

## **Sociosexuality and Mate Retention in Romantic Couples**

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### **Abstract**

On a sample of 191 romantic couples the relations between mate retention strategies of one partner in the pair and sociosexuality of the other was examined. Mate retention strategies were measured by using self-reports, while sociosexuality was measured by self-report, as well as partner's report. The results show that mate retention tactics, categories and domains are mainly positively related to both measures of partners' sociosexuality in men and women, and particularly perceived sociosexuality of one's partner. The results also show that relations between the overall frequency in the use of mate retention acts and partners' sociosexuality do not differ between men and women. However, consistent differences in the relations between sociosexuality and mate retention strategies in men and women were obtained. When their partners are higher on sociosexuality women are more inclined to use intersexual manipulations, while men are more prone to intrasexual manipulations.

### **INTRODUCTION**

Because the infidelity of one's partner caused a threat to the other partner's reproductive success during our evolutionary past, numerous mechanisms of mate guarding have evolved in animals (e.g. Alcock, 2005) as well as in humans (e.g. Buss, 1988, 2000a). It is hypothesized that mate-guarding mechanisms evolved across species because, on average, they succeeded in warding off rivals and kept partners from straying (Buss & Shackelford, 1997). Evolutionary functions of mate guarding in males and females differ. While the reasons for male mate guarding include ensuring paternity, preventing alien insemination, and defending against investment in genetically unrelated offspring, evolutionary functions of females' mate guarding primarily include ensuring that her partner's status, financial

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resources and protection are not redirected from her children and kin toward intrasexual rivals (Thornhill & Alcock 1983; Daly, Wilson & Weghorst, 1982; Flinn, 1988).

Namely, as is well known from the theory of sexual selection, each individual pursues her or his reproductive self-interest, and therefore, the differences in time and cost associated with the development of sperm and ova lead to sex differences in the processes associated with mate choice and competition for mates (Stearns & Hoekstra, 2005). As females invest more heavily in their offspring in terms of parental effort, they will be more interested in direct control over mates' resources, while males, who invest much less, will be directed more towards mating effort and, therefore, interested in the accumulation of resources and establishment of social dominance. The dynamics of sexual selection in the majority of animal species as well as in humans are expressed in two most general forms - female choice of mating partners and male - male competition. Thus, the sexual selection mainly operates through intersexual choice of mating partners in females and intrasexual competition over access to mating partners in males. Although these are two dominant forms of sexual selection, the other forms like female-female competition and male choice also exist, albeit they are not so frequently examined (Geary, 1998).

It is presumed that mate guarding is favored by selection pressures as a mechanism that enables reproductive success. Mate guarding is commonly observed behavior in many animal species and exists in a variety of forms (Field & Keller, 1993). For example, in order to avoid the threat of paternity losses in many bird species, more frequent in - pair copulations occur (Møller, 1987), in some of them (e.g. osprey - *Pandion haliaetus*) males respond to such threat by increasing attendance to the nest (Mougeot, Thibault & Bretagnolle, 2002), whereas in other (e.g. male stitchbirds - *Notiomystis cincta*) a male will engage in more intense mate guarding during the fertile period of their mate (Low, 2006). A recently mated male of the parasitic wasp (*Cotesia rubecula*), will mimic a female in order to distract rival males until the mated female become unreceptive (Field & Keller, 1993). Mate retention defined as staying together and breeding with their former mate for more than one season was found to be a regular mating strategy in some birds like Blue Tits (*Parus caeruleus*) and Great Tits (*Parus major*) (Pampus, Schmidt & Wiltchko, 2005) and seems to have a positive effect on reproductive success in several long-lived species of birds (Fowler, 1995) presumably because changing mates is costly and/or because familiarity with the old mate (and perhaps breeding site) improves lifetime reproductive success (Ens, Choudhury & Black, 1996). Further, in many primate species (e.g. mandrill, baboon, the long-tailed macaque, and chimpanzee) dominant males use mate guarding in the form of monopolizing sexual activities of females during the time when they are most likely to conceive (Geary, 1998).

