# The sexual overperception bias: Evidence of a systematic bias in men from a survey of naturally occurring events[☆]

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## Abstract

According to error management theory (Haselton & Buss, 2000), natural selection will often produce adaptively biased systems of judgment, even when these systems produce more errors than alternative designs. In a study of naturally occurring events, evidence of one such bias in men—the sexual overperception bias—was documented. Women ($n = 102$) and men ($n = 114$) reported past experiences in which a member of the opposite sex erroneously inferred their sexual interest. Women reported significantly more false-positive errors committed by men than false-negative errors. Men reported roughly equal numbers of false-positive and false-negative errors committed by women, suggesting no bias in women's sexual inferences. Several within-sex predictors of misperceptions were identified; for example, individuals high in self-perceived mate value reported more false-positive inferences by others than did individuals lower in mate value.
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## 1. Introduction

Mammalian males and females faced different selection pressures during their evolution. According to Trivers theory of parental investment (Trivers, 1972), the sex with a greater obligatory investment in reproduction, typically the female,

should evolve to be choosy in selecting a mate. The sex with lower obligatory investment, typically the male, should evolve to be less choosy and to be highly competitive for access to members of the high investing sex.

The logic of parental investment theory suggests that for males the fitness costs of missed sexual opportunities will often be greater than the costs of some lost time or effort wasted on unsuccessful courtship (Alcock, 1993). Within a given population, males who miss reproductive opportunities with some regularity will be out-reproduced by males who do not. This is not true for most females. The reproductive variance among females, including human females, is typically far more constrained because of limits imposed by the time and energetic costs of gestation and offspring care (Trivers, 1972). At any point in time, females may receive low to non-existent marginal reproductive benefits of additional mating opportunities because of current pregnancy, lactational amenorrhea, or because they have ready access to another fertile mate (Symons, 1979). Although courtship effort is costly for males, in the currency of differential reproduction these costs will often pale in comparison to the costs of missed mating opportunities.

According to error management theory (EMT; Haselton & Buss, 2000), asymmetries in the recurrent costs of errors in inference can lead to the evolution of biases, even when these biases result in greater rates of inferential error. This principle applies in artifact engineering (Green & Swets, 1966) when, for example, fire alarms are designed with highly sensitive triggers that reduce the likelihood of missed fires. The principle also applies to the design of the body and its immune system, which often overresponds to disease threats (Nesse & Williams, 1998). EMT proposes that the same principle should apply to psychological design. In signal detection contexts in which there is an asymmetry in the reproductive costs of errors, all else equal, a bias should evolve toward making the less costly error (Haselton & Buss, 2000). If males face greater costs of missing sexual opportunities than of pursuing disinterested females, they should be selected to err on the side of pursuit, even if this causes them to make more errors overall.

Experimental evidence suggests that human males may indeed possess this bias. In laboratory experiments (e.g., Abbey, 1982; Saal, Johnson, & Weber, 1989), photographic and video stimuli experiments (e.g., Abbey & Melby, 1986; Shotland & Craig, 1988), and minimal experiments using written scenarios or brief descriptions of dating cues (Haselton & Buss, 2000), researchers have compared men's perceptions of women's sexual intent with women's perceptions of women's sexual intent. Men's estimates of women's sexual intent are consistently higher than are women's. This pattern holds when men's perceptions are compared to women's perceptions of their own sexual intent and when compared to women's perceptions of third-party women's intent (Haselton & Buss, 2000). When women's interpretations of men's behavior have been examined, there has been little evidence of bias (Abbey, 1982; Haselton & Buss, 2000).

A lingering question is whether this mistaken inference in men occurs regularly in the world outside of the laboratory. Evidence from the sole naturalistic survey, conducted by Abbey (1987), provides a provisional answer. In the study, women

and men indicated whether a member of the opposite sex had ever misconstrued their friendly behavior as sexual interest. Significantly more women (72%) than men (60%) reported that a member of the opposite sex had overestimated their sexual interest (Abbey, 1987). Although this study suggested that sexual overperceptions occurred in the natural world and were experienced by more women than men, it remains unclear whether men *systematically* overperceived women's sexual intent. There are two potential alternative explanations for Abbey's finding.

