

Husband's Reaction to His Wife's Sexual Rejection Is Predicted by the Time She Spends With Her Male Friends but Not Her Male Coworkers

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Abstract

Males among many species, including humans, evaluate cues of sperm competition risk and adjust accordingly their sperm competition tactics. The number of potential sexual rivals can serve as an index of sperm competition risk. Therefore, men may adjust their in-pair copulatory interest in accordance with the presence of sexual rivals. Using self-reports from 45 married men, we test the hypotheses that the time a man's wife spends with other men—either male friends or male coworkers—will positively predict a man's copulatory interest in his wife (Hypothesis 1) and his anger (Hypothesis 2), upset (Hypothesis 3), and frustration (Hypothesis 4) in response to his wife's sexual rejection. The results show that the time wives spend with male friends (but not male coworkers) predicts their husbands' anger, upset, and frustration in response to sexual rejection, providing support for Hypotheses 2–4. Discussion highlights novel contributions of the current research and provides a potential explanation for the discrepant findings regarding male friends versus male coworkers.

Keywords

human sperm competition, sperm competition risk, evolutionary psychology, sexual interest, intrasexual rivals

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Sperm competition occurs when the sperm of two or more males simultaneously occupy a female's reproductive tract and compete to fertilize ova (Parker, 1970). Sperm competition in humans sometimes occurs in the context of female infidelity (Baker & Bellis, 1993; Shackelford, Goetz, McKibbin, & Starratt, 2007; Shackelford et al., 2002; Smith, 1984). Women who pursue extra-pair matings place their regular partner at risk of cuckoldry—unwitting investment in genetically unrelated offspring (Buss & Shackelford, 1997). Men therefore attend to cues to sperm competition and adjust their sperm competition tactics accordingly (Baker & Bellis, 1993; Goetz et al., 2005; Shackelford, 2003).

Within the context of committed, romantic relationships, men attend to cues of partner infidelity and, therefore, sperm competition risk (Baker & Bellis, 1993; McKibbin, Starratt, Shackelford, & Goetz, 2011; Shackelford et al., 2002, 2007; Smith, 1984). Males of several nonhuman species attend to the presence and number of potential rivals to assess sperm competition risk and adjust accordingly the number of sperm in their next in-pair copulatory ejaculate and the time spent

guarding their partner from potential rivals (Fuller, 1998; Gage & Barnard, 1996; Møller, 1985; Pilastro, Scaggiante, & Rasotto, 2002; Pizzari, Cornwallis, & Froman, 2007; Pizzari, Cornwallis, Løvlie, Jakobsson, & Birkhead, 2003; Rondeau & Sainte-Marie, 2001; Schaus & Sakaluk, 2001). In humans, the presence and number of potential rivals also may index sperm competition risk (Pham & Shackelford, 2013). When men view pornography depicting one woman interacting sexually with two men (cueing sperm competition risk), men are more sexually aroused and produce a greater percentage of motile sperm via masturbation compared to when they view pornography

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depicting three women interacting sexually (cueing absence of sperm competition; Kilgallon & Simmons, 2005; McKibbin, Pham, & Shackelford, 2013; Pound, 2002).

Similarly, men whose in-pair partner spends more time with her male friends (i.e., potential rivals) report greater partner-directed copulatory interest (Pham & Shackelford, 2013) and copulate more frequently with their partner (Pham et al., 2014) relative to men whose in-pair partner spends less time with her male friends. Men's partner-directed copulatory interest therefore may function as a tactic to combat sperm competition (Shackelford et al., 2002, 2007; Starratt, McKibbin, & Shackelford, 2013). Copulatory interest motivates men to place their sperm into competition with rival male sperm that may be, or will be, present in their partner's reproductive tract. Men at greater risk of sperm competition also report greater anger, frustration, and upset in response to their partner's sexual rejection (Pham & Shackelford, 2013; Shackelford et al., 2002, 2007; Starratt et al., 2013). Because women attempt to postpone copulating with their in-pair partner immediately following an extra-pair copulation—perhaps to afford the extra-pair male an advantage in sperm competition (Gallup, Burch, & Mitchell, 2006)—men's emotional reactions to their partner's sexual rejection may motivate persistence in attempting to copulate with their partner (Shackelford & Goetz, 2012). In accord with the inpair copulation proclivity model (Gallup & Burch, 2006), men's emotional reactions to sexual rejection by their partner may function to increase their motivation to copulate with their partner under conditions in which men may perceive a greater risk of partner infidelity.