In the animal world, mate guarding by males is frequently observed, whereas mate guarding by females is rare. It could be assumed that mate guarding by

females is less directly related to sexual activities of their partners than mate guarding by males. Regarding animals and humans as well, the hypothesis derived from the theory of sexual selection is that female jealousy should be focused more on preventing loss of economic and material resources than on sexual infidelity, which is the primary focus of male jealousy (e.g. Daly, Wilson & Weghorst, 1982). Namely, the intensity of selection pressure favouring mate - retention strategies in females across various species is related to the degree to which female reproductive success is dependent on male parental care (Arnold & Owens, 2002; Møller, 2000). The evidence that higher levels of paternal investment in humans are correlated with better child outcomes additionally supports this hypothesis (Geary, 2000). Therefore, it could be expected that during evolutionary history females, in comparison with males, must have developed mate retention strategies focused less directly on potential sexual infidelity and more on the activities related to competition for access to men as "resource objects" (e.g. making themselves physically attractive, using aggression directed in order to ward off potential female rivals from the resources they consider their own etc.) in the same way female primates compete with one another for the resources needed to survive and to raise their offspring and also guard men to retain needed resources (Geary, 1998). For example, it was found that in Western culture, female - female competition involves a combination of presenting their own physical attractiveness, and derogating physical attractiveness in potential female rivals (Buss, 1988; Schmitt & Buss, 1996). Research results show that female - female competition also involves indirect forms of aggression, sometimes called relational aggression, which include gossip and verbal aggression expressed as derogation of competitors, in order to exclude potential rivals from their social group, and often use the same tactics to attract their partners and retain them (Bettencourt & Miller, 1996; Bjorkqvist, Lagerspetz & Kaukiainen, 1992; Campbell, 1993).

In order to identify the nature and range of mate retention strategies among humans and to develop an organized taxonomy of these strategies, Buss (1988) has constructed Mate Retention Inventory (MRI) which comprises 104 diverse acts categorized into 19 mate retention tactics (e.g. vigilance, jealousy induction, emotional manipulation, derogation of competitors). These nineteen tactics are further organized into five categories (direct guarding, intersexual negative inducements, positive inducements, public signals of possession and intrasexual negative inducements) and two domains of mate retention which parallel the processes of sexual selection already mentioned: intersexual (acts directed toward one's mate) and intrasexual manipulations (acts directed toward same-sex potential competitors).

Empirical evidence for sex differences in the use of mate retention tactics measured by MRI show that men reported more use of those retention tactics that aim at prevention of cuckoldry (e.g. resource display and intrasexual threats), while women reported more frequent use of those tactics that aim at retaining resources

(e.g. appearance enhancement and punishment of mate's infidelity threat) (Buss, 1988; Buss & Shackelford, 1997).

Since it is well known that psychological adaptations are latent until triggered by the cues related to an adaptive problem, it is assumed that mate-retention is activated by environmental cues and that its intensity corresponds to the perceived degree of threat imposed. Several studies confirm this hypothesis. For example, the results show that men are more likely to use mate retention when their partner is young and physically attractive, because youth and physical attractiveness are cues to a women's reproductive value and appeal to rivals. On the other hand, women are more likely to engage in mate retention when their partners are of high social status or have high incomes than women whose partners have fewer resources or poorer prospects for future resources (e.g. Buss, 2000b). Also, research show that men's mate retention behaviors become more frequent along with an increase in the perceived probability of partner's extra - pair copulation or perceived threat of infidelity (Buss & Shackelford, 1997; Goetz *et al.*, 2005). Additionally, men whose partners were especially sexually attracted to other men, increased their mate retention behaviors in the days preceding their partners' ovulation, a period when women reported greater sexual interest in non - primary partners, and when extra - pair copulation would be most costly for them (Gangestad, Thornhill & Garver, 2002).

Individual difference dimension reflecting a wide range of sexual behaviors and attitudes toward sex named sociosexuality is defined as a degree to which individuals require emotional closeness and commitment before having sex with a romantic partner. Sociosexually restricted individuals prefer commitment and closeness with their romantic partner prior to engaging in sex, while unrestricted individuals tend to engage in sex without commitment or closeness (Simpson & Gangestad, 1991). Previous research shows that sociosexually unrestricted individuals were more likely to get involved in extra - pair relationships (Seal, Agostinelli & Hannett, 1994), exhibit a pattern of sexually assertive behaviors like flirting more frequently and engage in socially dominant behaviors such as maintaining eye contact and close physical proximity during social interactions (Simpson, Gangestad & Nations, 1996) along with chronic, heightened responsiveness to the situational sexual cues (Seal & Agostinelli, 1994).

