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**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. The number of potential sexual rivals can serve as an index of sperm competition risk. Men may, therefore, adjust their in-pair copulatory interest in accordance with the presence of sexual rivals. Using self-report data from 45 married men, the current study tests the hypotheses that the time a man's wife spends with other men—either male friends or male coworkers—will be positively associated with men's copulatory interest in their wife (Hypothesis 1), and with husband's reports of anger (Hypothesis 2), upset (Hypothesis 3), and frustration (Hypothesis 4) in response to his wife's refusal of sexual intercourse. The results show that the time wives spend with male friends (but not male coworkers) predict their husbands' anger, upset, and frustration in response to her refusal of sexual intercourse, providing support for Hypotheses 2-4. Discussion highlights novel contributions of this research and provides a potential explanation for the discrepant findings with regard to male friends versus male coworkers.

*Keywords:* human sperm competition; sperm competition risk; evolutionary psychology; sexual interest; intra-sexual rivalry

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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 most commonly 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 may 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 various cues of partner infidelity and, therefore, of sperm competition risk (Baker & Bellis, 1993; McKibbin, Starratt, Shackelford, & Goetz, 2011; Shackelford, et al., 2002, 2007; Smith, 1984). Males across several nonhuman species attend to the presence and number of potential rivals to assess sperm competition risk—adjusting 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 et al., 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 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 are more likely 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 intra-pair copulation proclivity model (Gallup & Burch, 2006), men's emotional reactions to sexual rejection by their partner, therefore, may function to increase men's motivation to copulate with their partner under conditions in which men may perceive a heightened risk of their partner's infidelity.

The current research aims to advance 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 romantic relationship that is not evidenced to the same degree in non-marital, 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 previous work documenting associations between the time a man's in-pair partner spends with other men and psychological responses to sperm competition (e.g., Pham & Shackelford, 2013) for married men. 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 ( $SD = 12.5$ ). The average age of husbands was 36.3 years ( $SD = 12.5$ ) and, for wives, 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 (i.e., separate from their spouse). Participants were compensated US\$50 at the completion of the study.

### Materials

Following Shackelford et al. (2002) and Shackelford et al. (2007), husbands reported on a variety of variables related to psychological responses to sperm competition on a 10-point scale: 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*), how angry they would be if their wife denied a request for sexual intercourse (0 = *not angry at all*, 9 = *extremely angry*), how frustrated they would be if their wife denied a request for sexual intercourse (0 = *not frustrated at all*, 9 = *extremely frustrated*), and how upset they would be if their wife denied a request for sexual intercourse (0 = *not upset at all*, 9 = *extremely upset*). Sperm competition risk was assessed as the amount of time wives spent with her male friends and the amount of time wives spent with male co-workers, 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 ( $M_{mean\ age} = 35.4$ ,  $SD_{mean\ age} = 12.1$ ;  $r = .89$ ,  $p < .01$ ), and relationship length (in months;  $M = 108.5$ ,  $SD = 140.1$ ).

## Results

Bivariate correlations and descriptive statistics for study variables are displayed in Table 1. Four hierarchical linear regression models were conducted to test Hypotheses 1-4. 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, however, wife's time spent with male coworkers negatively 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 evaluate the presence of potential male 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 as a function of 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 evaluate sperm competition risk (Pham & Shackelford, 2013; Pham et al., 2014). The current research also highlights that married men are attentive to cues of 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.

Unexpectedly, 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) any potential rivals is associated with sexual behaviors to combat sperm competition.. The lack of association between wife's time spent with male coworkers in the current study may be because women do not necessarily exercise the same degree of choice with regard to the amount of time they spend with male coworkers, relative to 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<sup>1</sup>. Therefore, men may perceive their wife's male friends, but not coworkers, as greater potential threats to their marriage. Alternatively, it may be the case that the presence of coworkers may exert a stronger effect on men's sexual behaviors (see Pham et al., 2014, 2017), specifically, but not emotional reactions to perceived infidelity. Future research would benefit from careful investigation of the conditions or individual differences that determine if, and how, men's sexual psychology and behavior is influenced by a woman'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.

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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 corroborates and extends the literature on human psychological adaptations to sperm competition. The majority of sperm competition research has been conducted on non-marital, 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 sexual rivals as a sperm competition cue, in accord with research on non-human males (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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**Table 1.** Descriptive and bivariate correlations for target variables.

	1	2	3	4	5	6	7	8
1. Relationship Length	-							
2. Age	.75**	-						
3. Male Friends	-0.18	-0.06	-					
4 Male Coworkers	-0.17	-0.19	.64**	-				
5. Copulatory Interest	-0.03	0.17	0.05	-0.09	-			
6. Anger	-0.26	-0.23	0.26	-0.04	0.14	-		
7. Frustration	-0.16	-0.23	0.25	-0.14	0.15	.67**	-	
8. Upset	-0.19	-0.19	.36*	-0.03	0.23	.79**	.86**	-
Mean	103.70	35.40	1.34	2.07	6.76	2.47	3.67	2.60
<i>SD</i>	130.65	12.21	1.49	2.31	2.01	2.37	2.46	2.35

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

**Table 2.** Regression analyses predicting variables related to copulatory interest

	Copulatory Interest			Anger			Frustration			Upset			Model Statistics
	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>	<i>b</i>	$\beta$	<i>t</i>	
<b>Step 1</b>													
				<i>R</i> <sup>2</sup> = .05			<i>R</i> <sup>2</sup> = .07			<i>R</i> <sup>2</sup> = .05			<i>R</i> <sup>2</sup> = .04
				<i>F</i> = 1.03			<i>F</i> = 1.40			<i>F</i> = 1.01			<i>F</i> = .75
				<i>p</i> = .37			<i>p</i> = .26			<i>p</i> = .38			<i>p</i> = .48
Relationship Length	-0.004	-.27	-1.2	-0.004	-.23	-0.99	0.00	0.01	0.05	-0.002	-.13	-0.57	
Age	0.06	0.33	1.42	-0.01	-.05	-0.22	-0.05	-.23	-1.02	-0.02	-.08	-0.34	
<b>Step 2</b>													
				<i>R</i> <sup>2</sup> = .07			<i>R</i> <sup>2</sup> = .22			<i>R</i> <sup>2</sup> = .31			<i>R</i> <sup>2</sup> = .31
				<i>F</i> = .67			<i>F</i> = 2.58			<i>F</i> = 3.96			<i>F</i> = 4.10
				<i>p</i> = .62			<i>p</i> = .05			<i>p</i> = .009			<i>p</i> = .008
Relationship Length	-0.004	-.26	-1.1	-0.002	-.11	-0.52	0.002	0.12	0.60	0.00	0.03	0.13	
Age	0.05	0.3	1.26	-0.03	-.17	-0.76	-0.08	-.37	-1.80	-0.05	-.24	-1.17	
Male Friends	0.18	0.13	0.62	0.77	0.51	2.63*	1.00	0.62	3.39**	1.03	0.69	3.78**	
Male Coworkers	-0.15	-.17	-.83	-0.37	-.38	-2.00	-0.59	-.56	-3.1**	-0.46	-.48	-2.65*	

\* *p* < .05, \*\**p* < .01, \*\*\**p* < .001