

Misperception of sexual and romantic interests in opposite-sex friendships: Four hypotheses

BRYAN L. KOENIG,^a LEE A. KIRKPATRICK,^a AND TIMOTHY KETELAAR^b
^a*College of William and Mary* and ^b*New Mexico State University*

Abstract

Two online studies evaluated the misperception of sexual and romantic interests in established relationships and tested four hypotheses: a simple sex-difference hypothesis, a projection hypothesis, a mate value hypothesis, and a mediation hypothesis. Two hundred thirty-eight (Study 1) and 198 (Study 2) members of young adult opposite-sex friendship dyads indicated their sexual and romantic interests in their friend and their perceptions of their friend's sexual and romantic interests in them. Participants projected their own levels of sexual and romantic interests onto their opposite-sex friend, mediating the following effects: males overperceived and females underperceived their friends' sexual (but not romantic) interest and participants of both sexes misperceived the sexual (but not romantic) interest of friends depending on the friends' mate value.

Previous research has documented links between the misperceptions of sexual and romantic interests, sexual assault, and sexual harassment. In one study, misperception of sexual interest was the strongest predictor of number of sexual assaults, including rape (Abbey, McAuslan, & Ross, 1998), and other studies have shown that misperception of sexual interest may contribute to sexual harassment (Johnson, Stockdale, & Saal, 1991; Sigal, Gibbs, Adams, & Derfler, 1988). Misunderstandings regarding sexual and romantic interests are not limited to dating relationships but can also occur in the context of opposite-sex friendships (O'Meara, 1989) and could

potentially result in dissolution of such friendships. Approximately 15% of sexual assaults occur within opposite-sex friendships (Abbey et al., 1998). Therefore, greater understanding of misperception of sexual and romantic interests is a valuable topic for empirical research and theoretical understanding.

This article presents two studies that extend previous research in three ways. First, in these studies, we evaluated the misperception of sexual interest in long-standing relationship dyads, that is, opposite-sex friendships. Second, we examined misperception of romantic interest. Finally, we evaluated the mediation of sex differences in misperception of sexual and romantic interests by perceiver level of sexual and romantic interests, respectively. This article is organized as follows. After a brief literature review, we present two conclusions: (a) to demonstrate the misperception of sexual interest, researchers should compare perceived level of sexual interest with actual level of sexual interest and (b) previous researchers have focused on men's, and largely ignored women's, misperception of sexual interest. We then provide a rationale for differentiating sexual and romantic interests. Next, we identify opposite-sex friendships as useful subjects

Bryan L. Koenig, Department of Psychology, College of William and Mary; Lee A. Kirkpatrick, Department of Psychology, College of William and Mary; Timothy Ketelaar, Department of Psychology, New Mexico State University.

Bryan L. Koenig is now at the Department of Psychology, New Mexico State University.

The authors thank two anonymous reviewers of an earlier draft of this manuscript for their helpful comments. The material presented here is a part of the first author's master's thesis under the supervision of the second author.

Correspondence should be addressed to Bryan L. Koenig, New Mexico State University, Department of Psychology, Las Cruces, NM 88003, e-mail: blkoen@nmsu.edu.

of study for misperception of sexual and romantic interests. We then review potential causes for misperception and articulate four hypotheses: the simple sex-difference hypothesis, the projection hypothesis, the mate value hypothesis, and the mediation hypothesis. We then present two studies designed to test these hypotheses.

Studies typically find that, compared to women, men perceive both men and women to have more sexual interest (e.g., Abbey, 1982; Abbey & Harnish, 1995; Fisher & Walters, 2003; Goodchilds & Zellman, 1984; Shea, 1993; Shotland & Craig, 1988). Researchers usually interpret these findings as resulting from men's, rather than from women's, misperceptions (e.g., Abbey, 1982; Haselton & Buss, 2000; Johnson et al., 1991; Saal, Johnson, & Weber, 1989; but see Abbey, 1987; Donat & Bondurant, 2003; Shotland & Craig for exceptions). Logically, however, the conclusion that misperception has occurred is not justifiable when participants rate the sexual interest of hypothetical targets. Because hypothetical targets do not exist, they do not have levels of sexual interest that can be accurately or inaccurately perceived. That is, hypothetical targets do not have an actual level of sexual interest that can be used as a standard of comparison for determining overperception or underperception. Instead, such results merely demonstrate that men reliably perceive more sexual interest in third party targets than do women, or conversely, that women perceive less sexual interest in third parties than do men. Thus, studies using hypothetical targets are limited to the identification of sex differences in perception. Measurement of underperception and overperception of sexual interest *per se*, in contrast, requires actual levels of sexual interest to use as a comparison, and thus actual targets.

To identify the misperception of sexual interest, researchers can have each member of actual male-female dyads rate their own sexual interest in the other person and the sexual interest that they think the other person has toward them. With the assumptions that participants (a) accurately perceive their own sexual interest, (b) honestly report their perception of their own sexual interest, and

(c) honestly report their perception of the sexual interest of the other person in them,¹ it is logical to conclude that when a man perceives a woman to have more sexual interest in him than she self-reports, he is overperceiving her sexual interest in him. Likewise, if a woman perceives a man to have less sexual interest in her than he self-reports, she is underperceiving his sexual interest in her.

The first published study to evaluate misperception of sexual interest employed a design with actual targets and found evidence that both men overperceive and women underperceive the sexual interest of opposite-sex targets (Abbey, 1982). In that study, a man and woman (the actors), who did not know each other, talked for 5 min and then rated their own and the other actor's sexual interest in each other. Hidden observers also rated the actors' sexual interest in each other. Men's ratings of the female actors' sexual interest were higher than those self-reported by the female actors, supporting an interpretation of men overperceiving women's sexual interest. Female actors and observers rated the male actor's sexual interest lower than male actors self-reported, which suggests that women underperceived the sexual interest of the male actors. Abbey (1982) did not explicitly recognize female underperception, instead concluding that men "read sexual intent into friendly behavior . . . because of a general male bias Evidently, females are not subject to this bias" (p. 838). This conclusion implies that men, but not women, misperceive sexual interest.

Researchers have replicated Abbey's (1982) seminal study at least five times. Each replication has provided evidence consistent

1. These assumptions, implicit in almost all research on the misperception of sexual interest, are merely stated explicitly here (for alternative assumptions, see, e.g., Fisher & Walters, 2003 or Haselton & Buss, 2000). Nonetheless, there may be some degree of self-deception in the perception of one's own sexual or romantic interest (Paulhus, 1984; Trivers, 2000). Also, impression management may influence participant ratings of their own sexual and romantic interests, or those of another person (Fisher & Walters; Haselton & Buss; but see Abbey, 1982; Abbey, et al., 2000; Shea, 1993 for contradictory evidence). Empirical evaluation of these assumptions is critical to establish the validity of the corpus of sexual misperception research to date.

with men overperceiving and women underperceiving the sexual interest of opposite-sex targets (Abbey, Zawacki, & McAuslan, 2000; Edmondson & Conger, 1995; Harnish, Abbey, & DeBono, 1990; Saal et al., 1989; Shea, 1993). Yet, in only two of these six studies using actual targets did the researchers explicitly mention women underperceiving the men's sexual interest (Abbey et al., 2000; Shea). Thus, while researchers of the misperception of sexual interest are beginning to recognize the possibility that women misperceive men's sexual interest, the standard interpretation appears to be that men, not women, misperceive levels of sexual interest. In order to evaluate the misperception of sexual interest by men and women, instead of just sex differences in perception, the current studies utilized actual targets of both sexes.

Extending misperception research to romantic interest

Mating relationships can be of varying temporal durations, with short-term mating (e.g., brief affairs or one night stands) anchoring the short-lived end of this continuum and long-term mating (e.g., marriage) anchoring the other end (Buss & Schmitt, 1993). Studies on the perception of sexual interest have confounded short-term and long-term mating strategies in various ways. Participants rated target sexuality using the adjectives "romantic" and "sexy" (Abbey & Harnish, 1995); participants used these four topics to indicate degree of sexual interest: sexual attraction, sexual-advance receptivity, interest in having sex, and interest in dating (Abbey et al., 2000); a mate value measure included both short-term and long-term mate value (Haselton, 2003); and a manipulation of mate-search motivation included a first date movie that may have been more sexual for men and romantic for women (Maner et al., 2005). Sexual strategies theory emphasizes the importance of differentiating between short-term and long-term mating strategies (Buss & Schmitt). Research on mate value has empirically supported the importance of the distinction between short-term and long-term mating (Kenrick, Sadalla, Groth, & Trost, 1990). Short-term and long-

term mating appear to be distinct phenomenon; therefore, the current studies explicitly differentiate sexual and romantic interests.

