

# Dissimilarity in physical attractiveness within romantic dyads and mate retention behaviors

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## Abstract

The present study investigated the relations among physical attractiveness and inter- and intrasexual mate retention tactics used by individuals in romantic relationships. Seventy-three undergraduate romantic dyads were photographed and completed a questionnaire about their mate retention tactics. Independent judges rated the photographs for physical attractiveness. Actor–partner interdependence models indicated that (a) partner’s physical attractiveness was positively associated with the individual’s own use of mate retention behavior, (b) an individual’s own level of physical attractiveness was not related to the individual’s own use of mate retention behavior, however, (c) there was a dissimilarity effect for predicting mate retention behaviors. Specifically, participants who were less physically attractive and were in romantic relationships with physically attractive partners employed more intrasexual retention tactics.

## Keywords

Actor–partner interdependence model, human attraction, mate guarding, mate retention, physical attractiveness, romantic relationships

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For many people, romantic partnerships are the most intimate and central relationships in their lives. Romantic relationships are associated with greater physical and mental health, well-being, and longevity (Braithwaite, Delevi, & Fincham, 2010; Holt-Lunstad, Smith, & Layton, 2010; Umberson & Montez, 2010). Physical attractiveness is one important attribute in the formation and maintenance of romantic relationships (Berscheid, Dion, Walster, & Walster, 1971; Buss & Schmitt, 1993; Feingold, 1988; Murstein, 1972), yet it has received relatively little inquiry as a potential influence on relationship protection behavior. Although romantic dyads are often composed of individuals with similar levels of attractiveness (Feingold, 1988), people sometimes obtain partners with different levels of attractiveness than their own. In this case, the less attractive individual may be especially motivated to protect this relationship. The current research examined the use of "mate retention tactics" (Buss, 1988) when there was dissimilarity in levels of physical attractiveness within romantic dyads.

Physical attractiveness is highly valued by both sexes in the formation of romantic relationships (Buss & Schmitt, 1993; Feingold, 1988; Swami & Furnham, 2007; Walster, Aronson, Abrahams, & Rottman, 1966), but evolutionary theory posits that men and women may have evolved differences in terms of the traits that they value in potential mates (Buss & Schmitt, 1993; Gangestad & Simpson, 2000). Indeed, studies have demonstrated that physical features indicative of youth, which is linked to fertility, are most valued by men (cf. Barber, 1995; Singh, 1993; Weeden & Sabini, 2005), whereas women tend to value male physical attributes that signal strength, excellent health, and ability to provide and protect (cf. Buss & Schmitt, 1993; Cunningham, Barbee, & Pike, 1990; Dixson, Halliwell, East, Wignarajah, & Anderson, 2003; Swami & Toveé, 2005). Additionally, men tend to place greater value on partner physical attractiveness than do women for relationships, particularly within long-term relationship contexts (Buss & Schmitt, 1993; Li, Bailey, Kenrick, & Linsenmeier, 2002).

Despite the desire to obtain a good-looking mate, individuals often end up in relationships with people who are similar to them in terms of their physical attractiveness, an idea termed assortative mating, or the "matching hypothesis" (Berscheid et al., 1971; Feingold, 1988; Murstein, 1972; Walster et al., 1966). Indeed, a meta-analysis of 27 samples found that physical attractiveness within romantic dyads was correlated .39 on average, ranging from .18 to .73 (Feingold, 1988). Whereas physical attractiveness between partners tends to be highly correlated, there are exceptions whereby partners differ greatly in physical attractiveness. In such cases, partners with disparate levels of physical attractiveness can be thought of as having an imbalance in assets and liabilities obtained from the relationship (Murstein, 1972).

Murstein (1972) discussed and demonstrated that during the formation of romantic relationships, individuals tend to operate in a sort of "exchange market phenomenon." In economic terms, on average, an individual in a partnership with a mate of higher physical attractiveness than his or her own has acquired a mate who possesses assets that are greater than what this individual would normally be able to obtain. This individual obtains greater benefit from the attractive partner than the attractive partner gains, and it is likely that the less attractive partner would be aware of this discrepancy. For the less attractive partner, this relationship is extremely valuable and he or she would probably want to protect it. In contrast, an individual with a partner of significantly lower physical

attractiveness compared to oneself has obtained a partner with *fewer* assets than what he or she would normally be able to obtain. Thus, more attractive partners may not worry as much about the termination of this relationship because their physical attractiveness would make it likely that they would be able to find a new partner, and that their next partner would be more physically attractive than their current partner (e.g., the matching hypothesis; Berscheid et al., 1971; Kalick & Hamilton, 1986; Murstein, 1972).