Therefore, the aim of the present study was to explore the relations between mate retention strategies and sociosexuality in romantic relationship. Specifically, the relationship was examined between mate retention strategies of one partner in the pair and sociosexuality of the other, with sociosexuality measured both as self-report and partner's report.

It was predicted that the use of mate retention strategies by one partner would be positively related to both measures of his/her partner's sociosexuality. Furthermore, it could be assumed that mate retention strategies used by men will be more related to their partner's sociosexuality than mate retention strategies used by

women, because of the greater potential costs that men have to pay for their partner's sexual infidelity.

Additionally, in accordance with the theory of sexual selection, higher sociosexuality in women is assumed to be related more to the intrasexual manipulation performed by their partners, while higher sociosexuality in men will be related more to the intersexual manipulation performed by their partners.

## METHOD

### *Participants and Procedure*

The sample of participants in this study consisted of 191 romantic couples whose relationship lasted at least three months. Their age ranged from 18 to 35 years, mean age for men being 25.03 years ( $SD = 4.10$ ), and for women 22.91 years ( $SD = 3.23$ ). Mean duration of the relationship was 37.72 months ( $SD = 30.45$ ). The majority of men (46.3%) and women (64.7%) had high education or were university students, and 50.8% of men and 27.9% of women were employed. At the moment of examination 30.5% of the couples were living together.

The possibility of participation in this study was announced at the faculties and in a local newspaper. Participation was voluntary and anonymous. Each member of a couple was examined alone and at the same time. The whole procedure took place at the premises of the Faculty of Arts and Sciences, University of Rijeka, Croatia.

### *Instruments*

Sociosexual Orientation Inventory (SOI) (Simpson & Gangestad, 1991) was used for measuring sociosexuality. It consists of 7 items describing actual sexual behaviors (e.g. "With how many different partners have you had sex (sexual intercourse) within the past year?"), frequency of cognitions about sexual behaviors (e.g. "How often do you fantasize about having sex with someone other than your current dating partner?"), and attitudes about casual sex (e.g. "Sex without love is OK"). Higher scores on the inventory reflect nonrestrictive sociosexuality. Previous research shows that this measure is unidimensional, and has adequate convergent and discriminative validity. Test-retest reliability between two months was 0.94, and internal reliability coefficient (Cronbach-alpha) 0.73 (Simpson & Gangestad, 1991).

Previous research using a Croatian version of the inventory shows that its structure is unidimensional for women and men respectively, and that it has satisfactory internal reliability (from 0.77 to 0.80) (Kardum, Gračanin & Hudek-Knežević, 2006).

Basic statistical parameters and correlations between different measures of sociosexuality obtained in the present study are presented in Table 1.

*Table 1.* Basic Statistical Parameters and Correlations Between Sociosexuality Measures

SOI-MEASURES	Women SOI (self-report)	Women SOI (partner's-report)	Men SOI (self-report)	Men SOI (partner's-report)
Women SOI (self-report)		0.62***	0.25***	0.41***
Women SOI (partner's-report)			0.37***	0.50***
Men SOI (self-report)				0.64***
M	23.22	27.64	41.37	36.63
SD	12.00	15.27	37.43	24.47
Alpha	0.61	0.66	0.68	0.63

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; SOI – scores on Sociosexual Orientation Inventory

The correlation between self-reports of sociosexuality by men and women (0.25) showed in Table 1 indicates the existence of moderate positive assortative mating. Although one can assume this correlation to be under the influence of the relationship's duration, when its effect is partialized out, the correlation between women's and men's self-reported sociosexuality remains almost the same (0.24). Similarly, a relatively high correlation was found between women's and men's sociosexuality when their partner's report was taken into consideration (0.50). Furthermore, both men and women who perceive themselves more unrestrictive in their sociosexuality are seen by their partners also as more unrestrictive (0.62; 0.64), as well as perceiving their partners to be more unrestrictive (0.41; 0.37).

Mate Retention Inventory (MRI, Buss, 1988) consists of 104 descriptions of behaviors that aim at retaining one's romantic partner. Participants indicate how frequently they performed each act within the past year, ranging from 0 (never) to 3 (often).

The inventory was translated by two translators, who afterwards compared the results. For any item where the two translations differed, the differences were discussed, and the best translation selected. For verifying the translation, the inventory was translated back into English and then an English-speaking person compared the original text with the back-translation.