First, based upon evidence that women may be superior to men in decoding nonverbal signals (Hall, 1978), one might infer that a greater number of overperceptions by men simply reflects a greater rate of decoding error in general. Second, based on emerging evidence that women's initial communications of sexual interest are more ambiguous than are men's (Grammer, Kruck, Juette, & Fink, 2000), one might conclude that men make a greater number of erroneous inferences because women's sexual signals are more difficult to decode. In sum, the evidence from Abbey's survey is consistent with several different interpretations.

The current study sought to address the ambiguity of Abbey's results by asking men and women about sexual *overperception* experiences (false alarms) and sexual *underperception* experiences (misses). If men have a false alarm bias, women should report more experiences in which a man overestimated her sexual intent than in which a man underestimated it. Alternatively, if there is no difference in reports of the types of misperceptions women have experienced, the sex difference documented in Abbey's survey (1987) could be a result of poorer mind-reading ability in men than in women or greater ambiguity in women's sexual behavior. A second goal of this study was to examine whether women possess a bias in interpreting men's sexual communications.

A third goal of this study was to obtain several pieces of additional information not obtained in prior studies. Whereas the past study assessed the overall number of sexual overperceptions men and women had ever experienced (Abbey, 1987)—arguably a very heavy burden on memory—this study collected information on the frequency of overperception and underperception experiences within the delimited time period of one year. In addition, this study assessed several potential predictors of the frequency of sexual misperceptions that were not tested previously. These include relationship experience, attractiveness as a mate ("mate value"), and sociosexuality (Simpson & Gangestad, 1991).

Haselton and Buss (2000) proposed that men possess a false alarm bias designed to err on the side of overperceiving women's sexual intent but that women possess no such bias in interpreting men's actions. Consistent with this hypothesis, the following predictions were advanced:

1. The percentage of women who report having at least one past experience in which a man overperceived their sexual intent will be larger than the percentage who report an experience in which a man underperceived their sexual intent.
2. Women will report more instances within the last year in which their sexual intent was overperceived by a man than in which it was underperceived.

3. Differences between men's sexual overperception and underperception experiences should be non-existent or markedly smaller than the differences between women's experiences.

## 2. Method

### 2.1. Participants

Participants were undergraduate students recruited from an introductory psychology course at a large university in Texas. They received partial credit for a course research requirement. The sample consisted of 114 heterosexual men and 102 heterosexual women. The average age of the men was 19.17 ($SD = .92$) and of the women was 19.18 ($SD = 2.45$; $t(211) = -.05$, $p = .98$).

### 2.2. Procedure

In groups of 5–15 same-sex individuals, participants completed questionnaire packets that included a biographical information survey followed by the sexual misperception questionnaire. Participants were assured that their responses would be completely confidential and that any identifying information, such as their name or social security number (which appeared on their consent forms), would be stored separately from their questionnaires. After collecting the consent forms, the researcher distributed large unmarked envelopes along with the questionnaire packet and instructed participants to place their completed questionnaire in the envelope, seal it, and drop it into a box containing other completed questionnaires. The researcher explained that the envelopes would not be opened until the study was completed. The attending researcher was always a member of the same sex as the participants.

### 2.3. Instruments

*Biographical and personality information.* The biographical information form included a series of questions designed to assess participants' mate value. Each item was stated in the following form: "Compared with other women [men] you know who are about your age, *how desirable do men [women] find you as a long-term mate or marriage partner?*" The italicized portion of this question differed across items to assess various aspects of mate value. In addition to desirability as a long-term mate, these items asked (a) "how desirable do men [women] find you a short-term mate or casual sex partner?" (b) "how attractive is your body to men [women]?" (c) "how attractive is your face to men [women]?" (d) what is your present financial status?" (e) "what is your estimated future financial status?" (f) "how high are you in social status at the present time?" (g) "what is your estimated future social status?" and (h) "how sexy would men [women] say you are?" These items were averaged to form a

composite score ($\alpha = .85$).[1] To assess participants' experience in long-term relationships, a variable that could be related to men's and women's ability to accurately convey their intentions to members of the opposite sex, the participants were asked how many ''serious romantic relationships'' they had had in the past. The sociosexuality inventory (SOI; Simpson & Gangestad, 1991), a measure of attitudes and behaviors concerning causal sex, was also included in the biographical questionnaire. A composite score was computed according to the guidelines outlined by Simpson and Gangestad (1991). One item on the SOI asked how often participants sexually fantasized about individuals other than their current relationship partner. Because only about half of the participants were currently involved in relationships, inclusion of this item dramatically reduced the number of participants for whom SOI scores could be computed. For this reason, the item was dropped from the composite score.