To the authors' knowledge, almost no research has explored the misperception of romantic interest (see Haselton & Buss, 2000, for misperception of commitment intent). Therefore, we designed the current research to shed light on the misperception of romantic interest. Two factors limited the prediction of the effects of perceiver sex (i.e., maleness or femaleness). First, stereotypically, people expect women to be more interested in love than are men (Basow, 1992), yet one study found that men fall in love faster than do women (Rubin, Peplau, & Hill, 1981). Second, research based on Lee's (1973/1976) six styles of love has found that the sexes differ in their approaches to love, with neither men nor women dominant across all types of love. Erotic love, which includes early attraction, physical attraction, emotional intensity, and strong commitment to one's lover, is arguable the style of love most closely related to romantic interest. Studies have found levels of erotic love to be either the same for men and women (Hendrick & Hendrick, 1986; Hendrick, Hendrick, Foote, & Slapion-Foote, 1984) or higher for women (Sprecher & Toro-Morn, 2002). Together, these mixed findings do not allow a clear prediction of which sex will have greater romantic interest. We applied all hypotheses developed for sexual interest to romantic interest, but romantic interest predictions were nondirectional with regard to sex differences.

Opposite-sex friendships as subject of study in misperception research

Researchers may be able to arouse high levels of sexual interest in the lab, especially in men, but inducing passionate love in the lab is both difficult and unethical. One solution to this challenge is to utilize naturally occurring sexual and romantic interests. A brief review of the literature suggests that sexual interest is common in opposite-sex friendships. Sexual attraction is often an important component in the formation of opposite-sex friendships (Rose, 1985); a majority of participants in

one study reported physical or sexual attraction toward an opposite-sex friend (Reeder, 2000), and two of five students in one college sample reported having had sexual intercourse with at least one person who was their opposite-sex friend at the time (Afifi & Faulkner, 2000). Research has also found romantic interest between opposite-sex friends. Opposite-sex friendships often start with the hope that the friendship will develop into a romantic relationship (Kaplan & Keys, 1997); 52% of participants indicated romantic attraction toward an opposite-sex friend (Reeder), and long-term mating potential was on the top 10 list of the most frequent aspects of opposite-sex friendships for both men and women (see Bleske & Buss, 2000, Table 3, p. 141). The prevalence of sexual and romantic interests in opposite-sex friendships provides ample opportunity for their misperception. Indeed, Abbey (1987) found that half of all self-reported experiences of one's sexual interest being misperceived occurred within an opposite-sex friendship. The high prevalence of sexual and romantic interests in opposite-sex friendships suggests that opposite-sex friendships might be useful alternatives to actual or hypothetical strangers for the evaluation of the misperception of sexual and romantic interests.

Most studies on the misperception of sexual interest have been conducted in the lab and have used strangers or hypothetical targets (see Abbey, 1987 and Haselton, 2003 for exceptions). We know of no reason to expect patterns of misperception to be different between opposite-sex friends as compared to those between strangers. Replication of patterns of misperception of sexual interest between individuals in established relationships would provide evidence for the external validity of the cumulative laboratory findings about the misperception of sexual interest.

Causes of misperception

Although previous research has explored the role of contextual factors on the misperception of sexual interest, the literature does not converge on a single common causal pathway for the misperception of sexual interest. Some

authors suggest that socialization, primarily through the media and stereotypes, produces men with traditional gender attitudes and values as well as cognitive schemas that depict a highly sexualized view of the world, which in turn result in men interpreting ambiguous information as sexual interest, especially in combination with men's lower accuracy than women at decoding nonverbal communication (e.g., Abbey et al., 2000; Kowalski, 1993). In line with this socialization view, researchers have suggested that men may have a lower threshold than women for perceiving sexual interest (e.g., Kowalski; Saal et al., 1989). Evolutionary theorists have suggested that men overperceive women's sexual interest so as not to miss mating opportunities, the primary constraint on men's reproductive success (Haselton & Buss, 2000). Evolutionary theory, in conjunction with self-fulfilling prophecy, the tendency for false beliefs to cause others to behave so as to make the belief come true (Merton, 1968), may be able to explain women's underperception of men's sexual interest. Women who perceive sexual interest in a man may inadvertently behave in ways that result in sexual interest and sexual advances from that man, which could be costly in terms of sexual harassment from that man or jealousy from her mate. A final proposed mechanism for the misperception of sexual interest is that men project their higher level of sexual interest onto women. That is, men assume women have the same level of sexual interest as they themselves have (Shotland & Craig, 1988).

The simple sex-difference hypothesis

Researchers have emphasized the perceiver's sex as a critical variable in the misperception of sexual interest for diverse theoretical reasons, including socialization (e.g., Abbey, 1982) and evolved sex differences in cognitive biases (Haselton & Buss, 2000). In her seminal study, Abbey (1982) proposed the basic logic for the socialization approach:

Certainly the stereotypes of our culture, as evidenced by the mass media's depiction of men and women, portray men as having greater interest in sexual matters than do

women. Once men develop this sexual orientation, it may act as a generalized expectancy, causing them to interpret ambiguous information . . . as evidence in support of their beliefs (p. 837).

This socialization hypothesis predicts that men overperceive women's sexual interest. Presumably, socialization explanations can accommodate the complementary findings that women underperceive men's sexual interest by arguing that women are supposed to have less interest in sexual matters and, therefore, interpret ambiguous information as lack of sexual interest (Abbey & Melby, 1986). These theoretical considerations suggest the simple sex-difference hypothesis: men will overperceive women's sexual interest and women will underperceive men's sexual interest regardless of their degree of sexual interest in the target.

The projection hypothesis

Shotland and Craig (1988) first suggested that the sex difference in misperception occurs because people use their own level of sexual interest to estimate the sexual interest of others. Men assume women have the same level of sexual interest as men, men have more sexual interest than do women (for a review, see Baumeister, Catanese, & Vohs, 2001), thus men overperceive women's sexual interest. Maner et al. (2005) recently proposed a more general model of projection, functional projection, in which people's motivational states lead them to overperceive others to be in emotional states that it is functional to overperceive. For example, a mate-search motive increased men's perception of sexual interest in attractive women and fear increased perception of anger in potential antagonists. The logic of functional projection is based on error management theory (EMT; Haselton and Buss, 2000), which argues that, over evolutionary time, overperceptions or underperceptions with less costs or more benefits were likely to be selected and become species typical. According to the projection hypothesis, high levels of sexual interest should predict

overperception of sexual interest, whereas low levels of sexual interest should predict underperception.²

The mate value hypothesis

Haselton (2003) found that people with higher attractiveness as a mate (i.e., mate value) were more likely to report that their friendly behavior had been misinterpreted by a member of the opposite sex as sexual interest. According to EMT, underperceiving the sexual interest of a high mate value target is more costly than overperceiving because missing a chance to mate with a high mate value individual (underperception) is more costly than wasted mating effort (overperception). Thus, the mate value hypothesis predicts that the sexual interest of targets with high short-term mate value will be overperceived, whereas the sexual interest of targets with low short-term mate value will be underperceived. Furthermore, it follows that the short-term and long-term mate values of the target individual may be an important variable beyond perceiver sex for evaluating the mediation hypothesis, to which we now turn.

The mediation hypothesis

A corollary of the projection hypothesis is that the perceiver's levels of sexual interest in the target may mediate the effects of perceiver sex and target mate value (Shotland & Craig, 1988). That is, for perceiver sex, overperception is the result of the higher level of sexual interest of perceivers who are men. For mate value, overperception is the result of higher levels of sexual interest toward targets

2. One reviewer noted that it is unclear why self-fulfilling prophecies would not also explain such results. Self-fulfilling prophecies might explain how the perception that a friend has a high level of sexual interest would lead that friend to increase their level of sexual interest, and therefore be a proximal mechanism resulting in fitness benefits in addition to those suggested by EMT. Nonetheless, we are not here concerned with such effects. That is, we are looking at how a person's level of sexual interest affects the *perception* of a friend's sexual interest, not how a person's level of sexual interest affects the friend's *actual* sexual interest.

with higher short-term mate value. In sum, the mediation hypothesis predicts that controlling perceiver level of sexual interest will reduce the ability of perceiver sex and target mate value to predict misperception of sexual interest.

