[in press, *Personality and Individual Differences*, September 2014]

Do Women Perform Fellatio as a Mate Retention Behavior?

Yael Sela[1]*, Todd K. Shackelford[1], Michael N. Pham[1], and Harald A. Euler[2]

[1]Department of Psychology, Oakland University, Rochester, Michigan, United States

[2]Department of Psychology, University of Kassel, Kassel, Germany

*Corresponding author: E-Mail: ysela@oakland.edu

130 Pryale Hall

Oakland University

Department of Psychology

Rochester, Michigan 48309-4401

Fax: 248-370-4612

Abstract

Men who report performing more mate retention behaviors, in general, and more benefit-provisioning mate retention behaviors, in particular, also report greater interest in, and spend more time, performing oral sex on their female partner. We extended these findings to a female sample to investigate whether women's oral sex behaviors are related to their mate retention behaviors. We secured self-report data from 410 women residing in the United States or in Germany in a committed, sexual, heterosexual relationship. The results indicate that women who report performing more benefit-provisioning mate retention behaviors also report greater interest in, and spend more time, performing oral sex on their partner. Further, there are no sex differences in the magnitudes or directions of these relationships. The results suggest that both men and women are more interested in, and spend more time, performing oral sex on their partner as part of a benefit-provisioning strategy to increase their partner's relationship satisfaction. We address limitations of this research, and discuss explanations for the results.

Keywords: oral sex, mate retention, evolutionary psychology, fellatio, cunnilingus

1. Introduction

Male infidelity has been documented in dozens of cultures worldwide, and some published samples estimate that as many as 50% of men have committed infidelity at least once in their lifetime (Allen & Baucom, 2006; Buss, 1994; Schmitt, 2003; Kinsey Pomeroy, Martin, & Gebhard, 1953; Wiederman & Hurd, 1999). Women who suspect or discover their partner's infidelity may subsequently suffer from physical and psychological problems, including major depression, anxiety, and relationship dissatisfaction (Cano & O'Leary, 2000; Betzig, 1989).

1.1 Mate Retention Behaviors

Women perform "mate retention" behaviors to reduce the likelihood of their partner's infidelity (Buss, 1988; Buss & Shackelford, 1997). Buss (1988) identified 104 acts clustered into 19 mate retention "tactics" (see Table 1). Buss organized these tactics into five "categories": Direct Guarding, Intersexual Negative Inducements, Intrasexual Negative Inducements, Positive Inducements, and Public Signals of Possession. Direct Guarding includes behaviors such as vigilance about one's partner's whereabouts and concealment of one's partner (e.g., "I stayed close to my partner while we were at a party"). Intersexual Negative Inducements include behaviors that manipulate and derogate one's partner (e.g., "I pleaded that I could not live without my partner"). Intrasexual Negative Inducements include behaviors intended to deter same-sex rivals from pursuing one's partner (e.g., "I told others my partner was stupid"). Positive Inducements include behaviors that increase the appeal of the current relationship to one's partner (e.g., "I bought my partner an expensive gift"). Public Signals of Possession include behaviors that display to others that one's relationship is exclusive and committed (e.g., "I kissed my partner when others of my same sex were around").

Miner, Starratt, and Shackelford (2009) grouped the five categories into two superordinate "domains": cost-inflicting mate retention (which includes the categories Direct Guarding, Intersexual Negative Inducements, and Intrasexual Negative Inducements) and benefit-provisioning mate retention (which includes the categories Positive Inducements and Public Signals of Possession). Cost-inflicting behaviors reduce the risk of partner infidelity by lowering one's partner's self-esteem, thereby causing the partner to feel unworthy of the current relationship or any other potential relationship (Miner et al., 2009). Benefit-provisioning behaviors reduce the risk of partner infidelity by increasing one's partner's relationship satisfaction (Miner et al., 2009).