*Sexual misperception questionnaire.* The following instructions appeared at the top of the questionnaire:

> Has your behavior ever been misinterpreted by a member of the opposite sex? Please respond to the following items with a YES or NO response as indicated. If you did experience the event in question, please indicate approximately how many times this event happened to you in the last year. If the event has not occurred in the last year, please write in a zero in the blank.

The items included in this instrument were based on Abbey's (1987) sexual misperception study. Abbey used a single misperception item that read as follows:

> Have you ever been friendly to someone of the opposite sex only to discover that she/he had misperceived your friendliness as a sexual come-on; you were just trying to be nice but she/he assumed you were sexually attracted to him/her. (Abbey, 1987, p. 176).

To prevent potential confusion, this item was broken down into the following two items in the questionnaire.
1. Have you ever been friendly to someone of the opposite sex only to discover that he [she] had misperceived your friendliness as a sexual come-on?
2. Have you been ever been in a situation with a member of the opposite sex in which you were just trying to be nice but he [she] assumed you were sexually attracted to him [her]?

To examine sexual underperception experiences (''misses''), the following reversed items were included in the study:

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[1] The items were factor analyzed using the maximum likelihood extraction procedure followed by a varimax rotation. The analysis resulted in a two-factor solution, with the social and financial status items loading on one factor and the remaining five items loading on the other. Because these factors were moderately correlated ($r\ (207) = .45$, $p < .001$), they produced multicollinearity problems in the regression analysis. They were therefore combined to produce a single index of mate value. The zero-order correlations of the two factors with the dependent variables did not differ substantially from one another, further supporting the decision to create a single index.

1. Have you ever attempted to sexually "come-on" to someone of the opposite sex only to discover that he [she] had misperceived your sexual interest as friendliness?
2. Have you been ever been in a situation with a member of the opposite sex in which you were sexually attracted to him [her] but he [she] assumed you were just trying to be nice?

## 3. Results

### 3.1. Sex differences in misinterpretation experiences

Factorial ANOVAs were conducted with sex of subject as a between-subjects factor and type of misperception (false alarm vs. miss) as a within-subjects factor.[2] The results of three-way factorial ANOVAs, in which item version was included as a factor (i.e., false alarm item 1 vs. false alarm item 2 and miss item 1 vs. miss item 2), did not produce any significant interactions involving item version and sex ($ps > .05$), suggesting that the two items would not provide differential support or refutation of the predictions. The two versions of each item were therefore combined to produce composite indices.[3] The categorical response data were combined in the following way: if the participant responded with a *Yes* to either question, his or her response was recorded as a *Yes*, if he or she responded with a *No* to both items the response was recorded as a *No*. The frequency data were averaged across the two versions of the item. There were four resulting dependent measures: (a) combined sexual overperception experiences (Yes vs. No), (b) combined sexual underperception experiences (Yes vs. No), (c) average number of sexual overperception experiences within the last year, and (d) average number of sexual underperception experiences within the last year.

For the categorical response data, there was a significant interaction of sex and type of misperception error ($F(1, 208) = 16.28, p < .001$; see Fig. 1). Simple effects tests showed that more women reported experiencing sexual overperceptions than sexual underperceptions ($F(1, 208) = 34.05, p < .001$). There was not a significant difference between the number of men who experienced these two types of misperception errors ($F(1, 208) = .13, p > .05$). These results confirm predictions 1 and 3.

The identical pattern of results was obtained for the frequency data. There was a significant interaction of sex and type of error ($F(1, 208) = 15.81, p < .001$; see Fig. 2). Simple effects tests showed that women reported being victims of more sexual overperception errors than sexual underperception errors ($F(1, 208) = 45.68, p < .001$).