The current studies tested four hypotheses. First, the simple sex-difference hypothesis predicts that men will overperceive women's sexual interest and women will underperceive men's sexual interest, irrespective of level of sexual interest of the perceiver. Second, the projection hypothesis predicts that high levels of perceiver sexual interest will result in overperception of target sexual interest, whereas low levels of perceiver sexual interest will result in underperception of target sexual interest. Third, the mate value hypothesis predicts that participants will overperceive the sexual interest of targets with high short-term mate value and participants will underperceive the sexual interest of targets with low short-term mate value. Finally, the mediation hypothesis predicts that controlling for perceiver level of sexual interest will reduce or eliminate the effects of perceiver sex and target mate value on misperception. We also applied each hypothesis to romantic interest, excluding directional predictions based on perceiver sex. First, the simple sex-difference hypothesis predicts sex differences in misperception of romantic interest, irrespective of the perceivers' level of romantic interest. Second, the projection hypothesis predicts that high levels of perceiver romantic interest will result in overperception of target romantic interest and low levels of perceiver romantic interest will result in underperception of target romantic interest. Third, the mate value hypothesis predicts that participants will overperceive the romantic interest of targets with high long-term mate value and participants will underperceive the romantic interest of targets with low long-term mate value. Finally, the mediation hypothesis predicts that perceiver level of romantic interest will mediate any effects of perceiver sex or target long-term mate value. Study 1 tested the simple sex-difference hypothesis, the projection hypothesis, and the mediation hypothesis. Study 2 replicated Study 1 and tested the mate value hypothesis.

Study 1

The goal of the current project was to evaluate predictors of misperception of sexual and romantic interests. Using online questionnaires, members of opposite-sex friendship dyads (a) indicated their sexual and romantic interests in the other member of the dyad and (b) estimated that friend's sexual and romantic interests in them. This design allowed us to evaluate concurrently the unique predictive abilities of perceiver sex and perceivers' own interests.

Method

Participants. Participants were introductory psychology students at the College of William and Mary, a middle class, academically competitive, southeastern public university in the United States with a majority of Caucasian students, and their closest opposite-sex friend, whom each student recruited. Demographic data collected from students' opposite-sex friends did not include their occupation; thus, we do not know what proportion of them were also students at College of William and Mary. The use of a convenience and volunteer sample in the current study was necessary because students had to have an opposite-sex friend who would participate in the study and no sampling frame for such participants exists. Students participated in partial fulfillment of a course requirement for introductory psychology. The study's homepage provided the following information to participants: "Welcome to the Relationships & Sexuality study. We will be asking you to complete a number of online questionnaires regarding your beliefs, attitudes, and history in relationships." We excluded three dyads from analysis because at least one member was a gay male or lesbian. We excluded four additional dyads because the student's opposite-sex friend and their romantic partner had the same first name and therefore may have been the same person (the first names of romantic partners were collected as part of another study). In five cases, two students each had the other as their opposite-sex friend, resulting in duplicative data. We excluded

one of each set of data at random. The final sample for Study 1 consisted of 68 female and 51 male students, each with a friend (238 participants total). The mean age of students was 18.79 years ($SD = 1.25$) and the mean friendship length was 31.16 months ($SD = 33.92$).

Note that *opposite-sex friend* refers to the friends recruited by the students to participate in this study and from the perspective of either member of the opposite-sex friendship dyad, the term refers to the other member. When used in the first meaning, it includes *students'* as a clarifier, for example, the students' opposite-sex friend. When used in the second meaning, it will be expressed without a clarifier, for example, the participants' romantic interest in their opposite-sex friend. *Participant* refers to both the students and the opposite-sex friends, which they recruited, since all were participants in the study.

Questionnaires. Participants completed questionnaires on the Internet. Students provided their own name and the name of their friend. The Web pages embedded these names in the questionnaires. After providing relationship history details, participants answered questions about their sexual and romantic interests in their opposite-sex friend and their perceptions of that friend's sexual and romantic interests in them, resulting in four scales (presented to participants in this order): perception of friend's romantic interest in self, perception of friend's sexual interest in self, romantic interest in friend, and sexual interest in friend. Participants rated their friend's interest before their own, reducing the likelihood that participants would be primed by the questionnaire to use their own level of interest as a reference point when estimating their friend's level of interest. Each scale included three questions designed to measure a conceptually different component of sexual and romantic interests (presented in this order): behavioral, affective, and cognitive. An example of the behavioral question measuring sexual interest, using "John" as the friend's name, follows: "If you and John were both single, how likely is it that *you* would have casual sex with John if John asked?" The corresponding affective measure of sexual inter-

est would be, "How much do *you* desire to have casual sex with John?" The cognitive measure of sexual interest would be, "How frequently do *you* think about having casual sex with John?" On the topic romantic interest, questions asked about joining a long-term, committed romantic relationship instead of having casual sex. To evaluate perceptions of friend's interests, we reversed the name of the friend and the term "you." For example, the behavioral question probing perception of friend's romantic interest would be, "If you and John were both single, how likely is it that John would join a long-term, committed romantic relationship with you if you asked?" A 7-point response scale followed all questions. Anchors were appropriate to the question: For behavioral questions, anchors were *very unlikely* and *very likely*; for affective questions, anchors were *none* and *very much*; and for cognitive questions, anchors were *never* and *very often*. Cronbach alphas ranged from .92 to .94, demonstrating satisfactory reliability. Two principal components analyses with varimax rotations, one for self-reported interests and another for perception of friend's interests, each revealed two orthogonal (i.e., independent) components with eigenvalues above one. In both analyses, sexual and romantic interests were independent constructs.

The questionnaire also included the following relationship history questions. "How long have you been close friends with [opposite-sex friend's name]?" "How close are you to [opposite-sex friend's name]?" A 7-point response scale was provided with the anchors, *not close* and *very close*. "Have you and [opposite-sex friend's name] ever seriously discussed whether or not to begin a long-term, committed romantic relationship with each other?" Response options were *no* and *yes*. "Have you and [opposite-sex friend's name] ever been in an explicitly long-term, committed romantic relationship with each other?" Response options were *no* and *yes*. "How many times did you have sex (including manual, oral, anal, and vaginal sex) with [opposite-sex friend's name]?" Responses were provided in a text box. Students indicated their relationship status by which of two links they clicked

to start the study: one link was for single participants and the other was for dating participants. Students' friends indicated their relationship status with a *no* or *yes* response to the following question: "Are you currently in a long-term, committed romantic relationship?" A question at the end of the study asked participants for comments or suggestions and included a text box for responses.

The following details about the two study's online surveys are based on the Checklist for Reporting Results on Internet E-Surveys (Eysenbach, 2006). An online survey was preferable to a paper-and-pencil survey because it provided easy access to the study for the students' friends, who may not be near campus. We recruited students using Experimentrix (Sona Systems Ltd., 2006), a Web-based subject pool management service. Students validated their identity by logging on to the study's homepage using their student ID. Each student's opposite-sex friend logged on using the student's ID and the password generated by the student. The Web pages automatically logged student IDs with each response. In cases of multiple responses to a page, we first used submissions with the least missing data, otherwise we used final submissions. The first author wrote the Web pages using ColdFusion markup language (Forta, 1998), a dynamic scripting language closely related to hypertext markup language. Data collection spanned November and December 2004 for Study 1 and March and April 2005 for Study 2. We did not calculate response rates because the study was not open to the public. In order to reduce socially desirable responding due to the presence of participants' opposite-sex friends or others, the first and final instructions on each studies' first page were for participants to "Complete questionnaires privately—with no one else around (a dorm room is perfect)." The instructions also informed participants that a hidden, password-protected file accessible only by the researchers would store their data. Questions asked of students were on one Web page with 20 questions. The 23 questions asked of friends were on one Web page. Web pages automatically required all participants to respond to each question before continuing to the next page. A *no response* option was avail-

able for each question. Questions were not randomized. Participants could change their answers with the browser's Back button. Students provided additional data for another study on attachment after completing Study 1.