Buss (1988) categorized mate retention acts into 19 tactics by using a nomination procedure, further grouping these tactics into five categories, and those five categories into two general domains of mate retention, intersexual and intrasexual manipulations (see Table 2). Several previous studies indicated the validity (Buss, 1988; Buss & Shackelford, 1997) and reliability of this inventory

(Shackelford, Goetz & Buss, 2005). For example, in the study by Goetz *et al.* (2005), mean alpha coefficient for mate retention tactics was 0.73, while in the study by Shackelford, Goetz and Buss (2005) mean alpha coefficient was 0.67 for mate retention tactics, 0.72 for mate retention categories, and 0.64 for mate retention domains. Reliability coefficients of retention tactics, categories and domains obtained on the samples of men and women, and t-tests showing sex differences in mate retention are presented in Table 1. In accord with the study by Shackelford, Goetz and Buss (2005), firstly the ratings for the acts were summed to calculate scores for the 19 tactics of mate retention according to the taxonomy developed by Buss (1988) and then these scores were averaged to create the five categories and two domains of mate retention.

*Table 2.* Internal Reliability Coefficients (Cronbach Alpha) and Sex Differences (t-tests) in Mate Retention Tactics, Categories and Domains

Mate retention tactics, categories, domains	Alpha-women	Alpha-men	Women		Men		t-test; p
			M	SD	M	SD	
<i>Mate retention tactics (acts)</i>							
1. Vigilance	.78	.65	0.73	0.47	0.54	0.36	4.87***
2. Concealment of mate	.49	.44	0.19	0.37	0.19	0.34	0.13
3. Monopolization of time	.75	.64	0.50	0.56	0.32	0.40	3.87***
4. Jealousy induction	.70	.66	0.33	0.46	0.20	0.33	3.48***
5. Punish mate's infidelity threat	.76	.66	0.64	0.56	0.47	0.43	3.84***
6. Emotional manipulation	.75	.71	0.47	0.48	0.38	0.40	2.27*
7. Commitment manipulation	.15	.14	0.58	0.45	0.65	0.52	1.88
8. Derogation of competitors	.76	.79	0.43	0.40	0.36	0.44	1.98*
9. Resource display	.63	.74	1.04	0.50	1.39	0.63	6.98***
10. Sexual inducements	.63	.53	0.91	0.58	0.92	0.51	0.16
11. Appearance enhancement	.78	.81	1.87	0.68	1.34	0.74	8.99***
12. Love and care	.46	.59	2.06	0.47	2.03	0.55	0.44
13. Submission and debasement	.64	.62	0.87	0.57	1.13	0.56	4.96***
14. Verbal possession signals	.62	.63	1.36	0.60	1.22	0.60	2.63**
15. Physical possession signals	.77	.72	1.95	0.68	1.85	0.64	1.67
16. Possessive ornamentation	.38	.52	0.31	0.38	0.33	0.42	0.41
17. Derogation of mate	.41	.54	0.07	0.17	0.07	0.18	0.00
18. Intrasexual threats	.66	.73	0.23	0.37	0.36	0.45	3.37***
19. Violence against rivals	.53	.73	0.05	0.17	0.12	0.31	3.03**

Table 2. Continued

Mate retention tactics, categories, domains	Alpha- women	Alpha- men	Women		Men		t-test; p
			M	SD	M	SD	
<i>Mate retention categories (tactics)</i>							
1. Direct guarding	.76	.76	0.47	0.39	0.35	0.30	3.88***
2. Intersexual negative inducements	.74	.69	0.49	0.33	0.41	0.28	3.01**
3. Positive inducements	.76	.77	1.35	0.40	1.36	0.44	0.44
4. Public signals of possession	.65	.63	1.20	0.44	1.13	0.42	1.97*
5. Intrasexual negative inducements	.42	.67	0.12	0.17	0.18	0.26	3.54***
<i>Mate retention domains (categories)</i>							
Intersexual manipulations	.82	.71	0.77	0.32	0.71	0.28	2.56**
Intrasexual manipulations	.47	.54	0.66	0.26	0.66	0.29	0.18