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[2] Although grouped data are not typically analyzed using ANOVA procedures, the central limit theorem proves that it is appropriate to do so when samples are large enough to produce sampling distributions that are normal, even when the variables themselves are not normally distributed (Tabachnick & Fidell, 1989). The size of the samples used in this analysis far exceeds the minimum requirement for normality of 20 degrees of freedom (Tabachnick & Fidell, 1989).

[3] When analyses were conducted on each item separately, the results did not differ from the results for the combined variables reported herein.
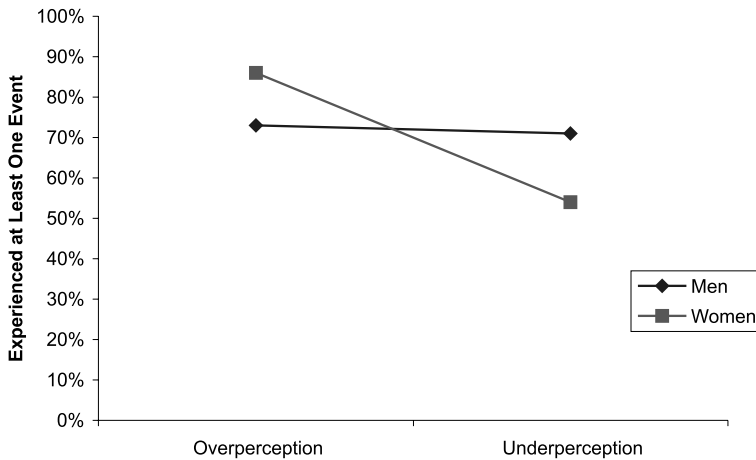
Fig. 1. Percent of respondents reporting that a member of the opposite sex misperceived their sexual intent. Overperception: participant's friendly behavior was construed as evidence of sexual interest. Underperception: participant was sexually interested in perceiver, but his or her sexual intent was construed as mere friendliness.

The difference between these experiences for men was not significant ($F(1, 208) = 2.08, p > .05$). These results confirm predictions 2 and 3.[4]

In summary, the experiences women and men reported are consistent with the hypothesis that men possess a sexual overperception bias, but women do not. More women experienced at least one event in which a member of the opposite sex overestimated their sexual intent than in which a member of the opposite sex underestimated it. The same pattern was not observed for men. Roughly equal numbers of men reported being victims of each type of misperception. The same effects were observed when men and women were asked how many separate misperception errors they experienced in the last year. Women reported being victims of quantitatively more sexual overperception experiences than underperception experiences, whereas there was no difference between these experiences for men.

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[4] Although not central to the specific predictions advanced in this paper, some readers may be interested in the vertical comparisons in Figs. 1 and 2. All sex differences were statistically significant at the .05 level (e.g., difference between men and women in the number of overperceptions in the categorical response data, difference between men and women in the number of underperceptions in the categorical response data, etc.). Some may also be interested in the relationship between reports of sexual overperception and sexual underperception errors. Individuals who reported overperceptions in the categorical responses were more likely to report underperceptions ($r(210) = .28, p < .001$). Likewise, the number of overperception errors reported within the last year was positively associated with the number of underperception errors reported within the last year ($r(210) = .31, p < .001$). These relationships may reflect individual differences in the degree to which people place themselves in courtship contexts in which there is a possibility that their intentions will be misread.
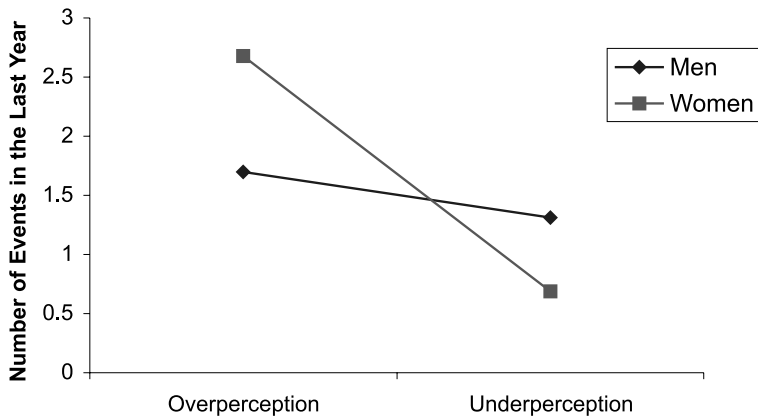
Fig. 2. Number of misperceptions of sexual intent by members of the opposite sex within the last year. Overperception: participant's friendly behavior was construed as evidence of sexual interest. Underperception: participant was sexually interested in perceiver, but his or her sexual intent was construed as mere friendliness.

