
The Effects of Sex and Temporal Context on Feelings of Romantic Desire: An Experimental Evaluation of Sexual Strategies Theory

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According to evolutionary theories of human mating, people should feel the most romantic desire toward potential mates who possess reproductively adaptive attributes. Across five person-perception experiments involving staged interviews, we found that men's and women's feelings of romantic desire can be manipulated by varying adaptive attributes in a target person. For example, during some interviews, participants were exposed to an experimental confederate exhibiting cues to easy sexual access. Because men's short-term sexual strategy is based on obtaining high numbers of partners, it was predicted that exposure to a target person suggesting easy sexual access would especially intensify men's short-term romantic desires. The authors found evidence that targets who exhibited cues to easy sexual access were rated the most desirable by men in the context of short-term mating. Discussion focused on limitations of the current studies and on the importance of invoking methodological pluralism when testing evolutionary theories of romantic desire.

According to evolutionary perspectives on romantic desire, people tend to prefer mates who possess high reproductive mate value. For example, men tend to desire women who are relatively young and display cues associated with fecundity (Johnston & Franklin, 1993; Singh, 1993). Women tend to desire men who are older and show indications of dominance and high social status (Ellis, 1992). According to sexual strategies theory (Buss & Schmitt, 1993), some aspects of mate value and romantic desire further depend on temporal contexts of human mating. Men, for instance, appear to desire easy

sexual access in short-term sexual partners, whereas relationship exclusivity is desired by men in potential long-term marital partners (Schmitt & Buss, 1996).

Most of the evidence supporting evolutionary perspectives on human desire has relied on self-report surveys, on people's perceptions of what they think men and women romantically prefer. For example, Schmitt and Buss (1996) examined men's and women's perceptions of whether cues to high mate value would be effective at attracting mates. They did not evaluate whether people actually were effective at eliciting romantic desire after displaying cues to high mate value. This may be a serious methodological concern because self-reports of sexuality can suffer from demand characteristics (Andersen & Broffitt, 1988). Moreover, experimental studies on romantic desire have, at times, produced results at odds with commonly reported survey findings (Wiederman & Dubois, 1998). In the current research, we used laboratory experiments to evaluate more rigorously whether romantic desire in humans follows evolutionary-predicted patterns across sex and temporal context.

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Causes of Romantic Desire

According to most social psychologists, the reason we feel romantic desire toward an individual depends on many factors. Our current emotional state, our general disposition toward eroticism and love, and even the physical nature of the room we are in can all play a role in whether we experience romantic feelings for another individual (Berscheid & Walster, 1978; W. A. Fisher, Byrne, White, & Kelley, 1988). Equally important is whether the individual we are exposed to possesses personal characteristics that seem to mesh with our own. For example, we are more likely to be sexually attracted to someone similar to us in interests and values, who complements our motivational needs, and who reciprocates our romantic interest (White & Hatcher, 1984).

According to evolutionary theories of romantic desire (e.g., Kenrick, Sadalla, Groth, & Trost, 1990), people find most appealing those who possess attributes indicative of high mate value. People whose characteristics would have helped with survival and reproduction over evolutionary history are more likely to induce romantic feelings compared with those who possess attributes that hindered differential reproductive success. Evolutionary social psychologists have hypothesized, for example, that facial and bodily symmetry may be viewed as attractive because symmetry has been a relatively reliable indicator of a person's health, fertility, and mate value (Gangestad, Thornhill, & Yeo, 1994). Because mating with fertile individuals led to greater reproductive success in our ancestral past, modern humans now possess sexual desires and affective biases in favor of physically symmetrical and, hence, attractive individuals (Langlois & Roggman, 1990). In essence, according to evolutionary perspectives, our romantic impulses today are to some extent guided by the successful romances of the past.

Evolutionary psychologists do not suggest that people make conscious decisions to be attracted to physically symmetrical individuals because they explicitly realize that attractive people are the most fertile and will likely yield the most children. In fact, most evolved psychological adaptations are probably unconscious (Bock & Cardew, 1997), and it is entirely possible that our evolved mate preferences, much like our evolved taste preferences for salt and fat, actually lead to lower rates of survival and reproduction in contemporary industrialized cultures (Nesse & Williams, 1994). What modern evolutionists contend is that certain desires reside within every person because they historically led to high rates of reproduction, in the environment known as the Pleistocene when humans lived as small nomadic bands of hunters and gatherers (Foley, 1996; Tooby & Cosmides, 1992). Over millions of years of Darwinian evolution, preferences such as those for physical symmetry may

have been sculpted into the sexual psychology of human nature (Buss & Schmitt, 1993).