The current research aims to extend research on psychological adaptations to sperm competition (e.g., partner-directed copulatory interest, Shackelford et al., 2002, 2007; potential rivals as a sperm competition cue, Pham & Shackelford, 2013; Pham et al., 2014) to married men. Marriage represents a formal, socially recognized commitment to a relationship that is not evidenced to the same degree in nonmarital, dating relationships (Weisfeld & Weisfeld, 2002)—the primary focus of previous human sperm competition research. The formal commitments of marriage (e.g., financial and social investment) may result in greater costs for men who are cuckolded. We expect to replicate in a sample of married men the results of previous research documenting associations between the time a man's partner spends with other men and psychological responses to sperm competition (e.g., Pham & Shackelford, 2013). We hypothesize that the time a man's wife spends with other men—either male friends or male coworkers—will positively predict a man's copulatory interest in his wife (Hypothesis 1) and his anger (Hypothesis 2), upset (Hypothesis 3), and frustration (Hypothesis 4) in response to his wife's sexual rejection.

Method

Participants and Procedure

Forty-five heterosexual married couples ($n = 90$ participants) arrived together to a university laboratory in the southeastern

region of the United States. Participants were recruited via flyers placed in and around campus and through word of mouth (e.g., snowball sampling). The sample size was determined by available funds. The average relationship length was 9.4 years (standard deviation [SD] = 12.5). The average age of husbands was 36.3 years ($SD = 12.5$), and the average age of wives was 34.5 years ($SD = 12.5$). All couples reported being legally married. Interested and eligible participants were presented with a written consent form. Those who consented to participate were provided with a paper survey. Each member of the couple completed the survey in a private room and separate from their spouse. Participants were compensated US\$50 at the completion of the study.

Materials

Following Shackelford et al. (2002) and Shackelford, Goetz, McKibbin, and Starratt (2007), husbands reported on several variables related to psychological responses to sperm competition risk on 10-point scales: how interested they were in having sex with their wife at that moment (0 = *much less interested in sex with my partner than usual*, 9 = *much more interested in sex with my partner than usual*) and how (angry, frustrated, and upset) they would be if their wife denied a request for sexual intercourse (0 = *not at all*, 9 = *extremely*). Sperm competition risk was assessed as the amount of time wives spent with male friends and the amount of time wives spent with male coworkers as follows: "As far as you know, how much time does your partner currently spend with her male friends (coworkers)?" Participants responded to these items on a 10-point scale (0 = *no time spent*, 9 = *very much time spent*). Following Shackelford et al. (2002), in tests of the hypotheses reported below, we controlled for participant age (calculated as the mean age of husbands and wives in years; $M_{\text{mean age}} = 35.4$, $SD_{\text{mean age}} = 12.1$; $r = .89$ between spouses' ages, $p < .01$) and relationship length in months ($M = 108.5$, $SD = 140.1$).

Results

Bivariate correlations and descriptive statistics for the study variables are displayed in Table 1. Four hierarchical linear regression models were conducted to test the hypotheses. For each model, couple's mean age and relationship length were entered as control variables in Step 1. In Step 2, husband's reports of his wife's time spent with her male friends and husband's reports of his wife's time spent with her male coworkers were entered as predictor variables. Husband's copulatory interest in his wife and husband's anger, upset, and frustration in response to his wife's sexual rejection were entered as outcome variables (see Table 2). Wife's time spent with male friends or male coworkers did not predict husband's copulatory interest in his wife and, therefore, Hypothesis 1 was not supported. Wife's time spent with male friends positively predicted husband's anger, upset, and frustration in response to his wife's sexual rejection, supporting Hypotheses 2–4. Unexpectedly, wife's time spent with male coworkers negatively

Table 1. Descriptive and Bivariate Correlations for Target Variables.

Variable	1	2	3	4	5	6	7	8
1. Relationship length	—							
2. Age	.75**	—						
3. Male friends	-.18	-.06	—					
4. Male coworkers	-.17	-.19	.64**	—				
5. Copulatory interest	-.03	.17	.05	-.09	—			
6. Anger	-.26	-.23	.26	-.04	.14	—		
7. Frustration	-.16	-.23	.25	-.14	.15	.67**	—	
8. Upset	-.19	-.19	.36*	-.03	.23	.79**	.86**	—
Mean	103.70	35.40	1.34	2.07	6.76	2.47	3.67	2.60
SD	130.65	12.21	1.49	2.31	2.01	2.37	2.46	2.35

Note. SD = standard deviation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

predicted husband's upset and frustration in response to his wife's sexual rejection.