## 3.2. Predictors of sexual misperceptions

*Dependent variables.* Two misperception variables were constructed for the regression analysis. The first was computed by adding the number of sexual overperception experiences to the number of underperception experiences to produce an index of the overall number of errors experienced within the last year. The second was computed by dividing the number of overperceptions by the total number of misperceptions. This produced an estimate of false alarm bias—the proportion of misinterpretations that were false alarms as opposed to misses. If all of the misperceptions a participant experienced were false alarms, his or her score would be 1. If all of the misperceptions were misses, his or her score would be 0.

Age and relationship experience (number of long-term relationships) were entered first into a hierarchical regression analysis along with the first focal predictor, mate value. Sociosexuality was entered at the next step. Two participants had extreme SOI scores falling within 4 and 5 standard deviations above the mean. To prevent undue influence of these scores, they were converted to scores two standard deviations above the mean. Sex, with males coded −1 and females coded +1, was entered last to see if sex predicted above and beyond within-sex individual differences. The interactions of sex and each predictor were also tested in the regression models. None were significant ($ps > .05$), therefore none of these interaction terms were included in the final regression analysis.

*Predictors of overall error rates.* Table 1 summarizes the results of the first regression analysis. In each step, mate value was a significant or marginally significant predictor of misperceptions. The relationship was positive, suggesting that individuals higher in mate value experienced more misperceptions by members of the opposite sex. SOI was also positively associated with misperceptions. This relationship suggests that individuals oriented toward short-term sexual relationships experienced

Table 1
Summary of hierarchical regression analysis for variables predicting overall number of misperception experiences in the last year ($N = 178$)

| Variable | *B* | *SE B* | Beta | *p* |
|---|---|---|---|---|
| Step 1 | | | | |
| Age | −.17 | .15 | −.09 | .23 |
| Relationship exp | .33 | .21 | .12 | .13 |
| Mate value | .71 | .29 | .19 | .02 |
| Step 2 | | | | |
| Age | −.18 | .14 | −.09 | .22 |
| Relationship exp | .31 | .21 | .11 | .14 |
| Mate value | .59 | .30 | .15 | .05 |
| SOI | .03 | .01 | .14 | .06 |
| Step 3 | | | | |
| Age | −.18 | .14 | −.09 | .21 |
| Relationship exp | .30 | .21 | .11 | .16 |
| Mate value | .54 | .30 | .14 | .08 |
| SOI | .02 | .02 | .16 | .05 |
| Sex | .23 | .30 | .06 | .43 |

*Note.* $R^2 = .07$ for Step 1, $p < .01$; $R^2$ change $= .02$ for Step 2, $p = .06$; $R^2$ change $= .00$ for Step 3, $p > .10$.

more misperceptions than did long-term oriented individuals. Sex did not predict the overall number of misperception experiences.

*Predictors of false alarm bias.* Mate value was a significant positive predictor of false alarm rates at each step in the analysis. This suggests that the relationship of

Table 2
Summary of hierarchical regression analysis for variables predicting false alarm rate ($N = 137$)

| Variable | *B* | *SE B* | Beta | *p* |
|---|---|---|---|---|
| Step 1 | | | | |
| Age | .02 | .02 | .06 | .45 |
| Relationship exp | .03 | .02 | .12 | .14 |
| Mate value | .09 | .03 | .26 | .01 |
| Step 2 | | | | |
| Age | .02 | .02 | .08 | .36 |
| Relationship exp | .03 | .02 | .12 | .15 |
| Mate value | .10 | .03 | .29 | .001 |
| SOI | .00 | .00 | −.14 | .11 |
| Step 3 | | | | |
| Age | .02 | .02 | .08 | .30 |
| Relationship exp | .03 | .02 | .12 | .14 |
| Mate value | .08 | .03 | .22 | .01 |
| SOI | .00 | .00 | −.01 | .92 |
| Sex | .11 | .03 | .32 | .001 |

*Note.* $R^2 = .10$ for Step 1, $p < .01$; $R^2$ change $= .02$ for Step 2, $p > .10$; $R^2$ change $= .09$ for Step 3, $p > .001$.

mate value and number of misperceptions (see above) may be driven by the tendency of high mate value individuals to elicit false alarm errors by members of the opposite sex. SOI was not a significant predictor in the analysis ($ps > .10$). Sex predicted false alarm rates above and beyond all of the individual difference variables ($p < .001$) (see Table 2).