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

As can be seen, the majority of mate retention tactics, categories and domains have mostly acceptable internal consistency coefficients. However, some of the mate retention measures show low internal consistency. Regarding women's self-reported strategies, four tactics (Concealment of mate, Love and care, Possessive ornamentation and Derogation of mate), one category (Intrasexual negative inducements) and one domain (Intrasexual manipulation) have low internal reliability (below 0.50), and regarding men's mate retention strategies only Concealment of mate has internal reliability coefficient below 0.50. These results are mainly in accord with the reliabilities obtained in the study by Shackelford, Goetz and Buss (2005). It should be noted that Commitment manipulation as a mate retention tactic has unacceptably low internal consistency for both sexes in the present study, a tactic that has also the lowest reliability in the study by Shackelford, Goetz and Buss (2005). Low reliability could be explained by the fact that some acts are very rarely used and therefore their variability is low. Also, low reliability probably reflects some problems related to the the structure of the inventory, which should be more thoroughly examined. The results concerning sex differences in mate retention tactics, categories and domains presented in Table 2 show that women reported more frequent use of seven out of 19 mate retention tactics (Vigilance, Monopolization of time, Jealousy induction, Punishing mate infidelity threat, Emotional manipulation, Derogation of competitors, Appearance enhancement and Verbal possession signal), while men reported more frequent use of four mate retention tactics (Resource display, Submission and debasement, Intrasexual threats and Violence against rivals). Also, women reported more frequent use of three mate retention categories (Direct guarding, Intersexual negative inducements and Public signals of possession) and one mate retention

domain (Intersexual manipulation), while men reported more frequent use of only one category of mate retention (Intrasexual negative inducements).

The results of this study are mainly in accord with the previous studies by Buss (1988) and Buss and Shackelford (1997) which show that women, more than men, reported using Appearance enhancement and Punishment of mate's infidelity threat, while men more than women, reported using Resource display, Submission and debasement, and Intrasexual threats to retain their mates.

Generally, these results show that women, more than men, try to retain their partners by more frequent use of behaviors that aim at retaining resources (e.g. enhancing their physical appearance, punishing mate's infidelity threat, derogating the competitors), while men, more than women have a greater tendency to retain their partners by preventing cuckoldry (e.g. displaying resources and intrasexual threats).

Furthermore, the correlation across the 104 acts between males and females for mean scores is 0.43 ( $p < 0.001$ ), but there is no significant difference between sexes in the overall frequency of the use of mate retention acts ( $t = 1.77$ ;  $p > 0.05$ ). These results, together with the sex differences obtained suggest that men and women use mate retention acts taken together with equal frequency, but each sex uses some specific tactics, domains and categories more often.

## RESULTS

Correlations between men's sociosexuality and women's mate retention strategies are presented in Table 3.

Table 3. Correlations Between Men's Sociosexuality and Women's Mate Retention Strategies

Mate retention tactics, categories, domains	Men SOI (self-report)	Men SOI (self-report) controlling for men SOI (partner's-report)	Men SOI (partner's-report)	Men SOI (partner's report) controlling for men SOI (self-report)
<i>Mate retention tactics (acts)</i>				
1. Vigilance	.07	-.02	.13	.11
2. Concealment of mate	.14*	.10	.10	.01
3. Monopolization of time	.09	.07	.05	-.01
4. Jealousy induction	.14*	.02	.20**	.15*
5. Punish mate's infidelity threat	.25***	.01	.38***	.30***
6. Emotional manipulation	.12	.07	.10	.03
7. Commitment manipulation	.02	.00	.03	.03
8. Derogation of competitors	.20**	.04	.26***	.18**
9. Resource display	.03	-.13	.21**	.24***
10. Sexual inducements	.20**	.03	.28***	.20**
11. Appearance enhancement	.13	.03	.17*	.11
12. Love and care	-.07	-.15*	.07	.15*
13. Submission and debasement	.06	.02	.07	.04
14. Verbal possession signals	.002	-.08	.10	.12
15. Physical possession signals	-.03	.00	-.05	-.04
16. Possessive ornamentation	.10	.00	.15*	.12
17. Derogation of mate	.05	-.03	.11	.10
18. Intrasexual threats	.21**	.02	.29***	.22**
19. Violence against rivals	.10	.00	.16*	.12
<i>Mate retention categories (tactics)</i>				
1. Direct guarding	.11	.06	.10	.04
2. Intersexual negative inducements	.21**	.04	.29***	.20**
3. Positive inducements	.11	-.04	.23**	.20**
4. Public signals of possession	.01	-.04	.06	.07
5. Intrasexual negative inducements	.20**	.01	.30***	.23**
<i>Mate retention domains (categories)</i>				
Intersexual manipulations	.17*	.02	.23***	.17*
Intrasexual manipulations	.08	-.03	.15*	.13
Mate retention, all acts	.15*	.003	.22**	.18*