The above reasoning suggests that, within the context of a romantic relationship, the less attractive partner has more to lose if the relationship ends (e.g., he or she is gaining more assets than he or she is providing) and should therefore be highly motivated to protect this relationship. This individual may be compelled to utilize various mate retention tactics to prevent the partner from leaving. In contrast, the more attractive partner has less to lose if the relationship ends (e.g., he or she is gaining fewer assets than he or she is providing) and may therefore be less likely to use mate retention tactics to protect the relationship.

There are various tactics people might employ to keep a mate. Broadly, these tactics can be classified as falling into one of two categories: intersexual and intrasexual tactics (Buss, 1988), which have qualitatively different meanings. Intersexual tactics are focused on the romantic partner and intrasexual tactics are focused on potential same-sex rivals. Intersexual tactics can range from monopolizing the partner's time, emotionally manipulating the partner, using sexual inducements, or buying the partner expensive and extravagant gifts. Intrasexual tactics, which are directed towards same-sex rivals, include signaling romantic commitment to romantic competitors both verbally and physically (e.g., boasting about a relationship or putting one's arm around a partner, respectively) but also using verbal intimidation, physical intimidation, or even violence toward same-sex competitors. Separate consideration of these subcategories provides a more specific description of mate retention behavior (Buss, 1988).

Mate retention behavior can vary depending on individual levels of physical attractiveness within romantic dyads (Gangestad, Thornhill, & Garver, 2002; Miner, Starratt, & Shackelford, 2009; Starratt & Shackelford, 2012). Women in the fertile phase of the menstrual cycle (in which women tend to be rated as more physically attractive; Roberts et al., 2004) have reported greater mate retention behavior from their male partners (Gangestad et al., 2002). Women objectively rated as more attractive have also reported greater mate retention behavior from their male partners (Haselton & Gangestad, 2006). In comparison, men who reported higher possibility of sperm competition (including an assessment of the man's perception of his partner's physical attractiveness) have also self-reported greater use of mate retention tactics (Goetz et al., 2005).

The importance of a *discrepancy* in physical attractiveness in the context of romantic relationships has been demonstrated previously. This effect was first demonstrated by Buss and Shackelford (1997) who found that married men with women who were independently rated as more physically attractive engaged in significantly more mate retention behavior. Furthermore, women in romantic relationships with partners whom women reported as being less physically attractive also reported an increase in the male partner's mate retention behavior (Pillsworth & Haselton, 2006). Such findings are consistent with Murstein's (1972) "exchange market phenomenon." However, these studies had limitations that should be addressed. First, Pillsworth and Haselton relied

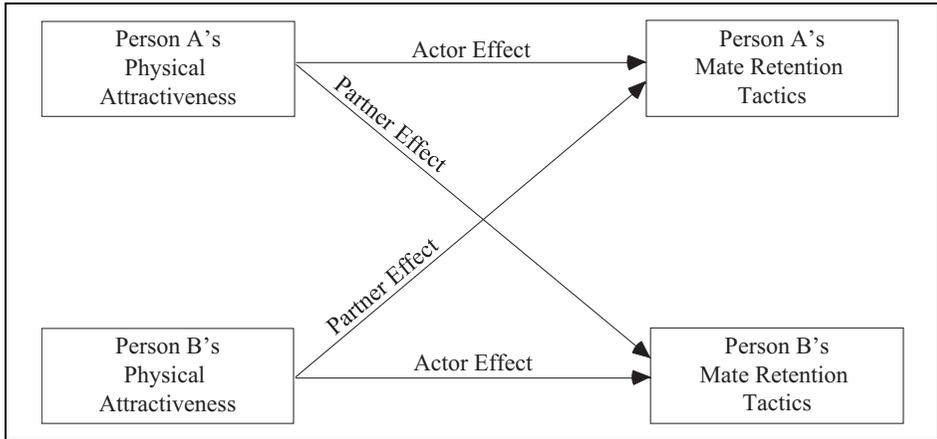
exclusively on women's reports of their male partners' levels of physical attractiveness. Yet reports of physical attractiveness by partners within romantic dyads are not always strongly associated with objective ratings of physical attractiveness and are susceptible to bias (e.g., Feingold, 1992; Montoya, 2008).