Today, these residual adaptive desires may continue to influence feelings of romantic desire in humans. They may relentlessly sway us toward some people and away from others due to an ancient modular architecture of the mind (Buss, 1999). As a result, when presented with a potential mate who possesses the key adaptive attributes that led to reproductive success when humans lived as foragers, our evolved desires may now activate the human romantic attraction system (H. Fisher, 1998). Regardless of whether we currently use birth control, have a homosexual orientation, or have no interest in children, these evolved adaptive desires seem to exert an unbidden influence on our mating behavior and romantic emotions (Bailey, Gaulin, Agyei, & Gladue, 1994). Thus, when people are evaluating potential mates and are exposed to physically symmetrical others, their mate preference module for physical attractiveness may kick in and create a romantic allure toward that person.

Romantic Desire Specificity

Humans may possess many mating desires such as those involving physical symmetry, each having been designed by natural selection to increase feelings of romantic attraction in reproductively valuable ways. For example, some mate preferences increase feelings of desire experienced by one sex. In men, there appears to be an evolved preference for romantic partners who are relatively young (Kenrick & Keefe, 1992). Evolutionists explain that because younger women, but not younger men, tended to have higher fertility in our ancestral past, an evolved mate preference for women who are relatively young was sculpted into men's sexual psychology. As a result, modern men generally experience more feelings of romantic desire toward younger women than older women (Buss, 1989).

A wide array of evidence confirms that this romantic desire exists only in the specific context of male mating psychology. For example, in representative samples of the U.S. population (e.g., Sprecher, Sullivan, & Hatfield, 1994), in studies of individuals across the life span (Kenrick & Keefe, 1992), across dozens of cultural surveys from around the globe (Buss, 1989), and as evidenced in actual marital choices from public records (Buss, 1999), this evolved desire has been shown to exist only in men and to exert a strong impact on romantic attraction, partner choice, and subsequent mating dynamics primarily through men (Botwin, Buss, & Shackelford, 1997).

Indeed, most studies suggest that women prefer men who are relatively older (Kenrick & Keefe, 1992). This age preference may be the result of an evolutionary past

in which male mate value, being strongly tied to a man's social status, historically increased with age. Because women were more reproductively successful in our ancestral past when mating with high-status males, evolutionists expect women around the globe to feel romantically attracted, on average, toward relatively older men. In fact, cultures invariably display this sex-specific pattern of romantic partner age preference (Buss, 1989). Thus, multiple empirical studies, using pluralistic data sources and diverse research methods, have provided compelling evidence that our evolved psychological adaptations are, in certain ways, sex specific (Geary, 1998; see Kasser & Sharma, 1999, for an alternative perspective).

According to sexual strategies theory (Buss & Schmitt, 1993), some mate preference adaptations are specific to each sex and further depend on temporal context. Considerable evidence suggests that people express fundamentally different romantic desires when they seek mates for short-term sexual affairs compared with long-term marital partnerships (Kenrick et al., 1990; Regan, 1998). For example, men seem to prefer easy sexual access when considering a short-term mating relationship (Oliver & Sedikides, 1992; Regan & Berscheid, 1997; Sprecher, McKinney, & Orbuch, 1991). At the same time, men do not prefer long-term mates who are easily sexually accessible, and women prefer neither short-term nor long-term mates who provide quick sexual access. Apparently, an evolved desire for easy sexual access is inherent only to men's short-term sexual psychology.

From a functional perspective, this specific mate preference adaptation may have been carved into men's short-term sexual psychology because short-term seeking men historically increased their reproductive success primarily via high numbers of sexual partners (Schmitt, Shackelford, Duntley, Tooke, & Buss, in press; Symons, 1979). Pursuing women who were easily accessible would have helped men obtain the high numbers of partners necessary for a successful short-term mating strategy. More than likely, those men who pursued sexually inaccessible short-term mates left far fewer children behind than those who preferred easily accessible short-term mates. Thus, when modern men consider a short-term sexual mateship, a psychological adaptation for preferring easy sexual access may become activated (Schmitt & Buss, 1996) and feelings of short-term romantic desire are likely induced in men by the presence of sexually accessible women (Malamuth, 1996).