1.2 Oral Sex

Oral sex is a common sexual activity (e.g., Santilla et al., 2008) that is positively correlated with sexual satisfaction (Brody & Costa, 2011) and relationship satisfaction (Ashdown, Hackathorn, & Clark, 2011; cf. Brody & Costa, 2011). Men are equally likely to report their female partner performing oral sex on them (i.e., *fellatio*) and performing oral sex on their female partner (i.e., *cunnilingus*) at their most recent sexual encounter as women are to report performing fellatio and receiving cunnilingus (Vannier & O'Sullivan, 2012; cf. de Visser, Rissel, Richters, & Grulich, 2003). Most men and women report experiencing oral sex at least once in their life (de Visser et al., 2003), and both desire to experience oral sex (Santilla et al., 2008). Santilla and colleagues (2008) documented that men (relative to women) desired oral sex more often, and that men's (but not women's) relationship satisfaction was positively correlated with their actual frequency of experiencing oral sex (although the researchers did not distinguish between fellatio and cunnilingus). Notably, women (but not men) are more likely to experience

orgasm during a sexual encounter if they also receive oral sex than when not receiving oral sex (Richters, de Visser, Rissel, & Smith, 2006).

1.3 Oral sex and mate retention

Previous research has documented a sex difference between risk of partner's infidelity and oral sex behaviors. Men (but not women) at greater risk of their partner's infidelity expressed greater interest in, and spent more time, performing oral sex on their partner (Pham & Shackelford 2013a; Pham, Shackelford, & Sela, 2013).

Pham and Shackelford (2013b) documented that men who report performing more mate retention behaviors, in general, and more benefit-provisioning mate retention behaviors, in particular, also report greater interest in, and spent more time, performing oral sex on their partner. Further, men who report performing more cost-inflicting mate retention behaviors also reported less interest in performing oral sex on their partner, and this is consistent with research documenting a negative correlation between the frequency with which men perform benefit-provisioning behaviors and cost-inflicting behaviors (Miner et al., 2009).

Mate retention behaviors are sex-differentiated for some categories but not others: Men (compared to women) more frequently display resources and threaten same-sex rivals, whereas women (compared to men) more frequently enhance their appearance and punishing their partner's infidelity threat (Buss, 1988; Buss & Shackelford, 1997). Since Pham and Shackelford's (2013b) results showed no associations between men's oral sex behavior and these tactics (i.e., resource display, intrasexual threats, appearance enhancement, infidelity threat punishment), it is unclear how these sex differences in mate retention tactics may play out with regard to sex differences in oral sex behaviors (i.e., women's performance of oral sex on their partner).

Thus, men and women differ on *some* aspects of mate retention and of oral sex behaviors. Pham and Shackelford (2013b) documented a relationship between men's mate retention behaviors and their performance of oral sex (cunnilingus). The current research explores the relationship between women's mate retention behaviors and their performance of oral sex (fellatio). We conducted an exploratory test of whether women's mate retention behaviors correlate with their interest in (Hypothesis 1), and time spent (Hypothesis 2), performing oral sex on their partner; and specifically, whether women's benefit provisioning mate retention behaviors correlate with their interest in (Hypothesis 3), and time spent (Hypothesis 4), performing oral sex. Finally, we investigated whether there are sex differences in the relationships between mate retention behaviors and interest in (Hypothesis 5), and time spent (Hypothesis 6), performing oral sex by statistically comparing our results with those of Pham and Shackelford (2013b).

2. Methods

2.1 Participants

We recruited convenience samples of 410 women, each in a committed, sexual, heterosexual relationship from universities and surrounding communities. We excluded data from 13 participants that scored more than three standard deviations from the mean for at least one target variable, leaving a sample size of 397 women. The mean participant age was 21.9 years (SD = 5.5) and the mean relationship length was 29.2 months (SD = 35.7). Participants resided either in the United States or in Germany. The mean ages of American and German participants were 21.4 and 24.2 years (SD = 5.5 and 4.9), respectively, and the mean relationship lengths were 27.2 and 38.1 months (SD = 35.4 and 35.8), respectively.

2.2 Materials

Participants completed a survey that was identical to the survey described in Pham and Shackelford (2013b), allowing us to test sex differences in the magnitudes of relationships between oral sex variables and mate retention behaviors by comparing the results of the current research against the results documented in Pham and Shackelford (2013b). First, participants reported their age and current relationship length. Participants completed the Mate Retention Inventory (MRI), which assesses performance of 104 mate retention behaviors (Buss, 1988). On a 4-point scale, participants reported how frequently they performed each behavior within the past month (0 = *never performed this act*, 1 = *rarely performed this act*, 2 = *sometimes performed this act*, 3 = *often performed this act*).