Buss and Shackelford (1997) asked two interviewers who interacted with the participants to record the physical attractiveness of the married participants. However, this procedure might also be problematic because it is unclear the degree to which the interviewers' ratings reflected physical attractiveness versus the degree to which the ratings were affected by the positive or negative interactions with the participants. Recently, researchers have advocated the use of objective third-party attractiveness ratings when examining the effects of physical attractiveness within couples (see Meltzer, McNulty, Jackson, & Karney, 2014). Second, although Buss and Shackelford obtained somewhat more objective ratings of physical attractiveness, they used difference scores of husbands' and wives' attractiveness to assess physical attractiveness dissimilarity. Unfortunately, the use of such difference scores, especially without controlling for the main effects of attractiveness, is susceptible to spurious results (Kenny, Kashy, & Cook, 2006), and in the years since this article was published, there have been tremendous advances in statistical techniques that are more accurate for interpreting dyadic data.

### *Actor-partner interdependence models*

When examining dyadic data, it is important to recognize that the data from each individual are dependent on the other individual. Actor-partner interdependence models (APIMs; Kenny, Kashy, & Cook, 2006) can be employed to account for the dependency in such data. APIMs are statistical methods that make it possible to examine how Person A's criterion variable simultaneously and independently relates to his or her predictor variable and to his or her partner's (Person B's) predictor variable. The current study utilizes data from both partners, so APIM was employed. In the current study, the actor effects represent the association between Person A's physical attractiveness and Person A's own mate retention behavior. As noted in Figure 1, the association between Person A's  $X$  variable and Person B's  $Y$  variable is the "partner effect." The partner effect is represented by the association between Person A's physical attractiveness and Person B's mate retention behavior. Both the actor and partner effects can be estimated using either unstandardized regression slopes or standardized coefficients (partial correlations). When partial correlations are computed for actor and partner effects, they can be interpreted in a manner similar to a Pearson  $r$ .

In addition to examining actor and partner effects, APIMs also make it possible to examine the extent to which dissimilarity between Person A's and Person B's physical attractiveness predict mate retention tactics. This "dissimilarity effect" can be investigated by examining the simple interaction between Person A's physical attractiveness and Person B's physical attractiveness (e.g., whether an individual's own physical attractiveness and his or her romantic partner's physical attractiveness interact with each other when predicting mate retention behavior; see Markey & Markey, 2014). Finally, participants' sex can be used to predict mate retention behavior and to examine if it moderates actor, partner, or dissimilarity effects of physical attractiveness.



**Figure 1.** Actor-partner interdependence model of physical attractiveness predicting mate retention tactics among romantic dyads.

### Aims and predictions

- a. Partner effect: Participants who have romantic partners who are physically attractive will employ both intrasexual and intersexual mate retention tactics more frequently than those in relationships with less attractive partners (i.e., participants' use of mate retention tactics will be positively related to their partner's physical attractiveness).
- b. Actor effect: Analyses that examine the actor effect (e.g., the relation between a participants' physical attractiveness and his or her own use of mate retention tactics) are considered exploratory, so no specific predictions are made.
- c. Dissimilarity effect: Consistent with the "exchange market phenomenon" described by Murstein (1972), it is expected that participants who are less attractive and who have a romantic partner who is physically attractive will display high levels of mate retention tactics. Specifically, these participants might use more intrasexual tactics (as was found in Buss & Shackelford, 1997), perhaps because intrasexual tactics inflict less cost directly on the partner and ostensibly enable continuation of relational harmony with the romantic partner.
- d. Sex: It is expected that the partner effects and dissimilarity effects will be stronger for men than for women, consistent with research and theory indicating that men place greater emphasis on a mate's physical attractiveness than women (Buss & Schmitt, 1993).

## Method

### Participants

Seventy-three heterosexual romantic dyads ( $N = 146$ ;  $M_{\text{age}} = 19.21$ ,  $SD = 0.95$ ) were recruited from the Villanova University undergraduate participation pool and received

credit toward introductory psychology courses. Most relationships were shorter than 1 year in duration ( $M = 8.05$  months, Median = 4 months,  $SD = 9.71$ ). The sample was 83% White/Caucasian, 7% Hispanic/Latino, 6% multiracial/Other, 2% African American, and 2% Asian/Pacific Islander. College standing was as follows: 47% freshman, 38% sophomore, 10% junior, and 4% senior.