## 4. Discussion

### 4.1. Sex as a predictor of sexual overperception experiences

The results of this study complement results observed in laboratory and experimental designs (e.g., Abbey, 1982; Haselton & Buss, 2000). Women reported more experiences in which men overperceived their sexual interest than in which men underperceived it. In contrast, men's reports of women's overperception and underperception errors did not differ. Sex predicted false alarm rates even after controlling for potentially relevant individual differences, such as relationship experience, mate value, and sociosexuality. Whereas sex predicted false alarm rates, it did not predict the overall number of errors experienced. These results make a new contribution to the literature by showing that (1) evidence of an overperception bias in men is not limited to potentially artificial experiments, (2) in reports of naturally occurring misperceptions there is evidence of a bias in men but not in women, as predicted by the EMT account, and (3) the prior finding that women have experienced more sexual overperceptions than men (Abbey, 1987) cannot be attributed solely to greater ambiguity in women's signaling behavior or to better mind-reading ability in women as compared to men.

### 4.2. Within-sex individual differences in misperception experiences

In this study several individual differences in susceptibility to misperception were documented. First, the sociosexual orientation of the target was related to the overall number of misperceptions experienced, perhaps indicating that short-term sexual strategists frequently put themselves "out on the market," leading to a greater number of opportunities for others to misinterpret their true intentions. Second, mate value was linked to the rate of false alarms. There are several possible interpretations of this effect. One explanation is consistent with the logic of EMT. It is possible that men and women are biased toward overperceiving the sexual interest of high mate value individuals because missing their potential interest was more costly over selective history than was overestimating their interest.

A second possibility is that high mate value individuals are simply "hit on" more often than those lower in mate value. This increased rate of positive behaviors by others could produce a higher rate of false-positive errors as perceived by the targets. However, in order for this possibility to account for the results, the targets of misperceptions would have to infer that the display of interest by the actor was caused by the actor's belief that the target was sexually interested in him or her. Displays of

interest are likely to be contingent upon inferred reciprocal interest to some degree, but many clearly are not. When groups of young men or women boisterously admire an attractive passerby, they are clearly not inferring that the passerby noticed them and found them attractive. Likewise, admiring glances or comments at singles bars do not require their target's notice or interest. In sum, it remains unclear whether the higher base rate of positive behaviors can account for this finding, but it is a possibility that should be borne in mind for future study.

### 4.3. Methodological limitations

*Self-reported misperceptions.* The data in this study were collected via self-report and are therefore subject to problems associated with this method. In terms of self-presentational biases, one might argue that the women in the study wished to present themselves in a favorable light and therefore overreported sexual overperception errors by the opposite sex as compared with sexual underperception errors. If true, one might logically expect the same effect for men who would presumably be biased toward presenting themselves in a positive light as well. However, no evidence of such an effect was observed. Moreover, if the effect of sex were driven by overly positive self-perceptions of women as compared to men, one might also expect the effect of sex to disappear or be dramatically reduced after controlling for self-rated desirability to the opposite sex. Instead, sex remained a relatively strong and significant predictor ($ps < .001$) of false alarm rates regardless of the order in which sex and mate value were entered into the analysis.

*Differential detectability of false-positive and false-negative errors.* If a person is motivated to pursue a target as a potential mate, the inference that the individual is sexually interested will often result in active courtship behaviors, such as direct propositions or sexual advances. An inference error on the part of the perceiver is therefore relatively clear to the target—overt behavior marks the error. The opposing error may be considerably more difficult to detect. It might require probing third-party sources to learn whether the perceiver detected the target's interest or it might require subtler inferences based on the perceiver's behavior. This raises the question of whether participants in this study were as good at estimating false-negative errors as they were at estimating false-positive errors. Importantly, even if more false-negative errors fell below the threshold of detection, tests of the predictions in the study are not necessarily compromised. Unless there is a differential ability in women and men to differentially detect these types of errors, the relative difficulty of false-positive and false-negative error detection should not bias estimates of sex differences.