Discussion

The results of the current study extended previous research documenting that men attend to the presence of potential rivals and adjust accordingly their sperm competition tactics. We investigated whether a man's reports of the time his wife spends with her male friends and male coworkers positively predicted his in-pair copulatory interest (Hypothesis 1) and his anger (Hypothesis 2), upset (Hypothesis 3), and frustration (Hypothesis 4) in response to his wife's sexual rejection. The results provide support for Hypotheses 2–4 such that husbands, in response to their wife's hypothetical sexual rejection, reported greater anger, upset, and frustration as the time their wife spends with her male friends (but *not* male coworkers) increased. Men's in-pair copulatory interest did not vary with the time his wife spends with other men contrary to Hypothesis 1.

The results of the current study accord with previous research documenting that men attend to the presence of rivals to assess sperm competition risk (Pham & Shackelford, 2013; Pham et al., 2014). The current research also highlights that married men are attentive to cues to sperm competition risk (see also Pham, DeLecce, & Shackelford, 2017). These findings are consistent with the hypothesis that men at greater sperm competition risk are motivated to place their sperm into competition with potential rival males, as expressed through their reported distress in response to their wife's sexual rejection.

Husband's reports of their wife's time spent with male *coworkers* did not positively predict husband's in-pair copulatory interest or their distress in response to their wife's sexual rejection in the same manner as wife's time spent with male *friends*. This finding is unexpected given other research indicating that the number of (Pham et al., 2014) and time spent with (Pham et al., 2017) potential rivals is associated with sexual behaviors that may combat sperm competition. The lack of association

Table 2. Regression Analyses Predicting Variables Related to Copulatory Interest.

Predictor Variable	Copulatory Interest				Anger				Frustration				Upset			
	<i>b</i>	β	<i>t</i>	Model Statistics	<i>b</i>	β	<i>t</i>	Model Statistics	<i>b</i>	β	<i>t</i>	Model Statistics	<i>b</i>	β	<i>t</i>	Model Statistics
Step 1				$R^2 = .05$ $F = 1.03$ $p = .37$				$R^2 = .07$ $F = 1.40$ $p = .26$				$R^2 = .05$ $F = 1.01$ $p = .38$				$R^2 = .04$ $F = .75$ $p = .48$
Relationship length	-.004	-.27	-1.2		-.004	-.23	-0.99		0.00	.01	0.05		-.002	-.13	-0.57	
Age	.06	.33	1.42		-.01	-.05	-0.22		-.05	-.23	-1.02		-.02	-.08	-0.34	
Step 2				$R^2 = .07$ $F = .67$ $p = .62$				$R^2 = .22$ $F = 2.58$ $p = .05$				$R^2 = .31$ $F = 3.96$ $p = .009$				$R^2 = .31$ $F = 4.10$ $p = .008$
Relationship length	-.004	-.26	-1.1		-.002	-.11	-0.52		0.002	.12	0.60		0.00	.03	0.13	
Age	.05	.3	1.26		-.03	-.17	-0.76		-.08	-.37	-1.80		-.05	-.24	-1.17	
Male friends	.18	.13	0.62		.77	.51	2.63*		1.00	.62	3.39**		1.03	.69	3.78**	
Male coworkers	-.15	-.17	-0.83		-.37	-.38	-2.00		-.59	-.56	-3.1***		-.46	-.48	-2.65*	

* $p < .05$. ** $p < .01$. *** $p < .001$.

between wife's time spent with male coworkers in the current study may be attributable to the fact that women may not exercise the same degree of choice with regard to the amount of time they spend with male coworkers, relative to the amount of time they spend with male friends. Whereas women may spend time with male coworkers due to job obligations, they may actively choose to spend time with a male friend because they enjoy the man's company.¹ Therefore, men may perceive their wife's male friends, relative to their wife's male coworkers, as greater potential sperm competition threats. Alternatively, the presence of and time spent with male coworkers may affect men's sexual behaviors (see Pham et al., 2014, 2017), specifically, but not men's emotional reactions to partner infidelity or cues to partner infidelity. Future research would benefit from careful investigation of the conditions or individual differences that predict if, and how, men's sexual psychology and behavior is affected by his partner's time spent with male coworkers.