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; SOI – scores on Sociosexual Orientation Inventory

On the level of mate retention tactics, men's sociosexuality is positively and consistently related, across both measures of sociosexuality, to the frequency of women's usage of Jealousy induction, Punishing mate's infidelity threat, Derogation of competitors, Sexual inducements, Intrasexual threats; on the level of mate retention categories it is positively related to Intersexual and Intrasexual negative inducements, while on the level of mate retention domains, to Intersexual manipulations and mate retention acts taken together. For some mate retention tactics (Resource display, Appearance enhancement, Possessive ornamentation and Violence against rivals), categories (Positive inducements) and domains (Intrasexual manipulations) significant correlations were obtained only for women's report of their partners' sociosexuality, whereas only Concealment of mate was significantly related to men's self-reported sociosexuality, but not to the women's report of their partners' sociosexuality. Partial coefficients of correlation show that when women's report of their partners' sociosexuality are controlled for all correlations between women's mate retention strategies and men's self-reported sociosexuality became nonsignificant, with only Love and care tactic negatively related to men's self-reported sociosexuality. On the other hand, the majority of partial correlations of women's reports of their partners' sociosexuality, after men's self-reported sociosexuality were controlled for remained significant.

The correlations obtained show that women's mate retention strategies subsumed under the domain Intersexual manipulation are most consistently and positively related to men's sociosexuality. Only one intrasexual mate retention tactic used by women (Intrasexual threats) is consistently and positively related to men's sociosexuality.

Considering both measures of sociosexuality, the correlations obtained show that mate retention strategies used by women are more highly correlated with women's reports of men's sociosexuality than men's self-reported sociosexuality.

Correlations between women's sociosexuality and men's mate retention strategies are presented in Table 4.

Table 4. Correlations Between Women's Sociosexuality and Men's Mate Retention Strategies

Mate retention tactics, categories, domains	Women SOI (self-report)	Women SOI (self-report) controlling for women SOI (partner's report)	Women SOI (partner's-report)	Women SOI (partner's report) controlling for women SOI (self-report)
<i>Mate retention tactics (acts)</i>				
1. Vigilance	.13	.10	.07	.00
2. Concealment of mate	-.06	-.10	.02	.08
3. Monopolization of time	.07	.02	.07	.04
4. Jealousy induction	.17*	.01	.25***	.18*
5. Punish mate's infidelity threat	.21**	.16*	.14*	.01
6. Emotional manipulation	.04	-.01	.07	.06
7. Commitment manipulation	.09	.11	-.02	.06
8. Derogation of competitors	.13	-.01	.21**	.17*
9. Resource display	-.01	-.02	-.02	.00
10. Sexual inducements	.25***	.12	.24***	.12
11. Appearance enhancement	.19**	.11	.15*	.05
12. Love and care	.07	.02	.06	.03
13. Submission and debasement	.07	-.01	.10	.08
14. Verbal possession signals	.20**	.10	.21**	.10
15. Physical possession signals	.03	-.01	.04	.04
16. Possessive ornamentation	.12	.09	.06	.00
17. Derogation of mate	.03	-.05	.12	.13
18. Intrasexual threats	.25***	.07	.33***	.23**
19. Violence against rivals	.25***	.06	.33***	.22**
<i>Mate retention categories (tactics)</i>				
1. Direct guarding	.06	.01	.07	.05
2. Intersexual negative inducements	.18*	.09	.18*	.09
3. Positive inducements	.15*	.06	.14*	.08
4. Public signals of possession	.15*	.07	.14*	.08
5. Intrasexual negative inducements	.25***	.05	.35***	.25***
<i>Mate retention domains (categories)</i>				
Intersexual manipulations	.17*	.07	.16*	.09
Intrasexual manipulations	.22**	.08	.26***	.16*
Mate retention, all acts	.20**	.08	.21**	.13

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; SOI – scores on Sociosexual Orientation Inventory

The results show that on the level of mate retention tactics women's sociosexuality is positively and consistently related, across both measures of sociosexuality, to the frequency of men's usage of Jealousy induction, Punishing

mate's infidelity threat, Sexual inducements, Appearance enhancement, Verbal possession signals, Intrasexual threats and Violence against rivals; on the level of mate retention categories it is positively related to Intersexual negative inducements, Positive inducements, Public signals of possession and Intrasexual negative inducements, while on the level of mate retention domains to both Inter- and Intrasexual manipulations and mate retention acts taken together.