Participants answered questions about their most recent sexual encounter with their partner on a 10-point scale: own interest in performing oral sex (0 = *less interested or excited than is typical for me*, 9 = *more interested or excited than is typical for me*), and duration of oral sex (0 = *less time than is typical for me*, 9 = *more time than is typical for me*).

2.3 Procedures

Potential participants were asked if they were at least 18 years of age and in a committed, sexual, heterosexual relationship. Those who qualified were asked to sign a consent form and to complete a questionnaire. Participants were asked to place the completed questionnaire in an envelope that they then sealed, and to place the consent form in a separate envelope, to retain anonymity.

3. Results

3.1 Women's mate retention behaviors and oral sex

Following Buss (1988), we constructed 19 mate retention tactic variables from scores on the MRI. We correlated scores for each tactic with scores on the two oral sex variables (see

"Current Study" columns in Table 1). Women who reported greater *interest* in performing oral sex on their partner also reported more frequent use of Emotional Manipulation, Expressions of Love and Caring, Verbal Signals of Possession, and Physical Signals of Possession. Women who reported spending *more time* performing oral sex on their partner also reported more frequent use of Expressions of Love and Caring, Verbal Signals of Possession, and Physical Signals of Possession.

Table 1. Zero-order correlations between target variables

Mate Retention Tactics	Oral sex variables					
	Interest in performing oral sex			Duration of oral sex		
	Current Study	P & S	*z*	Current Study	P & S	*z*
Vigilance	-.03	.00	–	.01	.00	–
Concealment of Mate	-.03	-.02	–	.00	.04	–
Monopolize Mate's Time	-.01	.03	–	-.06	-.02	–
Threaten infidelity	.01	-.10	–	.00	.00	–
Punish mate's threat to infidelity	-.06	-.01	–	.00	.08	–
Emotional Manipulation	.10*	.08	.29	.05	.03	–
Commitment manipulation	.00	.12*	-1.60	.10	.15**	-.76
Derogation of competitors	.00	.10	–	-.04	.05	–
Resource display	.01	.11*	-1.43	.08	.14**	-.88
Sexual inducements	.06	.12*	-.80	.02	.12*	-1.34
Enhance physical appearance	.03	.08	–	.09	.11*	-.23
Expressions of Love and Caring	.15**	.20**	-.65	.16**	.08	1.12
Submission and debasement	.00	.10	–	.08	.08	–
Verbal signals of possession	.20**	.24**	-.64	.14**	.14**	.00
Physical signals of possession	.10*	.22**	-1.65	.11*	.12*	-.14
Possessive ornamentation	.06	.18**	-1.70	.05	.10	–
Derogation of mate to competitors	-.07	-.04	–	-.08	-.02	–
Intrasexual threats	.00	.11*	-1.51	.05	.11*	-.77
Violence	.00	.05	–	-.03	.10	–

Note: P & S = Pham & Shackelford (2013b), $n = 351$. *z* = Fisher's r-to-z transformation, comparing correlations from Pham and Shackelford (2013b) and from the current research. * $p < .05$,** $p < .01$

We constructed an overall mate retention variable from the sum of responses to all 104 items of the MRI (α = .92), and correlated this *overall mate retention* variable with the two target oral sex variables. Women's overall mate retention behaviors were not correlated with their interest in, or time spent, performing oral sex on their partner (see "Current Study" columns in Table 2). These initial tests did not support Hypotheses 1 or 2.

Table 2. Zero-order correlations between target variables

	Oral sex variables					
	Interest in performing oral sex			Duration of oral sex		
	Current Study	P & S	*z*	Current Study	P & S	*z*
Mate Retention Categories						
Direct Guarding	-.03	.01	–	-.01	.00	–
Intersexual Negative Inducements	.02	.05	–	.02	.07	–
Intrasexual Negative Inducements	-.04	.06	–	-.01	.09	–
Positive Inducements	.07	.16**	-1.28	.12*	.14**	-.26
Public Signals of Possession	.16**	.26**	-1.48	.13**	.15**	-.25
Mate Retention Domains						
Benefit Provisioning	.11*	.23**	-1.70	.13**	.16**	-.36
Cost Inflicting	-.01	.04	–	.01	.05	–
Overall Mate Retention Behaviors	.06	0.13*	-.95	.08	.11*	-.37