Results and Discussion

Overall misperception by sex. See Figure 1 for mean ratings of participant sexual and romantic interests in their friend and participant perceptions of their friend's sexual and romantic interests in them. A mixed-model 2×2 analysis of variance (ANOVA), with sex of perceiver a between subjects variable and perception of friend's sexual interest and friend's self-reported sexual interest as within subjects variables, revealed a significant interaction, $F(1, 222) = 12.10, p < .05, \eta_p^2 = .05$, indicating that the pattern of misperception of sexual interest differed for men and women. Two planned contrasts evaluated misperception of

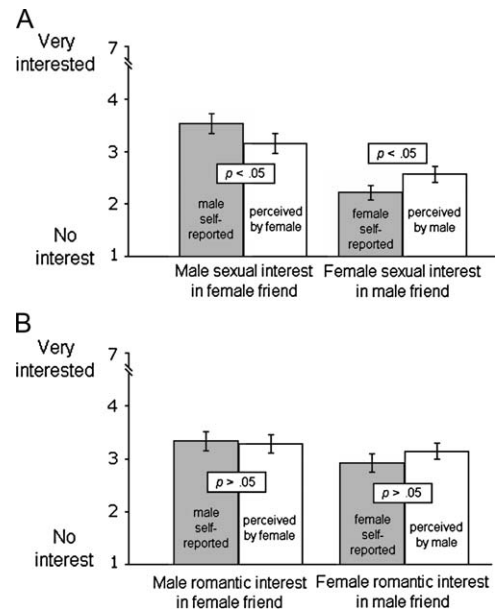


Figure 1. Mean levels ($\pm SE$) of self-reported and perceived sexual and romantic interests of opposite-sex friends in one another in Study 1. (A) Sexual interest. (B) Romantic interest. *Note.* Inset p values are planned comparisons determined using paired samples t tests comparing self-reported interest with friend's perception of that interest.

men's and women's sexual interest. Replicating the key findings of previous researchers and providing evidence that the current operationalization of sexual interest (as casual sex) is comparable with those of previous studies, men overperceived women's sexual interest, $t(111) = 2.37, p < .05, d = .22$ and women underperceived men's sexual interest, $t(111) = -2.56, p < .05, d = .24$ (see Figure 1). The interaction and main effects were not significant ($ps > .05$) for a parallel mixed-model 2×2 ANOVA for romantic interest variables (see Figure 1), corroborating the results of previous researchers (e.g., Buss & Schmitt, 1993) that short-term and long-term mating are distinct.

Regression analysis strategy. Previous sexual misperception research has failed to take into account that the levels of sexual interest of both the perceiver and the target can potentially influence the perception of the target's sexual interest because these perceptions occur within dyads. Fortunately, the Actor-Partner Interdependence Model (APIM; Kashy & Kenny, 2000), a multilevel statistical analysis strategy, allows researchers to estimate the effects of both the actor (*actor effect*) and their partner (*partner effect*) on the dependent variable. For example, in the current research, the actor effect is the effect of the perceiver's (actor's) level of sexual interest on the actor's perception of their friend's (partner's) sexual interest, controlling for their partner's level of sexual interest. The actor effect tests the projection hypothesis by evaluating the actor's perception of their partner's sexual interest while controlling for the partner's self-reported level of sexual interest. The partner effect is the effect of the level of the partner's sexual interest on the actor's perception of the partner's sexual interest. The partner effect can be interpreted as the degree of accuracy of the actor's perceptions of the partner's sexual interest.

We conducted the APIM analyses according to Campbell and Kashy (2002) using hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002). We modeled all predictors at Level 1, unless otherwise noted. We modeled opposite-sex friendship dyads at Level 2. We centered continuous variables around the

grand mean and entered dichotomous variables uncentered and contrast coded. Although multilevel models with random effects require nontraditional mediation procedures, the APIM uses fixed effects when estimating regression coefficients (although the error term for the intercept is allowed to vary randomly; Campbell & Kashy); therefore, traditional mediation procedures are appropriate (Kenny, Korchmaros, & Bolger, 2003). HLM provides unstandardized b values.

Tests of mediation include four steps (Baron & Kenny, 1986; Kenny, 2006). In Step 1, show that the initial variable is correlated with the outcome variable. To test the mediation hypothesis, perceiver sex is the initial variable and perception of friend's sexual interest is the outcome variable. If the path coefficient from the initial variable to the outcome variable when controlling for the mediator is opposite in sign from the product of (a) the path coefficient from the initial variable to the mediator and (b) the path coefficient from the mediator to the outcome variable, then Step 1 may not be met, but there may still be mediation. In this scenario, the mediator also acts as a suppressor variable (Kenny). In Step 2, show that the initial variable is correlated with the mediator (perceiver's level of sexual interest). In Step 3, show that the mediator is correlated with the outcome variable. In Step 4, show that the effect of the initial variable on the outcome variable is reduced or eliminated when controlling for the mediator. For all analyses in this article, we control for friend's self-reported sexual interest (the partner effect) as a covariate at each step so that other variables predict misperception, that is, perception of friend's sexual interest above and beyond their self-reported sexual interest. We apply the same logic to romantic interest as we applied here to sexual interest.

Correlations among primary variables.

Table 1 shows the correlations among primary variables. Correlations for Study 1 are above the diagonal. Correlations for Study 2 are below the diagonal.

The simple sex-difference hypothesis. As can be seen in Figure 2, the unstandardized path

Table 1. Correlations for primary variables within opposite-sex friendship dyads in Study 1 and Study 2

Variables	Perceiver sex ^a	Perceiver sexual interest	Perceiver romantic interest	Actual sexual interest	Actual romantic interest	Perceived sexual interest	Perceived romantic interest	Actual sexual interest	Actual romantic interest	Short-term mate value
Perceiver sex ^a	—									
Perceiver sexual interest	.35*	—								
Perceived sexual interest	.31*	.44*	—							
Actual sexual interest	-.31*	.40*	.65*	—						
Perceiver romantic interest	.08	.56*	.45*	.29*	—					
Perceived romantic interest	.09	.50*	.55*	.34*	.63*	—				
Actual romantic interest	-.08	.29*	.42*	.56*	.58*	.58*	—			
Short-term mate value	-.05	.28*	.28*	.21*	.19*	.19*	.14	—		
Long-term mate value	.04	.16*	.03	.03	.06	.11	.06	.35*	—	

Note. Correlations for Study 1 are above the diagonal, and correlations for Study 2 are below the diagonal.

^aFemale = -1, male = 1.

* $p < .01$.

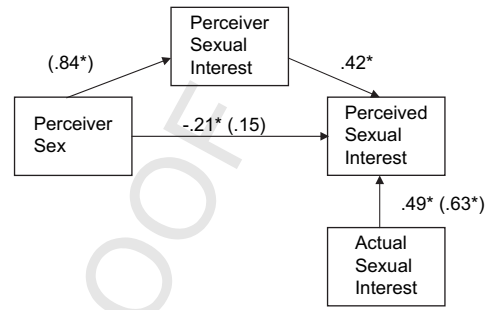


Figure 2. Path diagram for the mediation of the effect of perceiver sex on the misperception of sexual interest by perceiver level of sexual interest in Study 1.

Note. Unstandardized coefficients in parentheses are from two models: in one, perceiver sex predicted perceiver sexual interest; in the other, perceiver sex and friend's self-reported sexual interest (actual sexual interest) predicted perceived sexual interest. Coefficients outside parentheses are from a model in which perceiver sex, perceiver sexual interest, and friend's self-reported sexual interest predicted perceived sexual interest. All variables represent perceiver data, except actual sexual interest, which the perceiver's opposite-sex friend provided.

* $p < .05$.

coefficient from perceiver sex to perceived sexual interest was not positive and significant (which would indicate that men overperceived and women underperceived) when controlling for perceiver's level of sexual interest and friend's self-reported sexual interest. The unstandardized path coefficient from perceiver sex to perceived romantic interest, controlling for perceiver's level of romantic interest and friend's self-reported romantic interest, was not significantly different from zero, $b = -0.01$, $t(195) = -0.11$, $p > .05$. Thus, the simple sex-difference hypothesis was not supported for sexual or romantic interest.

The projection hypothesis. Supporting the projection hypothesis, while controlling for perceiver sex and friend's self-reported interest, the path coefficient between perceiver level of interest and perceived level of interest is positive and significant for both sexual interest

(see Figure 2) and romantic interest, $b = 0.43$, $t(195) = 7.05$, $p < .05$.

The mediation hypothesis. The mediation hypothesis predicts that men overperceiving women's sexual interest and women underperceiving men's sexual interest is the result of members of each sex projecting their different level of sexual interest onto their friend. As Figure 2 illustrates, for sexual interest, Step 1 was not met. Nonetheless, when controlling for the mediator and friend's self-reported sexual interest, the path coefficient for perceiver sex was opposite in sign from the product of (a) the path coefficient from the perceiver sex to the perceived sexual interest and (b) the path coefficient from perceiver sexual interest to perceived sexual interest, suggesting that perceiver sexual interest was acting as a suppressor as well as a mediator of the effects of perceiver sex (Kenny, 2006).³ Steps 2 and 3 are met. Evaluation of Step 4 suggests that perceiver level of sexual interest mediated the men's overperception and women's underperception of sexual interest found in the ANOVA reported above. A Sobel test confirmed that the effect of perceiver sex was significantly changed when we added perceiver level of sexual interest to the model, $t = 4.40$, $p < .05$. After controlling for perceiver level of sexual interest, the effect of perceiver sex is significantly different than zero, indicating that perceiver level of sexual interest partially mediated the effect of perceiver sex. The negative sign of the coefficient for perceiver sex suggests that there was an additional, suppressed effect of sex in which women overperceived and men overperceived their friends' sexual interests. Previous studies have

not used the necessary statistical analyses (or experimental designs) to find this effect of sex. Thus, perceiver level of sexual interest not only mediated men's overperception of women's sexual interest and women's underperception of men's sexual interest but also suppressed an additional effect of sex in which men underperceive and women overperceive the sexual interest of opposite-sex targets.