*Memorial bias.* It is also possible that participants in this study possess memorial biases that caused them to differentially recall certain types of misperceptions. If women, for example, are highly sensitive to sexual overperception events and differentially recall them as a result, then we might logically expect them to report more sexual overperceptions than underperceptions. Although this possibility cannot be ruled out, two facts cast some doubt upon it. First, if memorial bias occurred, the total number of misperceptions recalled within the last year should arguably have been more susceptible to bias than the less memorially taxing categorical judgment

about whether an event had ever occurred or not. However, as Figs. 1 and 2 show, the pattern of results was nearly identical across these two forms of assessment. Second, given the widely documented fact that men have a lower threshold for seeking casual sexual encounters and a greater desire for sexual variety (see Schmitt, Shackelford, Duntley, Tooke, & Buss, 2001; for a recent review) one might logically expect a reverse memorial bias in men such that they differentially recall sexual underperception errors by women. No such effect was observed.

In sum, there are several weaknesses of the current study that are related to its naturalistic character. These weaknesses largely reflect the familiar tradeoff between internal and external validity that researchers face when selecting between controlled experiments and more naturalistic designs. The results in the current study, although subject to some potential methodological problems, nicely complement the results in more controlled laboratory interactions. Strong convergent results obtained using differing methods are unlikely to be attributable to problems that are unshared by those methods. Thus, the laboratory and naturalistic survey methods are cross-validating and mutually supporting of their common conclusions.

### 4.4. Why do men overperceive women's sexual intent?

The collective evidence from experiments and surveys of naturally occurring events suggests that men possess a false-positive bias in interpreting women's sexual interest. This evidence alone, of course, is not sufficient to unambiguously support the EMT explanation. Alternative models include the general oversexualization hypothesis (Abbey, 1982, 1991), the media hypothesis (e.g., Abbey, 1991), and the default model hypothesis (Shotland & Craig, 1988; see Haselton & Buss, 2000 for a summary and evaluation of these models). Some effects predicted by the EMT model, but not directly derivable from alternative models, have been tested and supported (Haselton & Buss, 2000). For example, Haselton and Buss (2000) showed that men do not overperceive their sister's sexual interest in a third-party man.

Further testable predictions from the error management perspective include the following: (1) men's bias should be elicited primarily by women of reproductive age (not preadolescent or postmenopausal women); (2) men's bias should emerge even in cultures not exposed to Western media—as long as there is sufficient ambiguity in the meaning of women's sexual communications, it should be possible to document a false-positive bias in men; (3) similarly, within cultures, it should be possible to document men's bias across different demographic groups, including among men varying in age, ethnicity, and education levels.

### 4.5. Implications of the sexual overperception bias

Recently 13 employees of the Safeway supermarket chain, 12 of them women, filed grievances over the supermarket's "service-with-smile" policy (Curtis, 1998). The employees reported that customers, nearly all of whom were men, misconstrued their obligatory friendliness as sexual interest. One employee reported that the unwanted sexual attention and harassment was so extreme that she was forced to hide

in the back room to avoid customers who repeatedly "hit on" her and followed her to her car. As this incident suggests, sexual overperception by men can lead to sexual harassment and sexual aggression (Abbey, 1991; Abbey, McAuslan, & Ross, 1998; Bondurant & Donat, 1999, but also see Malamuth & Brown, 1994).

An additional implication of men's bias not noted by prior researchers is a problem it presents for men themselves. Buss and Haselton (Buss, 1994; Haselton, 1999) hypothesize that women can benefit from leading some men to believe that they are slightly more sexually interested than they actually are. A man who is motivated to pursue sex with a woman, and who believes she is interested in him, might be more inclined to do her favors, protect her from harm, or might simply give her flattering attention that can increase on-lookers' perceptions of her mate value. Co-evolutionary models suggest that because manipulation is costly, the exploited party (in this case the man) should not tolerate it for long (Krebs & Dawkins, 1984). However, Wiley (1994) has shown that deception can remain evolutionarily stable when the costs of inferential errors differ reliably over time. Senders can continue to successfully deceive receivers because the benefits of a bias to a receiver (e.g., avoiding a "miss") offset the costs of moderate levels of deceivability (Wiley, 1994). In sum, the sexual overperception bias not only leads men to genuinely misperceive women's sexual interest, but it can also set the stage for deceptive manipulation of men by women.