Note: P & S = Pham & Shackelford (2013b), n = 351 men. z = Fisher's r-to-z transformation, comparing correlations from Pham and Shackelford (2013b) and from the current research. * $p < .05$,** $p < .01$, *** $p < .001$

We calculated scores for each of the five categories of the MRI by summing responses to items within that category, following Buss (1988): Direct Guarding (α = 0.76), Intersexual Negative Inducements (α = 0.66), Positive Inducements (α = 0.87), Public Signals of Possession (α = 0.80), and Intrasexual Negative Inducements (α = 0.63). We calculated scores for the benefit-provisioning behaviors (α = 0.91) and the cost-inflicting behaviors (α = 0.81) by

summing the category values for the constituent mate retention categories (see Miner et al., 2009). We correlated scores on these five mate retention categories and two mate retention domains with responses on the two oral sex variables (see Table 2) to further test Hypotheses 1 and 2 regarding specific mate retention behaviors and women's interest in, and time spent, performing oral sex.

Women who reported performing more benefit-provisioning mate retention behaviors, but not more cost-inflicting mate retention behaviors, also reported greater interest in and spent more time performing oral sex on their partner (see Table 2). We entered the benefit-provisioning and cost-inflicting mate retention variables into multiple regression equations to identify the unique effect of each mate retention domain on each of the two oral sex variables. In support of Hypotheses 3 and 4, women who reported performing more benefit-provisioning mate retention behaviors, but not more cost-inflicting mate retention behaviors, also reported greater interest in and spent more time performing oral sex on their partner (see "Current Study" columns in Table 3).

Table 3. Multiple regression analyses assessing relationships between the two mate retention domains and the two oral sex variables.

Outcome variables	Benefit Provisioning						Cost inflicting					
	Current Study			P & S			Current Study			P & S		
	B	*t*	*SE*	*B*	*SE*	*z*	*B*	*t*	*SE*	*B*	*SE*	*z*
Interest in performing oral sex	.02	2.76**	.01	.12	0.03	-3.87***	-.01	-1.70	.01	-.04	.02	1.27
Duration of oral sex	.02	3.19**	.01	.08	0.03	-2.17*	-.01	-1.71	.01	-.02	.02	0.29

Note: Current study, $n = 379$ women. P & S = Pham & Shackelford (2013b), $n = 351$ men. *B* = unstandardized beta coefficient. *t* = test statistic associated with B. *SE* = standard error, *z* = test statistic associated with beta coefficient differences between male and female samples. * $p < .05$,** $p < .01$, *** $p < .001$

3.1.1 Women's mate retention behaviors and oral sex, and country of residence

In the process of analyzing the data, we separated our sample according to country of residence: United States and Germany. We identified differences on several variables (see Tables 4 and 5): Americans were younger [$t(395) = -4.07$, $p < .001$] and had shorter relationships [$t(393) = -2.41$, $p = .017$]. We did not anticipate these differences, but for reportorial completeness, we next present the results of analyses to identify country-of-residence differences.

Table 4. Zero-order correlations between target variables

Mate Retention Tactics	Oral sex variables					
	Interest in performing oral sex			Duration of oral sex		
	USA	Germany	*z*	USA	Germany	*z*
Vigilance	-.05	.00	–	-.01	-.02	–
Concealment of Mate	-.02	-.15	–	.00	-.11	–
Monopolize Mate's Time	-.02	.01	–	-.04	-.17	–
Threaten infidelity	-.01	-.01	–	.00	-.05	–
Punish mate's threat to infidelity	-.03	-.33**	2.40*	-.01	-.24*	1.82
Emotional Manipulation	.12*	-.18	2.35*	.07	-.18	–
Commitment manipulation	.02	-.13	–	.08	-.09	–
Derogation of competitors	.05	-.31**	2.85**	-.02	-.28*	2.04*
Resource display	-.02	-.13	–	.09	-.10	–
Sexual inducements	.05	-.02	–	.01	-.17	–
Enhance physical appearance	.02	.00	–	.06	-.11	–
Expressions of Love and Caring	.16**	.14	.13	.17**	.05	.92
Submission and debasement	-.01	.07	–	.08	-.24*	2.56*
Verbal signals of possession	.18**	.10	.59	.17**	-.05	1.71
Physical signals of possession	.10	.11	–	.12*	.03	–
Possessive ornamentation	.04	.07	–	.06	-.08	–
Derogation of mate to competitors	-.09	.05	–	-.11	-.14	–
Intrasexual threats	.00	-.15	–	.06	.03	–
Violence	-.03	.01	–	.00	.00	–