Parallel analyses for romantic interest found that perceiver sex was not a significant predictor of the perception of romantic interest in any step, $ps > .05$; therefore, there was no effect of perceiver sex to be mediated by perceiver level of romantic interest.

Accuracy of perceptions. Recall that, in these models, the partner effect can be interpreted as the degree of accuracy of the actor's perceptions of the partner's sexual and romantic interests. While controlling for perceiver sex and perceiver level of sexual interest, the path coefficient for the partner effect, termed *actual interest*, is positive and significant for both sexual interest (see Figure 2) and romantic interest, $b = 0.31$, $t(195) = 4.47$, $p < .05$. These findings suggest that perceptions of a friend's sexual and romantic interests in oneself are not pure fantasy, but to a substantial degree reflect that friend's actual interests.

Relationship history variables. To exclude the possibility that relationship history variables caused the current results, we reran the regression analyses with the additional relationship history variables as predictors, including sexual and romantic histories between friends. As seen in Table 2, coefficients for critical variables maintained significance when statistically controlling for relationship history variables. Furthermore, the meaningfulness of the distinction between romantic and sexual interest is indicated by the inability of perceiver romantic interest to account for the effect of perceiver sexual interest, and vice versa. This result also argues against the possibility that the results supporting the projection hypothesis could be explained by a common method effect (Kenny, 2006), that is, perceivers rating both their own level of interest (a predictor) and their perception of their friend's interest (the outcome variable)

3. To verify that this result was not due to multicollinearity, the Level 1 data were imported into SPSS. Multicollinearity analyses for this and all subsequent mediation models indicated that multicollinearity was not a problem, VIFs $< .160$. Also, as can be seen in Table 1, the zero-order correlation between perceiver sex and perceiver sexual interest is positive and significant in both studies; thus, the reversal in the direction of the regression coefficient for perceiver sex from positive to negative when controlling for perceiver level of sexual interest is not a result of an initial negative correlation between perceiver sex and perceived sexual interest.

[9]

[10]

Table 2. Multiple regression analyses in Study 1 in which hypothesis variables and relationship history variables predicted the misperception of friend's sexual and romantic interests (i.e., the perception of friend's sexual and romantic interests in the perceiver while controlling for the friend's actual sexual and romantic interests in the perceiver, respectively)

Predictor variables	Sexual interest		Romantic interest	
	Unstandardized coefficient	SE	Unstandardized coefficient	SE
Actual interest	0.48*	0.07	0.29*	0.07
Closeness	0.22*	0.10	0.18*	0.09
Length of friendship ^a	-0.37	0.19	-0.34*	0.16
Romantic relationship with friend in past? ^{b, c}	0.30	0.25	0.23	0.25
Perceiver relationship status ^d	0.20	0.11	0.12	0.09
Discussed long-term relationship?	-0.10	0.15	0.03	0.13
Times friends had sex ^{b, c}	0.31	0.30	0.24	0.24
Perceiver sex ^f	-0.21*	0.09	-0.06	0.10
Perceiver romantic interest in friend	-0.03	0.06	0.35*	0.07
Perceiver sexual interest in friend	0.44*	0.07	0.11*	0.05

Note. Unstandardized regression coefficients for hypotheses variables are italicized.

^aBecause length of relationship was positively skewed, it was log transformed.

^bThis variable was entered at Level 2.

^cNo romantic relationship in past = -1, romantic relationship in past = 1.

^dSingle = -1, in a romantic relationship = 1.

^eBecause many participants chose to not reply to this question, a response from either member of the friendship was used for the sexual history of the friendship. Because times friends had sex was positively skewed, it was log transformed.

^fFemale = -1, male = 1.

* $p < .05$.

because perceiver romantic and sexual interests were not equally able to predict the misperception of both romantic and sexual interests.

Study 2

Study 2 was a replication of Study 1 that also tested the mate value hypothesis and the mediation hypothesis with regard to mate value. Also, Study 2 included several methodological improvements. First, because someone's closest opposite-sex friend could be a relative or a boyfriend or girlfriend (Hendrick & Hendrick, 1993), and these relationships are not part of the traditional definition of opposite-sex friendship (see, e.g., Monson, 2002), the study instructions explicitly

prohibited participants from recruiting opposite-sex friends who were romantic partners or relatives. Second, because 3 participants in Study 1 indicated that one member of the opposite-sex friendship dyad was a gay male or lesbian, a question directly asked participants their sexual orientation. Finally, a question at the end of the study asked participants if their data should be excluded for any reason, with assurance that exclusion would be free from penalty.

Method

Participants. We excluded the data for five opposite-sex friendship dyads because one member was a gay male or lesbian. For five

other dyads, both members were students, resulting in duplicative data, so we excluded one of each set of data at random. Two participants indicated their data should be excluded, so we excluded it. The final sample for Study 2 consisted of 50 female and 49 male introductory psychology students at the College of William and Mary, each with a recruited friend (198 participants total). The mean student age was 18.85 ($SD = .72$) and the mean friendship length was 28.81 months ($SD = 27.71$).

Questionnaires. Questionnaires used in Study 2 were identical to those used in Study 1. Chronbach alphas ranged from .93 to .95 for self-reported and perceived sexual and romantic interest scales, showing satisfactory reliability. Two principal components analyses with varimax rotations, one for self-reported interests and another for perception of friend's interests, revealed that romantic and sexual interest items were independent constructs. In addition, short-term mate value and long-term mate value questions were based on Haselton (2003). The Web pages modified the mate value questions by embedding the friend's first name. For a participant whose friend's name is John, the question assessing short-term mate value would be, "Compared with others you know who are the same sex as you and about your age, how desirable do members of the opposite sex find John as a short-term mate or casual sex partner?" The question assessing long-term mate value included the words *long-term mate or marriage partner* instead of *short-term mate or casual sex partner*. A 7-point response scale with the anchors *very undesirable* and *very desirable* followed each mate value question.

Results and Discussion

Overall misperception by sex. Figure 3 presents the mean ratings of participant sexual and romantic interests in their friend and participant perceptions of their friend's sexual and romantic interests in them. A mixed-model 2×2 ANOVA, with sex of perceiver as a between subjects variable and perception of friend's sexual interest and friend's self-reported sexual interest as within subjects variables, revealed

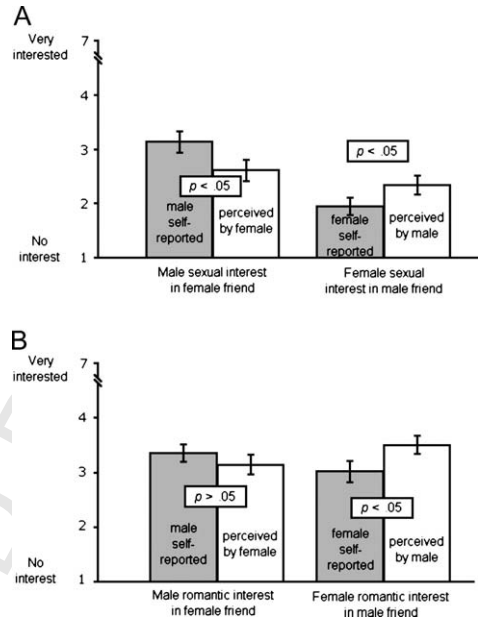


Figure 3. Mean levels ($\pm SE$) of self-reported and perceived sexual and romantic interests of opposite-sex friends in one another in Study 2. (A) Sexual interest. (B) Romantic interest. *Note.* Inset p values are planned comparisons determined using paired samples t tests comparing self-reported interest with friend's perception of that interest.

a significant interaction, $F(1, 186) = 18.76$, $p < .05$, $\eta_p^2 = .08$, indicating that the pattern of misperception of sexual interest differed for men and women. Planned contrasts replicated the results of Study 1 and the key finding of previous research: men overperceived women's sexual interest, $t(93) = 2.71$, $p < .05$, $d = .28$, and women underperceived men's sexual interest, $t(93) = -3.05$, $p < .05$, $d = .31$ (see Figure 3). Parallel analyses for romantic interest variables produced a significant interaction, $F(1, 190) = 7.75$, $p < .05$, $\eta_p^2 = .04$. Men overperceived women's romantic interest, $t(94) = 2.72$, $p < .05$, $d = .28$; women did not misperceive men's romantic interest, $t(96) = -1.26$, $p > .05$ (see Figure 3).