### 4.6. Conclusion

Although there is now a reasonably large experimental literature documenting the sexual overperception effect in United States undergraduates, further research on this topic remains important. This research will help to adjudicate between competing explanations for the purpose of further theoretical development. There are also significant practical implications of this research. Knowledge of the causes and contexts in which sexual miscommunication occurs will aid our understanding of conflict between the sexes, not only by enhancing our understanding of the causes of sexual victimization, as many researchers have persuasively argued, but also by enhancing our understanding of the dynamics of communication when conflicts of interest exist.

### 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 instances. *Psychology of Women Quarterly, 11*, 173–194.

Abbey, A. (1991). Misperception as an antecedent of acquaintance rape: A consequence of ambiguity in communication between men and women. In A. Parrot & L. Bechhofer (Eds.), *Acquaintance rape: The hidden crime* (pp. 96–111). New York: Wiley & Sons.

Abbey, A., McAuslan, P., & Ross, L. T. (1998). Sexual assault perpetration by college men: The role of 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.

Alcock, J. (1993). *Animal behavior: An evolutionary approach* (5th ed.). Sunderland, MA: Basic.

Bondurant, B., & Donat, P. L. (1999). Perceptions of women's sexual interest and acquaintance rape: The role of sexual overperception and affective attitudes. *Psychology of Women Quarterly, 23*, 691–705.

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

Curtis, K. (1998). *Safeway clerks object to smile rule*. Associated Press.

Grammer, K., Kruck, K., Juette, A., & Fink, B. (2000). Non-verbal behavior as courtship signals: The role of control and choice in selecting partners. *Evolution & Human Behavior, 21*, 371–390.

Green, D. M., & Swets, J. A. (1966). *Signal detection and psychophysics*. New York: Wiley.

Hall, J. (1978). Gender effects in decoding non-verbal cues. *Psychological Bulletin, 4*, 845–857.

Haselton, M. G. (1999, June). Sex, lies, and strategic interference: The psychology of deception between the sexes. Human Behavior and Evolution Society Conference, Salt Lake City, Utah.

Haselton, M. G., & Buss, D. M. (2000). Error management theory: A new perspective on biases in cross-sex mind reading. *Journal of Personality and Social Psychology, 78*, 81–91.

Krebs, J. R., & Dawkins, R. (1984). Animal signals: Mind-reading and manipulation. In J. R. Krebs & N. B. Davies (Eds.), *Behavioral ecology: An evolutionary approach* (2nd ed., pp. 380–402). Oxford: Blackwell.

Malamuth, N. M., & Brown, L. M. (1994). Sexually aggressive men's perceptions of women's communications: Testing three explanations. *Journal of Personality and Social Psychology, 67*, 699–712.

Nesse, R. M., & Williams, G. C. (1998). Evolution and the origins of disease. *Scientific American, 11*, 86–93.

Saal, F. E., Johnson, C. B., & Weber, N. (1989). Friendly or sexy? It may depend on whom you ask. *Psychology of Women Quarterly, 13*, 263–276.

Schmitt, D. P., Shackelford, T. K., Duntley, J., Tooke, W., & Buss, D. M. (2001). The desire for sexual variety as a key to understanding basic human mating strategies. *Personal Relationships, 8*, 425–455.

Shotland, R. L., & Craig, J. M. (1988). Can men and women differentiate between friendly and sexually interested behavior? *Social Psychology Quarterly, 51*, 66–73.

Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality & Social Psychology, 60*, 870–883.

Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford.

Tabachnick, B. G., & Fidell, L. S. (1989). *Using multivariate statistics* (2nd ed.). New York: Harper and Row.

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.

Wiley, H. R. (1994). Errors, exaggeration, and deception in animal communication. In L. A. Real (Ed.), *Behavioral mechanisms in evolutionary ecology* (pp. 157–189). Chicago: University of Chicago.