## Measures

**Mate retention tactics.** To assess the degree to which participants engaged in mate retention behavior, we used the mate retention inventory–short form (MRI-SF; Buss, Shackelford, & McKibbin, 2008). The MRI-SF is a 38-item version of the 104-item mate retention inventory (MRI; Buss, 1988). Response options ranged from 0 (*never performed this act*) to 3 (*often performed this act*). The MRI is composed of 13 intersexual manipulation subscales (vigilance, concealment of mate, monopolization of time, jealousy induction, punish mate's infidelity threat, emotional manipulation, commitment manipulation, derogation of competitors, resource display, sexual inducements, appearance enhancement, love and care, and submission and debasement) and 6 intrasexual manipulation subscales (verbal possession signals, physical possession signals, possessive ornamentation, derogation of mate to competitors, intrasexual threats, and violence against rivals). The items of these subscales were used to compute total mate retention behavior scores (cf. Shackelford, Goetz, & Buss, 2005): one for total intersexual manipulations ( $\alpha = .84$ ) and one for total intrasexual manipulations ( $\alpha = .73$ ).

**Physical attractiveness ratings.** Twelve independent judges provided one global rating of physical attractiveness for each participant ranging from 1 (*very unattractive*) to 7 (*very attractive*). Reliability of the physical attractiveness ratings was computed using Krippendorff's  $\alpha$ . Based on these analyses, the agreement of the six male judges rating women was .67 and agreement of the six female judges rating men was .65.

## Procedure

Romantic dyads provided informed consent and participated one dyad at a time. Each member completed a battery of self-report questionnaires and was subsequently photographed 3 times: one close-up of the face, one from the waist up, and one from the feet up. Three photographs of each participant were displayed simultaneously, while 12 independent graduate student judges rated the photographs for physical attractiveness. Six female judges rated the male participants, and six male judges rated the female participants. Order of presentation was randomized, and judges were instructed not to rate participants whom they were familiar with. For each photo, participants were instructed to keep their hands by their sides and to smile. Room lighting (from above), camera (Kodak digital), flash, tripod, distance from participants, and zoom settings were held constant.

**Table 1.** Descriptive statistics and correlations among study variables.

	Mean (SD)	1	2	3	4	5	6
1. Men's physical attractiveness	3.58 (1.06)	—					
2. Men's intersexual tactics	0.98 (0.31)	-.09	—				
3. Men's intrasexual tactics	0.75 (0.36)	-.07	.67	—			
4. Women's physical attractiveness	4.09 (0.88)	.10	.23	.16	—		
5. Women's intersexual tactics	0.95 (0.38)	.19	.37*	.25*	.06	—	
6. Women's intrasexual tactics	0.77 (0.34)	.17	.38*	.36*	-.12	.74	—

Note.  $N = 146$  participants; 73 romantic dyads.

\* $p < .05$ .

## Results

Table 1 displays the descriptive statistics and intercorrelations among all the variables examined in the current study. In the following analyses, the results obtained were similar regardless of the age or length of participants' relationships; thus, to simplify the findings, these variables were excluded from the reported analyses. The statistical software program HLM 7.0 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2011) was used to conduct multilevel modeling to test APIMs predicting participants' intersexual and intrasexual tactics including only the main Level 1 effects: actor effects for physical attractiveness, partner effects for physical attractiveness, and sex (coded 0 = *women* and 1 = *men*). These models simultaneously test the unique contributions of actor attractiveness, partner attractiveness, and sex in predicting intersexual and intrasexual mate retention tactics. As seen in Table 2, the partner effect of attractiveness was positively related to both intersexual and intrasexual mate retention tactics. This finding is consistent with Aim A, suggesting that individuals who have physically attractive partners are more likely to utilize both intersexual tactics ( $r = .24$ ,  $p < .05$ ) and intrasexual tactics ( $r = .26$ ,  $p < .05$ ) than participants with less attractive partners.

A second set of APIM models was used to investigate the two-way interactions between the actor effect, partner effect, and sex when predicting mate retention tactics. To examine the dissimilarity effect (i.e., the Level 2 Actor  $\times$  Partner interaction), a new variable was created, which was the product of participants' physical attractiveness and their partner's physical attractiveness. As suggested by Aiken and West (1991) and Kenny et al. (2006), physical attractiveness was centered when computing the interaction term. This interaction term was then included as an independent variable along with the Level 1 interactions (Sex  $\times$  Actor Effect and Sex  $\times$  Partner Effect) and the main Level 1 effects (actor effect, partner effect, and sex) in a new model.