Derogation of competitors is the only tactic that is related to just one sociosexuality measure, i.e. men's report of their partners' sociosexuality.

Partial coefficients of correlation show that when men's report of their partners' sociosexuality are controlled for, all but one (Punishing mates infidelity threat) correlation between men's mate retention strategies and women's self-reported sociosexuality were nonsignificant. On the other hand, some partial correlations of men's reports of their partners' sociosexuality, after women's self-reported sociosexuality were controlled for, remained significant (Jealousy induction, Derogation of competitors, Intrasexual threats and Violence against rivals, Intrasexual negative inducements and Intrasexual manipulations).

These results show that men's mate retention strategies included in both domains (Intersexual and Intrasexual manipulation) are positively related to women's sociosexuality, and, as expected, higher correlations were obtained for intrasexual manipulation strategies.

When partialized coefficients of correlation are taken into consideration, the correlations obtained show that men's mate retention strategies are primarily associated with men's report of their partners' sociosexuality, which is similar to the results obtained on the sample of women.

## DISCUSSION

As expected, the use of several mate retention tactics is positively related to both measures of partner's sociosexuality in men and women (Tables 3 and 4). Particularly perceived partner's sociosexuality, as an indicator of sexual infidelity threat, is related to the employment of different mate retention behaviors in the same way as youth and physical attractiveness in women and social status and income in men (e.g. Buss, 2000b). Higher correlations between mate retention behaviors and perceived partner's sociosexuality than those between mate retention and partner's self-reported sociosexuality could be the consequence of the common method variance caused by the same raters. Also, they could be explained by false alarms caused by the possibility of adjusting mate retention strategies primarily according to the perception of the partner's sociosexuality, a process that could be expected especially when we consider those characteristics of our partners, which, if underestimated, could be highly costly for our reproductive success (Gangestad, Simpson, DiGeronimo & Biek, 1992).

Contrary to the second prediction, the results show that mate retention strategies used by men are not more highly related to their partner's sociosexuality than mate retention strategies used by women. Furthermore, there are no significant differences between men and women in the overall frequency of the use of mate retention acts, which is consistent with previous research (Buss, 1988). One possible explanation of these results is that women's perception of potential sexual infidelity by their partners may signal the loss of their partner's emotional investment, which could increase the use of women's mate retention behaviors. If higher sociosexuality of their partners for women is a powerful predictive cue of the redirection of their partners' resources from them to the other woman/women, then women's mate retention tactics could also be expected to focus on the sexual infidelity of their partners, although for different reasons than in men (Buss, 1988).

According to the third prediction, the results generally show consistent differences in correlations between sociosexuality and specific mate retention strategies in men and women. Intersexual manipulations, as a mate retention domain is significantly positively related to both measures of sociosexuality in men and in women (Tables 3 and 4). However, the use of intersexual manipulation by women is somewhat more related to their perception of their partner's sociosexuality than intersexual manipulations by men, especially when partner's reports are considered after controlling for partner's self-report of sociosexuality. The same pattern of results could be found on the level of mate retention categories (Intersexual negative inducements and Positive inducements), and on the level of mate retention tactics (Derogation of competitors, Punishing mate's infidelity threat, Resource display, Sexual inducements and Love and care). Testing the differences between correlations show a significantly higher correlation between women's perception of their partners' sociosexuality and their use of Punishing mate's infidelity threat than between men's perception of partners' sociosexuality and their use of this tactic ( $p < 0.05$ ).