Note: USA = American women, $n = 322$. Germany = German women, $n = 75$. z = Fisher's r-to-z transformation, comparing correlations between American and German women. * $p < .05$,** $p < .01$

Table 5. Zero-order correlations between target variables

	Oral sex variables					
	Interest in performing oral sex			Duration of oral sex		
	USA	Germany	*z*	USA	Germany	*z*
Mate Retention Categories						
Direct Guarding	-.05	-.02	–	-.03	-.10	–
Intersexual Negative Inducements	.04	-.31**	2.79**	.03	-.24*	2.14*
Intrasexual Negative Inducements	-.05	-.07	–	-.02	-.08	–
Positive Inducements	.04	.06	–	.14*	-.18	2.48*
Public Signals of Possession	.14*	.16	-.15	.14*	-.09	1.79
Mate Retention Domains						
Benefit Provisioning	.09	.11	–	.15**	-.16	2.40*
Cost Inflicting	.00	-.21	–	.01	-.20	–
Overall Mate Retention Behaviors	.05	-.03	–	.09	-.19	–

Note: USA = American women, $n = 322$. Germany = German women, $n = 75$. z = Fisher's r-to-z transformation, comparing correlations between American and German women. * $p < .05$,** $p < .01$

In cases for which at least one of the groups (American, German) showed a significant relationship between a mate retention variable and an oral sex variable, we conducted Fisher's r-to-z transformations and tested for a group difference in the magnitude of the relationship between mate retention behaviors and oral sex behaviors (see Tables 4 and 5). The groups differed on the magnitude of relationship between *interest* in performing oral sex and Punish Mate's Threat to Infidelity, Emotional Manipulation, Derogation of Competitors, and Intersexual Negative Inducements, and on the magnitude of relationship between *time spent* performing oral sex and Derogation of Competitors, Submission and Debasement, Intersexual Negative Inducements, Positive Inducements, and Benefit Provisioning. In all cases, the relationship was larger for the German sample, and in several cases the relationship was opposite in direction to

the American sample (see Tables 4 and 5). To assess whether between-country differences in the correlations between mate retention and oral sex were attributable to differences in relationship length and participant age, we reran these analyses (comparing American and German women) while controlling statistically for relationship length and participant age. The pattern of correlations did not change substantively (analyses available upon request).

3.2 Women's vs. men's mate retention behaviors and oral sex

To test Hypotheses 5 and 6, we conducted Fisher's *r*-to-*z* transformations on our results and on the parallel results of Pham and Shackelford (2013b), to identify sex differences in the magnitude of relationships between mate retention behaviors and oral sex behaviors. None of the differences were significant (see Tables 1 and 2). To further test Hypotheses 5 and 6, we compared the beta coefficients calculated for the women in our study with the parallel coefficients for men reported in Pham and Shackelford (2013b; see also Paternoster, Brame, Mazerolle, & Piquero, 1998). The relationships between benefit-provisioning mate retention behaviors and interest in, and time spent, performing oral sex were larger for men (see Table 3). There were no sex differences in the relationships between cost-inflicting mate retention behaviors and interest in, and time spent, performing oral sex.

4. Discussion

Together, the results from the current study and from Pham and Shackelford (2013b) suggest that both men and women perform oral sex on their partner to provision their partner with benefits to reduce the likelihood of their partner's infidelity. Both men and women who perform more benefit-provisioning mate retention behaviors also report greater *interest* in, and longer *time spent*, performing oral sex on their partner (see Pham & Shackelford, 2013b). There were no sex differences in the magnitudes or directions of these relationships. However, when

comparing the unique effects of benefit-provisioning and cost-inflicting mate retention behaviors on men's and women's *interest* in, and *time* spent, performing oral sex, these effects were larger for men than women. That is, although both men and women perform oral sex to provision their partner with benefits, men (more than women) are *especially* likely to perform oral sex as a benefit-provisioning mate retention behavior.