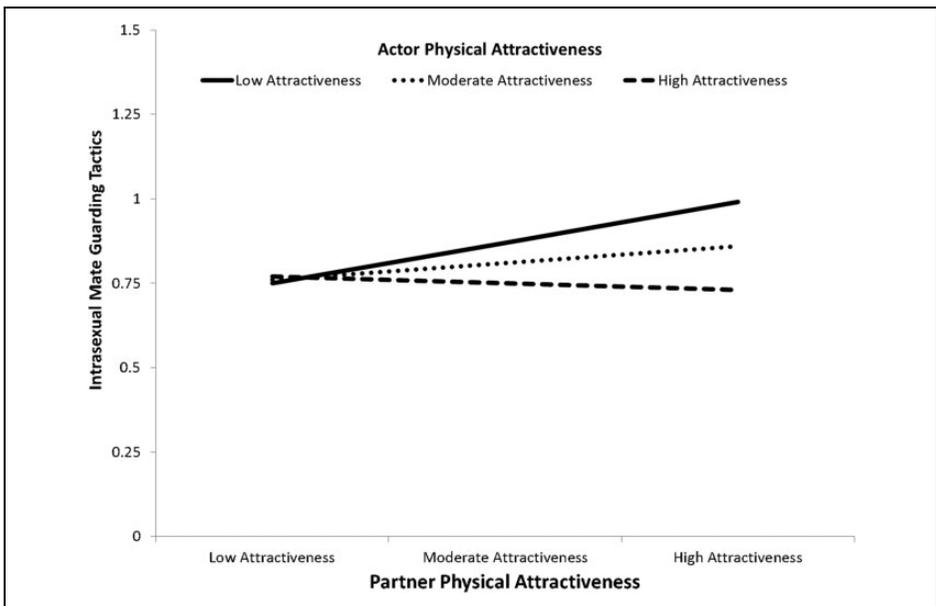
As seen in Table 2, there was not a dissimilarity effect for intersexual tactics. However, consistent with Aim C, a dissimilarity effect was found when predicting intrasexual tactics ( $r = -.27$ ,  $p < .05$ ). To display this interaction, Figure 2 presents a graphical representation derived by calculating simple regression equations corresponding to individuals scoring at the mean, 1 *SD* above the mean, and 1 *SD* below the mean for each predictor variable (Aiken & West, 1991). As expected, participants who

**Table 2.** Summary of actor–partner interdependence models predicting intersexual and intrasexual mate retention tactics.

	Estimate	SE	t	Effect size (r)
<b>Intersexual mate retention tactics</b>				
Partner physical attractiveness	0.06	0.02	2.11*	0.24
Actor physical attractiveness	−0.01	0.02	−0.23	−0.03
Sex	−0.01	0.04	−0.05	−0.01
Actor × Partner	−0.05	0.03	−1.42	−0.17
Partner × Sex	0.01	0.05	0.25	0.03
Actor × Sex	−0.02	0.06	−0.34	−0.04
Partner × Actor × Sex	0.04	0.04	0.91	0.11
<b>Intrasexual mate retention tactics</b>				
Partner physical attractiveness	0.07	0.03	2.22*	0.26
Actor physical attractiveness	−0.06	0.04	−1.40	−0.17
Sex	−0.08	0.05	−1.77	−0.19
Actor × Partner	−0.07	0.03	−2.34*	−0.27
Partner × Sex	0.01	0.06	0.08	0.01
Actor × Sex	0.06	0.07	0.80	0.09
Partner × Actor × Sex	0.09	0.05	1.88	0.22

Note.  $N = 146$  participants; 73 romantic dyads.

\* $p < .05$ .



**Figure 2.** Graphical representation of the dissimilarity effect showing the interaction between participants' physical attractiveness and their romantic partners' physical attractiveness when predicting intrasexual mate retention tactics.

were rated as less physically attractive and were in romantic relationships with physically attractive partners employed higher levels of intrasexual tactics than did more physically attractive participants.

A third set of APIM analyses were used to examine the resulting three-way interaction (Actor Effect  $\times$  Partner Effect  $\times$  Sex). As in earlier analyses, this interaction effect was entered hierarchically into a new model that contained the effects of the previous model. As seen in Table 2, the three-way interaction was not significant. Contrary to Aim D, which expected that effects would be stronger for men than for women, evidence of differences in the effects for physical attractiveness on mate retention tactics between men and women was not found.