Positive inducements, and more precisely Appearance enhancements and Sexual inducements are positively correlated with the perceptions of partner's sociosexuality in both sexes. Although there are no differences in the correlation strength, these relations between one partner's sociosexuality and other partner's mate retention behaviors may reflect different functions of this mate retention category, depending on the sex of the perpetrator. For example, females of some bird species, e.g. shy albatrosses (*Thalassarche cauta*), benefit from frequent copulations because they raise male confidence in paternity and thus secures the male's further investment in offspring (Abbott, Double, Gales & Cockburn, in press). On the other hand, Goetz and Shackelford (in press) found that men who use sexual coercion in their relationship tend to be mated to women who had been, or were likely to be, unfaithful, which is in accord with the hypothesis that sexual coercion in humans might function as a mechanism which enables men to introduce sperm into his partners' reproductive tract at a time when there is a high risk of extrapair paternity (Wilson & Daly, 1992). Further research should be directed

towards examination of sex differences in specific patterns of this mate retention tactic, due to its different functions.

Despite the more frequent use of Appearance enhancement by women found in this and previous studies (Buss, 1988), its relation to sociosexuality does not show sex differences. One possibility is that women's tendency to use this strategy as an attempt to boost preferred sexual attributes (e.g. young and healthy appearance) produces a ceiling effect and, in that way, diminishes its use as an answer to possible infidelity.

Altogether, these results partly confirm the hypothesis that women are more inclined to engage in intersexual mate retention strategies when their partners are higher in sociosexuality.

Intrasexual manipulations are used more often by both men and women if they perceive their partners to be higher in sociosexuality (Tables 3 and 4), although the pattern of correlations suggests that men have a lower threshold for employing these strategies.

In accord with the general pattern of the above mentioned correlations, Public signals of possession, and especially Verbal possession signals, are displayed more often only by men if their partner is higher in sociosexuality as assessed by both measures. Although women do not generally use more Public signals of possession when they perceive their partner to be higher on sociosexuality, they will tend to respond by employing Possessive ornamentation (Table 3 and 4).

Intrasexual negative inducements, as mate retention category, is used by men and women more often with an increase of their partners' sociosexuality, assessed by both measures. From the tactics that enter this category, the results for the Violence against rivals are most consistent with the prediction. Namely, the expected difference ( $p < 0.05$ ) in correlation strength for Violence against rivals and perceived partner's sociosexuality between men and women was found, with a significantly higher correlation in the sample of men. Male intrasexual aggression in the context of mating is common across the animal kingdom as well as in humans and it can be viewed as a typical consequence of intrasexual selection (Trivers, 1972). Violent competition for access to and retention of mates is less likely in females because it can produce unnecessary costs, but, in some circumstances and to some degree, it can be fitness enhancing (Campbell, 1995). Although there is some evidence concerning violent female-female competition in humans (Campbell, 1995) and other animals (Hrdy, 1981), this area of research has been vastly ignored (Berglund, Magnhagen, Bisazza, Konig, & Huntingford, 1993). Some recent studies show that there are indices of female violent competition for mates even in polygynous species such as red deer (*Cervus elaphus*), although it is predicted to occur primarily in more monogamous species such as humans (Bebbie & McElligot, in press).

The present study also shows that women engage in intrasexual competition when they perceive signs of possible infidelity, which is in accord with some

previous studies (e.g. Buss & Dedden, 1990; Campbell, 1995; Fisher, 2004; Schmitt & Buss, 1996). The results suggesting that females take notable efforts to compete with each other in order to gain access to valuable mates should be the focus of future research. Generally, sexual infidelity threats measured by partner's sociosexuality mainly show expected patterns of relations with mate retention strategies. Although men and women equally often engage in mate retention behaviors, they tend to respond with sex-specific strategies to their partner's sociosexuality. Females are somewhat more inclined to use intersexual manipulations, while males are more prone to intrasexual manipulations.

Finally, given the results obtained, some limitations of the present study should also be mentioned. The first one, as already noted, is related to the structure and reliability of the Croatian version of MRI. Namely, the present study used the original structure of this inventory, which together with relatively infrequent use of some of the mate retention acts, probably led to the low reliability of some mate retention strategies.

An important theoretical as well as methodological issue concerns the possibility of the clear distinction between intrasexual and intersexual mate retention strategies. Namely, behaviors directed only toward intrasexual competition that do not also influence one's partner and vice versa, are very hard to find. For example, public signals of possession may have an impact on potential same-sex rivals but they can also be employed as the signal of commitment directed to the partner. Taking this into account, the sex differences obtained in this study, which are detected without defining a specific target of reported behavior, seem to be even more pronounced.

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