Women may express their love and care to their partner by performing oral sex on him, as documented in the current results. This is consistent with research indicating that women in long-term, committed relationships in which they report that they love their partner "a lot" are also more likely to report performing fellatio on this partner (Kaestle & Halpern, 2007).

In unplanned comparisons of reports by American and German women, we documented several differences in the magnitudes and directions of the relationships between oral sex variables and mate retention variables. Specifically, American women (compared to German women) who reported more frequent Emotional Manipulation also reported *more interest* in, and spent *more time*, performing oral sex; see Tables 4 and 5). The American and German groups differed on age and relationship length and, therefore, may also have differed on other variables which we did not assess, such as cohabitation status and children. The US and Germany also vary on religiosity and gender inequality, for example. Fifty-nine percent of Americans vs. 21% of Germans say that religion plays a "very important role" in their lives (Pew Research Center, 2002), and more religious women (vs. less religious women) are less likely to report performing fellatio (Mahoney, 1980). The US ranks much lower than Germany in development on the Gender Inequality Index (42^{nd} vs. 6^{th}, respectively; UNDP, 2013, p. 156). A recent meta-analysis indicated that countries with greater gender inequality show larger sex differences for reporting incidences of oral sex (although this research did not distinguish between cunnilingus and

fellatio; Petersen & Hyde, 2010). Unknown differences on these other variables may account for the differences only apparently attributable to country of origin.

A limitation of this study is that we do not address individual differences. Mate retention behaviors and oral sex behaviors are associated with individual differences such as personality (e.g., mate retention and oral sex; Pham et al., in press), sociosexuality (mate retention; Kardum et al., 2006), and religiosity (e.g., oral sex; Mahoney, 1980). Future research might profitably investigate individual differences on women's oral sex behaviors and mate retention behaviors. Another limitation of this study is that we relied on self-reports. Although self-reports of mate retention behaviors correlate positively with partner's reports of these behaviors (Shackelford, Goetz, & Buss 2005), it would be useful to secure reports from both partners to investigate the replicability of the current results across data sources.

A limitation of the literature on oral sex is reliance on problematic survey terminology and use of the term "oral sex" (e.g., Ashdown et al., 2011). Studies that assess oral sex with items such as "the number of partners you had oral sex with in the past year" (e.g., Prinstein, Meade, & Cohen, 2003) do not convey whether the respondent is performing or is receiving oral sex. Future research must distinguish between fellatio and cunnilingus in heterosexual couples.

The current research, along with Pham & Shackelford (2013b), provides evidence that men and women perform oral sex on their partner as a benefit-provisioning mate retention behavior.

References

"Among Wealthy Nations U.S. Stands Alone In Its Embrace of Religion". Pew Research Center, Washington, D.C. (December 19, 2002). Retrieved from http://www.pewglobal.org/files/pdf/167.pdf, on June 24, 2014.

Allen, E. S., & Baucom, D. H. (2006). Dating, marital, and hypothetical extradyadic involvements: How do they compare? *The Journal of Sex Research, 43*, 307–317.

Ashdown, B. K., Hackathorn, J., & Clark, E. M. (2011). In and out of the bedroom: Sexual satisfaction in the marital relationship. *Journal of Integrated Social Sciences, 2*, 38-55.

Betzig, L. (1989). Causes of conjugal dissolution: A cross-cultural study. *Current Anthropology, 30*, 654-676.

Brody, S., & Costa, R. M. (2009). Satisfaction (sexual, life, relationship, and mental health) is associated directly with penile-vaginal intercourse, but inversely with other sexual behavior frequencies. *The journal of sexual medicine, 6*, 1947-1954.

Buss, D. M. (1988). From vigilance to violence: Tactics of mate retention in American undergraduates. *Ethology and Sociobiology, 9*, 291-317.

Buss, D. M. (1994). *The evolution of desire: Strategies of human mating.* New York: Basic Books.

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.