## Discussion

The present study investigated the relation between physical attractiveness and mate retention behavior within romantic relationships. This study was unique in that objective ratings of physical attractiveness ratings were made by independent judges, were gathered for both members of the romantic dyad, and were analyzed using APIMs. This method allowed for the examination of mate retention behavior within romantic dyads as a function of the levels of physical attractiveness of *both* members of a romantic dyad.

High physical attractiveness is a desirable asset in a mate, which may motivate partners to protect their relationship through mate retention behavior. Conversely, when individuals have a less attractive partner they may employ fewer mate retention tactics, possibly because the partner has less mate value (at least in the domain of physical attractiveness). As expected, there were partner effects in the present study (Aim A), indicating that the more attractive an individual's partner, the greater the amount of inter- and intrasexual mate retention tactics this individual used to protect his or her relationship. In contrast to the partner effects, there were no significant actor effects (Aim B). This finding suggests that the physical attractiveness of the self does not have a main effect on mate retention behavior.

Central to the current study is the prediction that individuals who are less physically attractive and who have a more attractive romantic partner will display particularly high levels of mate retention tactics. Consistent with this reasoning, Aim C predicted that there would be an Actor  $\times$  Partner interaction indicating that participants who were rated low in physical attractiveness would be especially likely to use mate retention tactics when in a relationship with a partner rated high in physical attractiveness. The present findings partially supported this prediction with an interaction of intrasexual mate retention behavior. It appears that people who were in a relationship with a mate who was comparatively more attractive were likely to engage in behaviors such as public signs of possession, intrasexual threats, and derogation of mate to rivals. However, evidence of a dissimilarity effect was not found for intersexual mate retention behaviors. This result is consistent with prior evidence demonstrating that married men who perceived their wives as more attractive than their wives perceived them were especially likely to engage in intrasexual mate retention behaviors, such as possessive ornamentation, wife derogation, intrasexual threats, and violence against competitors (Buss & Shackelford, 1997).

Finally, it was examined whether or not the dissimilarity effect was greater for men than for women. Although it was expected this effect would be greater for men (Aim D), the nonsignificant three-way interaction suggests that the link between mate retention behaviors and differences in physical attractiveness was not different for men and women. This null result joins other research that illuminates inconsistencies with regard to sex differences in mating and dating. For example, Eastwick, Luchies, Finkel, and Hunt (2014) recently challenged the assumption that sex differences for partner preferences translate to sex differences for actual partner choices.

The results in the present study need to be interpreted in the context of some limitations. First, the private university setting makes it possible that the study participants came from families with high economic resources, and this may have influenced romantic pairings more so than in other settings. Additionally, the majority of relationships were fairly new (Median relationship length = 4 months). Some researchers have proposed that the importance placed on partner's physical attractiveness varies based on the length of relationship desired—for long-term relationships, physical attractiveness seems to be more important for men than for women (Buss & Schmitt, 1993; Meltzer et al., 2014; Thornhill & Gangestad, 1999). Thus, it would be important to examine how and whether similar effects emerge among dyads in more established relationships. It might be important to note, however, that although characteristics of our sample might suggest that evolutionary processes influencing mate retention tactics based on partner attractiveness may not play a large role in these relationships, there were still observable effects suggesting their robustness.

## Conclusion

Although people often suggest that personality, intelligence, or other intrinsic qualities are most important in relationships, research has consistently found that physical attractiveness is influential in the selection and maintenance of long-term romantic partnerships (Meltzer et al., 2014). Consistent with these findings, the present study found that physical attractiveness is also an important predictor of mate retention behavior used by individuals within romantic dyads. Findings indicated that one's own level of physical attractiveness is less related to mate retention behavior than is one's *partner's* level of physical attractiveness. Specifically, when individuals have a physically attractive partner, they are more likely to protect their relationships. Additionally, the dissimilarity of the level of physical attractiveness of romantic partners also appears to be, to a degree, related to such behaviors. Individuals who were low in physical attractiveness were found to be especially likely to utilize intrasexual mate retention behavior when they had attractive partners. This research contributes to our understanding of behavioral interactions within romantic partnerships. It seems that physical attractiveness—an asset that greatly contributes to the value of a mate—can shape the dynamics of interactional behavior within a romantic dyad.

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