The simple sex-difference hypothesis. As in Study 1, perceiver sex was not a positive predictor of perception of sexual interest while controlling for perceiver level of sexual interest and

friend's self-reported sexual interest, thus the simple sex-difference hypothesis was not supported for sexual interest (see Figure 4). Failing to replicate the finding of Study 1, perceiver sex was a positive, significant predictor of romantic interest while controlling for perceiver level of romantic interest and friend's self-reported romantic interest, $b = 0.22$, $t(161) = 2.40$, $p < .05$; therefore, the simple sex-difference hypothesis was supported for romantic interest.

The projection hypothesis. Consistent with the projection hypothesis, perceiver interests were positive, significant predictors of misperception of their friend's corresponding interests while controlling for perceiver sex and friend's self-reported interests, for both sexual interest (see Figure 4) and romantic interests, $b = 0.48$, $t(161) = 7.88$, $p < .05$, replicating the findings of Study 1.

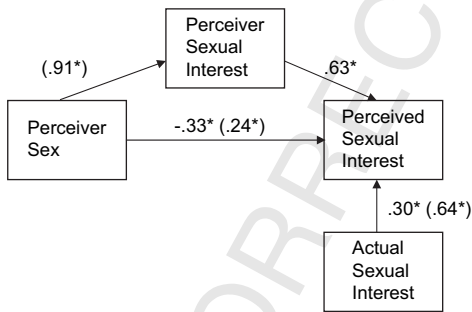


Figure 4. Path diagram for the mediation of the effect of perceiver sex on the misperception of sexual interest by perceiver level of sexual interest in Study 2.

Note. Unstandardized coefficients in parentheses are from two models: in one, perceiver sex predicted perceiver sexual interest; in the other, perceiver sex and friend's self-reported sexual interest (actual sexual interest) predicted perceived sexual interest. Coefficients outside parentheses are from a model in which perceiver sex, perceiver sexual interest, and friend's self-reported sexual interest predicted perceived sexual interest. All variables represent perceiver data, except actual sexual interest, which the perceiver's opposite-sex friend provided.

* $p < .05$.

The mediation hypothesis. Recall that the mediation hypothesis predicts that men's overperception of women's sexual interest and women's underperception of men's sexual interest is the result of perceivers projecting their own level of sexual interest onto the target. As Figure 4 illustrates, Steps 1, 2, and 3 were met for sexual interest. Evaluation of Step 4 indicated that, replicating the results found in Study 1, perceiver level of sexual interest mediated the effect of sex and suppressed an additional effect of sex. The Sobel test confirmed that the ability of perceiver sex to predict the misperception of sexual interest was significantly changed when adding perceiver level of sexual interest to the model, $t = 5.25$, $p < .05$. Thus, the mediation hypothesis was supported for sexual interest.

Parallel mediation analyses for romantic interest found that, controlling for friend's self-reported romantic interest, perceiver sex was a significant predictor of perception of romantic interest before, $b = 0.26$, $t(165) = 2.22$, $p < .05$, and after, $b = 0.22$, $t(161) = 2.40$, $p < .05$, adding perceiver level of romantic interest to the model. Mediation Steps 2 and 4 are not supported and the Sobel's t is not significant ($p > .05$). Thus, the mediation hypothesis was not supported for romantic interest. This is the only analysis that does not support the hypothesis that an effect of perceiver sex is mediated by the projection of the perceiver's level of interest.

Mate value hypothesis. The next set of analyses evaluated whether friends' short- and long-term mate values predicted misperception of their sexual and romantic interests, respectively, and whether misperception of sexual and romantic interests due to friends' short- and long-term mate value was mediated by the perceiver level of sexual and romantic interests. As Figure 5 shows, while controlling friend's self-reported sexual interest, short-term mate value was a positive and significant predictor of perceived sexual interest, supporting the mate value hypothesis. All four steps necessary for indicating mediation were supported for short-term mate value. A Sobel test was also consistent with mediation, $t = 2.70$, $p < .05$. While controlling for friend's self-reported romantic interest,

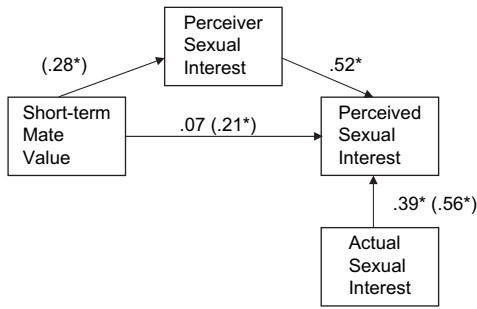


Figure 5. Path diagram for the mediation of the effect of friend’s short-term mate value on the misperception of sexual interest by perceiver level of sexual interest in Study 2.

Note. Unstandardized coefficients in parentheses are from two models: in one, friend’s short-term mate value predicted perceiver sexual interest; in the other, friend’s short-term mate value and friend’s self-reported sexual interest in the perceiver (actual sexual interest) predicted perceived sexual interest. Unstandardized coefficients outside parentheses are from a model in which friend’s short-term mate value, perceiver sexual interest, and friend’s self-reported sexual interest predicted perceived sexual interest. All variables represent perceiver data, except actual sexual interest, which the perceiver’s opposite-sex friend provided.

* $p < .05$.

long-term mate value did not predict the misperception of romantic interest, $b = 0.15$, $t(159) = 1.28$, $p > .05$, failing to support the mate value hypothesis for long-term interest and indicating that there is not an effect of long-term mate value to be mediated by perceiver level of romantic interest. In sum, the results supported the mate value hypothesis and the mediation hypothesis for short-term mate value but not long-term mate value.

Accuracy of perceptions. As in Study 1, while controlling for perceiver sex and perceiver level of interest, friend’s self-reported interest was a significant predictor of perception of that interest for both sexual interest (see Figure 5) and romantic interest, $b = 0.37$, $t(161) = 6.48$, $p < .05$. These findings indicate that participant perceptions of their friend’s

sexual and romantic interests, to a substantial degree, accurately reflected those interests.

Relationship history variables. Table 3 presents the results of regression analysis that include theoretically relevant variables as well as relationship history variables as predictors. Replicating the findings of Study 1, critical variables were in the same direction and maintained significance when statistically controlling for relationship history variables. Notably, many results for the relationship history variables themselves did not replicate across studies, thus deserving replication. Discussion of these inconsistencies is beyond the scope of the current article.

General Discussion

Two studies found that men overperceived women’s sexual interest and women underperceived men’s sexual interest, replicating the key finding of numerous studies (e.g., Abbey, 1982). Only men in Study 2 misperceived romantic interest. Further analyses in both studies provided evidence that perceivers projected their own levels of sexual and romantic interests onto their opposite-sex friend. Study 2 found that the short-term mate value of targets, but not their long-term mate value, also resulted in systematic misperception. Mediation analyses were consistent with the hypothesis that perceiver level of sexual interest in the target resulted in the effects of both perceiver sex (in Studies 1 and 2) and target short-term mate value (in Study 2); however, perceiver level of romantic interest did not mediate men’s overperception of women’s romantic interest in Study 2. Surprisingly, mediation analyses in both studies revealed that perceiver level of sexual interest was suppressing an additional effect of sex in which men underperceived women’s sexual interest and women overperceived men’s sexual interest.

The simple sex-difference hypothesis

Replicating numerous studies, the overall effect of sex (as indicated in Figures 1 and 3) was that men overperceived and women underperceived the sexual interest of an opposite-sex target.

Table 3. Multiple regression analyses in Study 2 in which hypothesis variables and relationship history variables predicted the misperception of friend's sexual and romantic interests (i.e., the perception of friend's sexual and romantic interests in the perceiver while controlling for the friend's actual sexual and romantic interests in the perceiver, respectively)

Predictor variables	Sexual interest		Romantic interest	
	Unstandardized coefficient	SE	Unstandardized coefficient	SE
Actual interest	0.24*	0.07	0.24*	0.06
Closeness	-0.08	0.08	-0.08	0.10
Length of friendship ^a	0.02	0.16	-0.13	0.18
Romantic relationship with friend in past? ^{b, c}	-0.57*	0.15	0.11	0.10
Perceiver relationship status ^d	-0.17*	0.09	0.04	0.10
Discussed long-term relationship?	0.18*	0.06	0.20*	0.05
Times friends had sex ^{b, c}	0.66*	0.19	0.00	0.16
Perceiver sex ^f	-0.29*	0.08	0.19	0.10
Friend's mate value	0.02	0.06	-0.04	0.09
Perceiver romantic interest in friend	-0.01	0.06	0.39*	0.08
Perceiver sexual interest in friend	0.53*	0.06	0.06	0.07

Note. Unstandardized regression coefficients for hypotheses variables are italicized.