There are limitations of the current research. The small sample size warrants caution regarding generalizing the results to married couples. In addition, the small sample size may have reduced the power to detect an effect of wife's time spent with male coworkers, specifically, on male sperm competition psychology. The current study secured only husband's reports of the time his wife spent with her male friends and male coworkers and did not secure these reports directly from women. Although a husband's reports may be less accurate than his wife's reports, the aim of the current research was to assess men's *perceived* sperm competition risk—and husband's reports directly coincide with this aim.

The current study documents that married men report greater anger, upset, and frustration in response to their wife's hypothetical sexual rejection as the time their wife spends with her male friends (but *not* male coworkers) increases. This research partially corroborates and extends the literature on human psychological adaptations to sperm competition. The majority of sperm competition research has been conducted on nonmarital, dating couples. This present study offers insight into the sperm competition psychology of married men. These results provide further support for the hypothesis that men attend to potential rivals as a sperm competition cue, in accord with research on nonhumans (e.g., Gage & Barnard, 1996) and humans (see Pham & Shackelford, 2013). Whether in the context of dating relationships or marriage, psychological adaptations to sperm competition appear to be active in male mating psychology.

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References

- Baker, R. R., & Bellis, M. A. (1993). Human sperm competition: Ejaculate adjustment by males and the function of masturbation. *Animal Behaviour*, *46*, 861–885. doi:10.1006/anbe.1993.1271
- Buss, D. M., & Shackelford, T. K. (1997). From vigilance to violence: Mate retention tactics in married couples. *Journal of Personality and Social Psychology*, *72*, 346–361. doi:10.1037/0022-3514.72.2.346
- Fuller, R. C. (1998). Sperm competition affects male behaviour and sperm output in the rainbow darter. *Proceedings of the Royal Society of London, Series B: Biological Sciences*, *265*, 2365–2371. doi: 10.1098/rspb.1998.0585
- Gage, A. R., & Barnard, C. J. (1996). Male crickets increase sperm number in relation to competition and female size. *Behavioral Ecology and Sociobiology*, *38*, 349–353. doi:10.1007/s002650050251
- Gallup, G. G. Jr., & Burch, R. L. (2006). The semen displacement hypothesis: Semen hydraulics and the intra-pair copulation proclivity model of female infidelity. In S. Platek & T. Shackelford (Eds.), *Female infidelity and paternal uncertainty: Evolutionary perspectives on male anti-cuckoldry tactics* (pp. 129–140). New York, NY: Cambridge University Press.
- Gallup, G. G., Burch, R. L., & Mitchell, T. J. B. (2006). Semen displacement as a sperm competition strategy. *Human Nature*, *17*, 253–264. doi:10.1007/s12110-006-1008-9
- Goetz, A. T., Shackelford, T. K., Weekes-Shackelford, V. A., Euler, H. A., Hoier, S., Schmitt, D. P., & LaMunyon, C. W. (2005). Mate retention, semen displacement, and human sperm competition: A preliminary investigation of tactics to prevent and correct female infidelity. *Personality and Individual Differences*, *38*, 749–763. doi:10.1016/j.paid.2004.05.028
- Kilgallon, S. J., & Simmons, L. W. (2005). Image content influences men's semen quality. *Biology Letters*, *1*, 253–255. doi:10.1098/rsbl.2005.0324
- McKibbin, W. F., Pham, M. N., & Shackelford, T. K. (2013). Human sperm competition in postindustrial ecologies: Sperm competition cues predict adult DVD sales. *Behavioral Ecology*, *24*, 819–823. doi:10.1093/beheco/art031
- McKibbin, W. F., Starratt, V. G., Shackelford, T. K., & Goetz, A. T. (2011). Perceived risk of female infidelity moderates the relationship between objective risk of female infidelity and sexual coercion in humans (*Homo sapiens*). *Journal of Comparative Psychology*, *125*, 370–373. doi:10.1037/a0023146
- Møller, A. P. (1985). Mixed reproductive strategy and mate guarding in a semi-colonial passerine, the swallow *Hirundo rustica*. *Behavioral Ecology and Sociobiology*, *17*, 401–408. doi:10.1007/BF00293220