Cano, A., & O'Leary, K. D. (2000). Infidelity and separations precipitate major depressive episodes and symptoms of nonspecific depression and anxiety. *Journal of consulting and clinical psychology, 68*, 774-781.

Davidson, J. K., Darling, C. A., & Norton, L. (1995). Religiosity and the sexuality of women: Sexual behavior and sexual satisfaction revisited. *Journal of Sex Research, 32*, 235-243.

de Visser, R. O., Smith, A., Rissel, C. E., Richters, J., & Grulich, A. E. (2003). Sex in Australia: Heterosexual experience and recent heterosexual encounters among a representative sample of adults. *Australian and New Zealand journal of public health, 27*, 146-154.

Holden, C.J., Zeigler-Hill, V., Pham, M.P., & Shackelford, T.K. (2014). Personality features and mate retention strategies: Honesty-Humility and the willingness to manipulate, deceive, and exploit romantic partners. *Personality and Individual Differences, 57*, 31-36.

Kaestle, C. E., & Halpern, C. T. (2007). What's love got to do with it? Sexual behaviors of opposite-sex couples through emerging adulthood. *Perspectives on Sexual and Reproductive Health, 39*, 134-140.

Kardum, I., Hudek-Knežević, J., & Gračanin, A. (2006). Sociosexuality and mate retention in romantic couples. *Psychological Topics*, 15, 277-296.

Kinsey, A., Pomeroy, W., Martin, C., & Gebhard, P. (1953). *Sexual behavior in the human female.* Philadelphia: Saunders.

Mahoney, E. R. (1980). Religiosity and sexual behavior among heterosexual college students. *Journal of Sex Research, 16*, 97-113.

Miner, E. J., Starratt, V. G., & Shackelford, T. K. (2009). It's not all about her: Men's mate value and mate retention. *Personality and Individual Differences, 47*, 214-218.

Paternoster, R., Brame, R., Mazerolle, P., & Piquero, A. (1998). Using the correct statistical test for the equality of regression coefficients. *Criminology, 36*, 859-866.

Petersen, J. L., & Hyde, J. S. (2010). A meta-analytic review of research on gender differences in sexuality, 1993-2007. *Psychological Bulletin, 136*, 21.

Pham, M. N., & Shackelford, T. K. (2013a). Oral sex as infidelity-detection. *Personality and Individual Differences, 54*, 792-795.

Pham, M. N., & Shackelford, T. K. (2013b). Oral sex as mate retention behavior. *Personality and Individual Differences, 55*, 185-188.

Pham, M. N., Shackelford, T. K., Holden, C. J., Zeigler-Hill, V., Sela, Y., & Jeffrey, A.J. (in press). Men's benefit-provisioning mate retention behavior mediates the relationship between their agreeableness and their oral sex behaviors. *Archives of Sexual Behavior*.

Pham, M. N., Shackelford, T. K., & Sela, Y. (2013). Women's oral sex behaviors and risk of partner infidelity. *Personality and Individual Differences, 55*, 446-449.

Richters, J., de Visser, R., Rissel, C., & Smith, A. (2006). Sexual practices at last heterosexual encounter and occurrence of orgasm in a national survey. *Journal of Sex Research, 43*, 217–226.

Santtila, P., Wager, I., Katarina, W., Harlaar, N., Jern, P., Johansson, A., et al. (2008). Discrepancies between sexual desire and sexual activity: Gender differences and associations with relationship satisfaction. *Journal of Sex and Marital Therapy, 34*, 29-42

Schmitt, D. P. (2003). Universal sex differences in the desire for sexual variety: Tests from 52 nations, 6 continents, and 13 islands. *Journal of Personality and Social Psychology, 85*, 85-104.

Shackelford, T. K., Goetz, A. T., & Buss, D. M. (2005). Mate retention in marriage: Further evidence of the reliability of the Mate Retention Inventory. Personality and Individual Differences, 39, 415-425.

United Nations Development Program. (2013). Human development report. Retrieved from http://www.undp.org/content/undp/en/home/librarypage/hdr/human-development-report-2013/, on June 24, 2014.

Wiederman, M. W., & Hurd, C. (1999). Extradyadic involvement during dating. *Journal of Social and Personal Relationships, 16*, 265-274.