camilleri, 2004; Goetz & Shackelford, 2006; Goetz, Shackelford, & Camilleri, 2008; Lalumière, Harris, Quinsey, & Rice, 2005; Thornhill & Thornhill, 1992; Wilson & Daly, 1992). 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 (i.e., when his partner has recently been inseminated by a rival male). This sperm competition hypothesis was proposed following recognition that forced in-pair copulation (i.e., partner rape) in nonhuman species followed female extra-pair copulations (e.g., Barash, 1977; Cheng, Burns, & McKinney, 1983; Lalumière et al., 2005; McKinney, Cheng, & Bruggers, 1984) and that sexual coercion and rape in human intimate relationships often followed accusations of female infidelity (e.g., Finkelhor & Yllo, 1985; Russell, 1982). Before considering the case of partner rape in humans, we review briefly the animal literature on forced in-pair copulation (FIPC). Examining the adaptive problems and resultant evolved solutions to these problems in nonhuman animals may provide insight into the adaptive problems and evolved solutions in humans (and vice versa). Shackelford and Goetz (2006), 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, mate retention, cuckoldry), humans and some birds may have evolved similar solutions to these adaptive problems.

Identifying contexts and circumstances in which FIPC occur in nonhuman species may help us to understand why FIPC occurs in humans.

Forced In-Pair Copulation in Nonhuman 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 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 et al., 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 that in many avian species FIPC immediately follows extra-pair copulations 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). Reports of FIPC in nonhuman species are theoretically beneficial in that they make it difficult to claim that males rape their partners to humiliate, punish, or control them—as is often argued by some social scientists who study rape in humans (e.g., Pagelow, 1988).

But was sperm competition a significant selective force in our species' evolutionary history? 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 & Shackelford, in press; Goetz et al., 2005; Goetz, Shackelford, Platek, Starratt, & McKibbin, 2008; Kilgallon & Simmons, 2005; Pound, 2002; Shackelford & Goetz, 2006, 2007; Shackelford & Pound, 2006; Shackelford, Pound, & Goetz , 2005; Shackelford et al., 2002, 2007; Smith, 1984; Wyckoff, Wang, & Wu, 2000). This adaptive problem led to 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; Goetz et al., 2005; Shackelford et al., 2002, 2007). Men's perception of their partner's physical and sexual attractiveness—a proxy for risk of sperm competition—also predicts the frequency of in-pair copulations. Men engage in more frequent in-pair copulations when they perceive their partner to be more physically and sexually attractive (Kaighobadi & Shackelford, in press).

Selective importance of sperm competition in humans, however, is an issue of scholarly debate. Those questioning the application of sperm competition to humans (e.g., Birkhead, 2000; Dixson, 1998; Gomendio, Harcourt, & Roldán, 1998) do not contend that sperm competition in humans is not possible or unlikely, but that it may not be as intense as in other species with adaptations to sperm competition. Recent work on the psychological, physiological, behavioral, anatomical, and genetic evidence of human sperm competition (cited above), however, was not considered in these previous critiques of human sperm competition. When considering all of the evidence of adaptations to sperm competition in men and current nonpaternity rates (estimated between 2% and 10%; see Anderson, 2006; Bellis, Hughes, Hughes, & Ashton, 2005), it is reasonable to conclude that sperm competition may have been a recurrent and selectively important feature of human evolutionary history. Below, we discuss theory and research related to forced in-pair copulation in humans. In keeping with the established animal literature and a

comparative evolutionary psychological perspective, partner rape in humans hereafter will be referred to as forced in-pair copulation—the forceful act of sexual intercourse by a man against his partner's will.

Forced In-Pair Copulation in Humans. 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 over human evolutionary history by selective pressures associated with 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. 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. Thornhill and Thornhill, for example, 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 presented by Thornhill and Palmer (2000), and Lalumière et al. (2005) suggest that men who suspect that their female partner has been sexually unfaithful may be motivated to engage in FIPC.

Both indirect and direct empirical evidence supporting this hypothesis has been documented. Frieze (1983) and Gage and Hutchinson (2006), for example, found that husbands who raped their wives were more sexually jealous than husbands who did not rape their wives. Shields and Hanneke (1983) documented that victims of FIPC were more likely to have reported engaging in extramarital sex than women who were not raped by their in-pair partner. Studying men's partner-directed insults, Starratt, Goetz, Shackelford, McKibbin, and Stewart-Williams (2006) found in two studies that a reliable predictor of a man's sexual coercion is his accusations of his partner's sexual infidelity. Specifically, men who

accuse their partners of being unfaithful (nominating items such as “I accused my partner of having sex with many other men” and “I called my partner a ‘whore’ or a ‘slut’ ”) were more likely to be sexually coercive.

Direct empirical evidence supporting this hypothesis is accumulating. Camilleri (2004), for example, found that risk of a partner’s infidelity predicted sexual coercion among male participants but not female participants. It is biologically impossible for women to be cuckolded, so one would not expect women to possess sperm competition psychology that would generate sexually coercive behavior in response to a male partner’s sexual infidelity. Goetz and Shackelford (2006) documented in two studies that a man’s sexual coercion in the context of an intimate relationship is related positively to his partner’s infidelities. According to men self-reports and women’s partner-reports, men who used more sexual coercion in their relationship were mated to women who had been or were likely to be unfaithful, and these men also were likely to use more mate retention behaviors. In a forensic sample, Camilleri and Quinsey (2008) found that convicted partner rapists, compared to non-sexual partner abusers, experienced more cuckoldry risk events prior to committing their offense; and in a second study involving a community sample, direct and recent cues to female infidelity predicted men’s self-reported propensity for sexual coercion. Most recently, Goetz and Shackelford (in press) collected data on the proximate and ultimate causes of men’s sexual coercion in intimate relationships to explore how these variables interact. In two studies involving men’s self-reports and women’s partner-reports, men’s sexual coercion of their partners was consistently predicted by female infidelity even after controlling for men’s dominate personalities and men’s controlling behavior.

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 paternity uncertainty. One such adaptation may be a sperm competition tactic whereby sexual coercion and FIPC function to increase likelihood that the in-pair male, and not a rival male, sires the offspring that his partner might produce. 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 sexual coercion might sometimes be the result of male evolved psychology associated with male sexual jealousy.

Conclusion

It is possible to study intimate partner violence with little or no knowledge of evolution. Most scholars do. Those who study intimate partner violence from an evolutionary perspective often ask questions that are different from those asked by most clinical and forensic psychologists. Evolutionary psychologists are interested in ultimate explanations, referring to the evolved function of a trait, behavior, or mechanism. This is in contrast to proximate explanations, which refer to the immediate causes of a trait, behavior, or mechanism. Although the explanations are different, they are compatible and equally important (Sherman & Alcock, 1994). A fuller understanding of intimate partner violence will be achieved when both ultimate and proximate explanations are investigated empirically.

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