- Parker, G. G. (1970). Sperm competition and its evolutionary consequences in the insects. *Biological Review*, *45*, 525–567. doi:10.1111/j.1469-185X.1970.tb01176.x
- Pham, M. N., & Shackelford, T. K. (2013). The relationship between objective sperm competition risk and men's copulatory interest is moderated by partner's time spent with other men. *Human Nature*, *24*, 476–485. doi:10.1007/s12110-013-9181-0
- Pham, M. N., DeLecce, T., & Shackelford, T. K. (2017). Sperm competition in marriage: Semen displacement, male rivals, and spousal discrepancy in sexual interest. *Personality and Individual Differences*, *105*, 229–232. doi:10.1016/j.paid.2016.09.056
- Pham, M. N., Shackelford, T. K., Holden, C. J., Zeigler-Hill, V., Hummel, A., & Memering, S. L. (2014). Partner attractiveness moderates the relationship between number of sexual rivals and in-pair copulation frequency in humans (*Homo sapiens*). *Journal of Comparative Psychology*, *128*, 328–331. doi:10.1037/a0036602
- Pilastro, A., Scaggiante, M., & Rasotto, M. B. (2002). Individual adjustment of sperm expenditure accords with sperm competition theory. *PNAS Proceedings of the National Academy of Science of the United States of America*, *99*, 9913–9915. doi:10.1073/pnas.152133499
- Pizzari, T., Cornwallis, C. K., & Froman, D. P. (2007). Social competitiveness associated with rapid fluctuations in sperm quality in male fowl. *Proceedings of the Royal Society, Series B: Biological Sciences*, *274*, 853–860. doi:10.1098/rspb.2006.0080
- Pizzari, T., Cornwallis, C. K., Løvlie, H., Jakobsson, S., & Birkhead, T. R. (2003). Sophisticated sperm allocation in male fowl. *Nature*, *426*, 70–74. doi:10.1038/nature02004
- Pound, N. (2002). Male interest in visual cues of sperm competition risk. *Evolution and Human Behavior*, *23*, 443–466. doi:10.1016/S1090-5138(02)00103-4
- Rondeau, A., & Sainte-Marie, B. (2001). Variable mate-guarding time and sperm allocation by male snow crabs (*Chionoecetes opilio*) in response to sexual competition, and their impact on the mating success of females. *The Biological Bulletin*, *201*, 204–217. doi:10.2307/1543335
- Schaus, J. M., & Sakaluk, S. K. (2001). Ejaculate expenditures of male crickets in response to varying risk and intensity of sperm competition: Not all species play games. *Behavioral Ecology*, *12*, 740–745. doi:10.1093/beheco/12.6.740
- Shackelford, T. K. (2003). Preventing, correcting, and anticipating female infidelity. *Evolution and Cognition*, *9*, 1–7.
- Shackelford, T. K., & Goetz, A. T. (Eds.). (2012). *The Oxford handbook of sexual conflict in humans*. Oxford, England: Oxford University Press.
- Shackelford, T. K., Goetz, A. T., McKibbin, W. F., & Starratt, V. G. (2007). Absence makes the adaptations grow fonder: Proportion of time apart from partner, male sexual psychology, and sperm competition in humans (*Homo sapiens*). *Journal of Comparative Psychology*, *121*, 214–220. doi:10.1037/0735-7036.121.2.214
- Shackelford, T. K., LeBlanc, G. J., Weekes-Shackelford, V. A., Bleske-Rechek, A. L., Euler, H. A., & Hoier, S. (2002). Psychological adaptation to human sperm competition. *Evolution and Human Behavior*, *23*, 123–138. doi:10.1016/S1090-5138(01)00090-3
- Smith, R. L. (1984). Human sperm competition. In R. L. Smith (Ed.), *Sperm competition and the evolution of animal mating systems* (pp. 601–659). New York, NY: Academic Press.
- Starratt, V. G., McKibbin, W. F., & Shackelford, T. K. (2013). Experimental activation of anti-cuckoldry mechanisms responsive to female sexual infidelity. *Personality and Individual Differences*, *55*, 59–62. doi:10.1016/j.paid.2013.02.005
- Weisfeld, G. E., & Weisfeld, C. C. (2002). Marriage: An evolutionary perspective. *Neuroendocrinology Letters*, *23*, 47.