^aBecause length of relationship was positively skewed, it was log transformed.

^bThis variable was entered at Level 2.

^cNo romantic relationship in past = -1, romantic relationship in past = 1.

^dSingle = -1, in a romantic relationship = 1.

^eMany participants chose to not reply to this question; therefore, a response from either member of the friendship was used for the sexual history of the friendship. Because times friends had sex was positively skewed, it was log transformed.

^fFemale = -1, male = 1.

* $p < .05$.

Nevertheless, both studies found the reverse effect when holding perceiver level of sexual interest constant: women overperceived and men underperceived the sexual interest of their opposite-sex friend. No socialization or evolutionary theories known to the authors predicts women's overperception and men's underperception of the sexual interest of opposite-sex targets. A plausible explanation is that people are aware that men have higher levels of sexual interest than do women (Baumeister et al., 2001), and therefore, in ambiguous situations, people may assume that a man has a high level of sexual interest, whereas a woman has a low level of sexual interest. That is, people may use common knowledge about actual sex differen-

ces in levels of sexual interest to discount their estimates of women's sexual interest and increase their estimates of men's sexual interest. Thus, socially acquired knowledge that men have more sexual interest than women may lead to a sex-of-target effect resulting not in men overperceiving women's sexual interest (Abbey, 1982) but instead to the opposite: men underperceiving (and women overperceiving) of the sexual interest of members of the opposite sex.

The projection hypothesis

Researchers have interpreted functional projection (Maner et al., 2005) and EMT (Haselton & Buss, 2000) to support male, but not

female, misperception of the sexual interest of opposite-sex targets. How can functional projection and EMT accommodate the current findings that level of sexual interest, not maleness or femaleness per se, best predicted misperception of both sexual and romantic interests? Consider when sexual interest is not aroused. An unknown woman with low current reproductive potential, elderly, prepubescent, or very ill, for example, arouses little sexual interest in most normal men. The more indicators that a woman is fertile and of high mate quality, the more sexually interested men will be in her, and the more useful it is to overperceive her sexual interest so as not to miss the valuable mating opportunity. Compared to men, the sexual interest of women is less easily aroused (Baumeister et al., 2001), reflecting women's greater discrimination of sexual partners (Trivers, 1972). Once women are sexually aroused, women may benefit from overperceiving the sexual interest of their target just like men. This can be understood by thinking of arousal of sexual interest as a sexual-opportunity meter, that is, an indicator that a target is a valuable potential mate whose interest would be costly to miss, as in the affect-as-information model of emotions (see, e.g., Clore & Storbeck, in press). From an evolutionary perspective, men do not want to miss an opportunity to have sex with most women, and women do not want to miss an opportunity to have sex with a high mate value man, thus both men and women may benefit from overperceiving the sexual interest of those who activate their sexual interest. Similarly, passionate love may act as a romantic-opportunity meter, indicating that a target would be a worthwhile long-term romantic partner, and therefore, missing the valuable opportunity by underperceiving their romantic interest would be more costly than overperceiving their romantic interest.

The mate value hypothesis

Replicating the finding of Haselton (2003), target short-term mate value predicted misperception of that target's sexual interest. This finding corroborates the argument presented above that it is functional to overperceive the sexual interest of those with high short-term

mate value. The effect of mate value on misperception disappeared; however, once we held participants' own level of sexual interest constant, suggesting that the perceivers' own level of sexual interest may mediate the misperception of sexual interest related to short-term mate value. The study used a single item to measure short-term mate value, however, so caution is warranted in concluding that mediation occurred. Long-term mate value did not predict the misperception of romantic interest, perhaps because, unlike casual sex, romantic love involves commitment (Frank, 1988; Gonzaga, Keltner, Londal, & Smith, 2001; Ketelaar & Goodie, 1998) and therefore greater potential costs if someone were to exploit this commitment.

Limitations

First, as in all self-report data, but especially those about one's relationship with an opposite-sex friend (Monsour, Harris, Kurzwil, & Beard, 1994), socially desirable responding, or self-deception (Paulhus, 1984) may influence the results. Second, these studies had high cancellation rates (23.6% in Study 1 and 13.2% in Study 2), perhaps because potential participants wanted to avoid discussing romantic or sexual interests with their opposite-sex friend (Afifi & Burgoon, 1998). Third, the use of naturally occurring mating interests provides evidence for the external validity of the existing research on the misperception of sexual interest, but necessitates correlational instead of experimental methods for evaluating causation. Experimental manipulation of perceiver's level of sexual interest is necessary to demonstrate the causal role of perceiver's level of sexual interest in the misperception of sexual interest. Fourth, the same survey measured level of sexual interest and perception of friend's level of sexual interest; thus, a common method effect may have caused the high correlation between the mediator and the outcome variable (Kenny, 2006), although Tables 2 and 3 present evidence against this possibility. Finally, the use of volunteer, convenience samples does not allow generalization to a known population. Future research should attempt to address these limitations.

Conclusions

The current findings suggest a number of research directions and practical implications. First, if misperception of sexual interest is primarily due to projection of one's own level of interest, then individual differences in level of sexual interest may be a factor underlying risk for perpetrating sexual assault, including acquaintance rape. This assertion is supported by the finding that men who have committed acquaintance rape tend to be very sexually active (Kanin, 1985). Similarly, if the perception that another person is sexually interested in oneself is increased by being sexually interested in that person, then individuals with a chronically high sex drive are at an increased risk of unwittingly sexually harassing others. Education about how people may project their own level of sexual interest, about what level of sexual interest is common for different groups (e.g., women), and about valid indicators that may be used to ascertain another's level of sexual interest may reduce the risk for sexual aggression and harassment for those with chronically high levels of sexual interest. Finally, the current studies support the advice given by others that men may need to be skeptical of their perceptions of women's sexual interest in them (Abbey & Harnish, 1995). The current research also suggests that a complementary set of advice is warranted. That is, women may tend to underperceive the sexual interest of men who do not arouse their sexual interest and therefore, experience an unreciprocated sense of nonsexuality or friendliness, perhaps resulting in a false sense of security. Furthermore, women may be advised to use men's behaviors, such as sexual innuendos or sexual advances, as indicators not only that he is sexually interested in her but also that he may think she is sexually interested in him. Women should be careful not to discount estimates of men's sexual interest based on their own lack of sexual interest.

References

Abbey, A. (1982). Sex differences in attributions for friendly behavior: Do males misperceive females'

friendliness? *Journal of Personality and Social Psychology*, *42*, 830–838.

- Abbey, A. (1987). Misperceptions of friendly behavior as sexual interest: A survey of naturally occurring incidents. *Psychology of Women Quarterly*, *11*, 173–194.
- Abbey, A., & Harnish, R. J. (1995). Perception of sexual intent: The role of gender, alcohol consumption and rape supportive attitudes. *Sex Roles*, *32*, 297–313.
- Abbey, A., McAuslan, P., & Ross, L. T. (1998). Sexual assault perpetration by college men: The role of alcohol, misperception of sexual intent, and sexual beliefs and experiences. *Journal of Social and Clinical Psychology*, *17*, 167–195.
- Abbey, A., & Melby, C. (1986). The effects of nonverbal cues on gender differences in perceptions of sexual intent. *Sex Roles*, *15*, 283–289.
- Abbey, A., Zawacki, T., & McAuslan, P. (2000). Alcohol's effects on sexual perception. *Journal of Studies on Alcohol*, *61*, 688–697.
- Affi, W. A., & Burgoon, J. K. (1998). We never talk about that: A comparison of cross-sex friendships and dating relationships on uncertainty and topic avoidance. *Personal Relationships*, *5*, 255–272.
- Affi, W. A., & Faulkner, S. L. (2000). On being "just friends": The frequency and impact of sexual activity in cross-sex friendships. *Journal of Social and Personal Relationships*, *17*, 205–222.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- Basow, S. A. (1992). *Gender: Stereotypes and roles* (3rd ed.). Pacific Grove, CA: Wadsworth;Brooks/Cole. 7
- Baumeister, R. F., Catanese, K. R., & Vohs, K. D. (2001). Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Personality and Social Psychology Review*, *5*, 242–273.
- Bleske, A. L., & Buss, D. M. (2000). Can men and women be just friends? *Personal Relationships*, *7*, 131–151.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, *100*, 204–232.
- Campbell, L., & Kashy, D. A. (2002). Estimating actor, partner, and interaction effects for dyadic data using PROC MIXED and HLM: A guided tour. *Personal Relationships*, *9*, 327–342.
- Clore, G. L., & Storbeck, J. (in press). Affect as information about liking, efficacy, and importance. In J. Forgas (Ed.), *Hearts and minds: Affective influences on social cognition and behavior*. New York: Psychology Press. 8
- Donat, P., & Bondurant, B. (2003). The role of sexual victimization in women's perceptions of others' sexual interest. *Journal of Interpersonal Violence*, *18*, 50–64.
- Edmondson, C. B., & Conger, J. C. (1995). The impact of mode of presentation on gender differences in social perception. *Sex Roles*, *32*, 169–183.
- Eysenbach, G. (2004 September 29). Improving the quality of Web surveys: The Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *Journal of Medical Internet Research*, *6*, e34. Retrieved September 12, 2006, <http://www.jmir.org/2004/3/e34/>
- Fisher, T. D., & Walters, A. S. (2003). Variables in addition to gender that help to explain differences in

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53

- perceived sexual interest. *Psychology of Men and Masculinity*, 4, 154–162.
- Forta, B. (1998). *The ColdFusion 4.0 web application construction kit*. Indianapolis, IN: Que Publishing.
- Frank, R. (1988). *Passions within reason: The strategic role of the emotions*. New York: Norton.
- Goodchilds, J. D., & Zellman, G. L. (1984). Sexual signaling and sexual aggression in adolescent relationships. In N. M. Malamuth & E. Donnerstein (Eds.), *Pornography and sexual aggression* (pp. 233–243). Orlando, FL: Academic Press.
- Gonzaga, G., Keltner, D., Lonal, E., & Smith, D. (2001). Love and the commitment problem in romantic relations and friendship. *Journal of Personality and Social Psychology*, 81, 247–262.
- Harnish, R. J., Abbey, A., & DeBono, K. G. (1990). Toward an understanding of the “sex game”: The effects of gender and self-monitoring in initial interactions. *Journal of Applied Social Psychology*, 20, 1333–1344.
- Haselton, M. G. (2003). The sexual overperception bias: Evidence of a systematic bias in men from a survey of naturally occurring events. *Journal of Research in Personality*, 37, 43–47.
- Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in opposite-sex mind reading. *Journal of Personality and Social Psychology*, 78, 81–91.
- Hendrick, C., & Hendrick, S. S. (1986). A theory and method of love. *Journal of Personality and Social Psychology*, 50, 392–402.
- Hendrick, C., Hendrick, S., Foote, F. H., & Slapion-Foote, M. J. (1984). “Do men and women love differently?” *Journal of Social and Personal Relationships*, 1, 177–195.
- Hendrick, S. S., & Hendrick, C. (1993). Lovers as friends. *Journal of Social and Personal Relationships*, 10, 459–466.
- Johnson, C. B., Stockdale, M. S., & Saal, F. E. (1991). Persistence of men’s misperceptions of friendly cues across a variety of interpersonal encounters. *Psychology of Women Quarterly*, 15, 463–475.
- Kanin, E. J. (1985). Date rapists: Differential sexual socialization and relative deprivation. *Archives of Sexual Behavior*, 14, 219–231.
- Kaplan, D. L., & Keys, C. B. (1997). Sex and relationship variables as predictors of sexual attraction in cross-sex platonic friendships between young heterosexual adults. *Journal of Social and Personal Relationships*, 14, 191–206.
- Kashy, D., & AKenny, D. A. (2000). The analysis of data from dyads and groups. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 451–477). New York: Cambridge University Press.
- Kenny, D. A. (2006). Mediation. Retrieved September 12, 2006, <http://davidakenny.net/cm/mediate.htm>
- Kenny, D. A., Korchmaros, J. D., & Bolger, N. (2003). Lower level mediation in multilevel models. *Psychological Methods*, 8, 115–128.
- Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and stages of human courtship: Qualifying the parental investment model. *Journal of Personality*, 58, 97–115.
- Ketelaar, T., & Goodie, A. S. (1998). The satisficing role of emotions in decision-making. *Psykhe*, 7, 63–77.
- Kowalski, R. M. (1993). Inferring sexual interest from behavioral cues: Effects of gender and sexually relevant attitudes. *Sex Roles*, 29, 13–36.
- Lee, J. A., (1973). *The colors of love: An exploration of the ways of loving*. Don Mills, Ontario, Canada: New Press. (Popular Edition, 1976).
- Maner, J. K., Kenrick, D. T., Becker, D. V., Robertson, T. E., Hofer, B., Neuberg, S. L. et al. (2005). Functional projection: How fundamental social motives can bias interpersonal perception. *Journal of Personality and Social Psychology*, 88, 63–78.
- Merton, R. K. (1968). *Social theory and social structure*. New York: Free Press.
- Monsour, M. (2002). *Women and men as friends: Relationships across the lifespan in the 21st century*. Mahwah, NJ: Lawrence Erlbaum.
- Monsour, M., Harris, B., Kurzwil, N., & Beard, C. (1994). Challenges confronting cross-sex friendships: Much ado about nothing? *Sex Roles*, 31, 55–77.
- O’Meara, J. D. (1989). Cross-sex friendship: Four basic challenges of an ignored relationship. *Sex Roles*, 21, 525–543.
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, 46, 609.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Reeder, H. M. (2000). ‘I like you ... as a friend’: The role of attraction in cross-sex friendship. *Journal of Social and Personal Relationships*, 17, 329–348.
- Rose, S. M. (1985). Same- and cross-sex friendship and the psychology of homosociality. *Sex Roles*, 12, 63–74.
- Rubin, Z., Peplau, L. A., & Hill, C. T. (1981). Loving and leaving: Sex differences in romantic attachment. *Sex Roles*, 7, 821–835.
- Saal, F., Johnson, C., & Weber, N. (1989). Friendly or sexy? It may depend on whom you ask. *Psychology of Women Quarterly*, 13, 263–276.
- Shea, M. E. C. (1993). The effects of selective evaluation on the perception of female cues in sexually coercive and noncoercive males. *Archives of Sexual Behavior*, 22, 415–433.
- Sigal, J., Gibbs, M., Adams, B., & Derfler, R. (1988). The effect of romantic and nonromantic films on perception of female friendly and sexual behavior. *Sex Roles*, 19, 545–554.
- Shotland, R. L., & Craig, J. M. (1988). Can men and women differentiate between friendly and sexually interested behavior? *Social Psychology Quarterly*, 51, 66–73.
- Sona Systems Ltd. (2006). Experimentrix. Retrieved May 25, 2007, <http://www.experimentrix.com>
- Sprecher, S., & Toro-Morn, M. (2002). A study of men and women from different sides of Earth to determine if men are from Mars and women are from Venus in their beliefs about love and romantic relationships. *Sex Roles*, 46, 131–147.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man: 1871–1971* (pp. 136–179). Chicago: Aldine.
- Trivers, R. L. (2000). The elements of a scientific theory of self-deception. *Annals of the New York Academy of Sciences*, 907, 114–131.

Author Query Form

Journal: Personal Relationships

Article : pere_163

Dear Author,

During the copy-editing of your paper, the following queries arose. Please respond to these by marking up your proofs with the necessary changes/additions. Please write your answers on the query sheet if there is insufficient space on the page proofs. Please write clearly and follow the conventions shown on the attached corrections sheet. If returning the proof by fax do not write too close to the paper's edge. Please remember that illegible mark-ups may delay publication.

Many thanks for your assistance.

Query No.	Query	Remark
1	Please note that "Eysenbach (2004) has been changed to "Eysenbach (2006)" as per the list. Please check.	
2	Please note that spelling of the author "Forte (1998)" has been changed to "Forta (1998)" as per the list. Please check.	
3	Please note that spelling of the author "Buss and Scmitt (1993)" has been changed to "Buss and Schmitt (1993)" as per the list. Please check.	
4	Please note that spelling of the author "Kashy and Kenny (2000)" has been changed to "Kashy and AKenny (2000)" as per the list. Please check.	
5	Please note that spelling of the author "Londahl" in "Gonzaga, Keltner, Londahl, and Smith (2001)" has been changed to "Londal" as per the list. Please check.	
6	Please note that spelling of the author "Kurzweil" in "Monsour, Harris, Kurzweil, and Beard (1994)" has been changed to "Kurzwil" as per the list. Please check.	
7	Please retain any one publisher name as per the journal style for "Basow (1992)."	
8	Please update "Clore and Storbeck (in press)."	

9 Please spell out “SPSS” in the sentence “To verify that this result”

10 Please spell out “VIF” in the sentence “Multicollinearity analyses for”

UNCORRECTED PROOF