In contrast, men and women express a strong desire for relationship exclusivity in potential long-term mates (O'Sullivan, 1995; Sprecher, Regan, McKinney, Maxwell, & Wazienski, 1997). People generally prefer marital

partners who will be faithful to them, committed to them, and not engage in adulterous affairs. According to evolutionary psychologists, each sex has a separate history of Darwinian selection that culminated in the long-term mate preference for relationship exclusivity (Buss, Larsen, Westen, & Semmelroth, 1992). For ancestral men in the context of long-term mating, the issue of paternity uncertainty was paramount. Although women have always been 100% certain that any child they give birth to is genetically their own, men have never enjoyed full paternity confidence. Consequently, men who were overconfident in their paternity throughout our ancestral past and who spent valuable energy and resources raising other men's children as their own ultimately had much lower reproductive success than those men who were relatively concerned about biological paternity. Thus, the male preference for relationship exclusivity and the feelings of sexual jealousy that result from perceived violations of this preference may have come to be embedded within men's long-term mating psychology because it functionally increased men's likelihood of paternity (Buss et al., 1992).

Ancestral women, in contrast, confronted the sex-specific dilemma of large obligatory investments in offspring, including placentation, childbirth, and lactation (Trivers, 1972). Because human females, like all other mammalian females, invested much more than males in offspring, and because the investment needed to raise human children to maturity was very large relative to other species (Low, 1998), when ancestral women formed long-term relationships with men who were emotionally and resourcefully committed to the relationship they likely enjoyed much higher reproductive success. Thus, the female preference for relationship exclusivity may have resulted from the female need for continued and singular paternal involvement, with relationship exclusivity historically serving as a cue to paternal investment and emotional dependability (Buss et al., 1992).

The specificity of these mate preference adaptations along with other lines of research and theory (e.g., Bailey et al., 1994) provide a compelling rationale for thinking that humans have a psychology of romantic desire that is sex specific and sensitive to temporal context. Men especially desire cues that suggest easy sexual access when considering a short-term mating experience. In contrast, men and women seeking long-term mates desire cues that signal relationship exclusivity. Natural selection seems to have left humans with a psychology that is largely domain specific (DeKay & Buss, 1992) and a romantic desire system that is acutely sensitive to the specific attributes that would have helped our

ancestors survive and reproduce most successfully (Schmitt & Buss, 1996).

Demonstrating the Effects of Romantic Desire Specificity

One of the reasons why the specificity of mate preference adaptations is of interest to social psychologists is because the same evolved mechanisms that generate romantic desire also have profound effects on the quality and dynamics of mating relationships (Botwin et al., 1997). For example, according to the logic of sexual selection theory (Darwin, 1871), evolved mate preferences should have a direct impact on the physical and behavioral tactics used by each species to attract, obtain, and retain mating partners. Among peacocks, for instance, female peahens choose to mate only with those males who fulfill their evolved desires for feathers with multiple eyespots, and male peacocks have responded by physically evolving elaborate eye-spotted trains and behavioral feather displays that are incredibly costly to produce and maintain (Alcock, 1993; Cronin, 1993).

Among humans, because people prefer mating with partners who are physically symmetrical and hence attractive, evolutionists predict and social psychologists often observe that people feel more sexual desire when exposed to physically symmetrical individuals (Gangestad et al., 1994) even when exposed to just their scent (Gangestad & Thornhill, 1997); that people go to great lengths to compete with one another over appearing physically attractive (Clark, Shaver, & Abrahams, 1999); and that attractiveness is intimately tied to mate guarding, retention, and divorce (Buss, 1999).

Combining the theoretical lenses of sexual selection theory and sexual strategies theory, Schmitt and Buss (1996) hypothesized and confirmed that the perceived effectiveness of the romantic attraction tactics that people use in intrasexual competition is influenced by sex-specific and temporal context-specific preference adaptations. For example, women were considered especially attractive as short-term mates when they displayed cues to easy sexual access—such as openly flirting with men, dressing seductively, touching men provocatively, and directly asking men for sex. Because this tactic directly fulfills men's short-term desire for easy sexual access, it was viewed as specifically effective for short-term-seeking women to strategically employ. In contrast, when this same behavior was performed by women seeking long-term mates, people thought it would not arouse romantic attraction in men looking for a long-term mating partner. Moreover, when men used easy sexual access tactics to attract women for short-term or long-term relationships, people felt men were not the least bit enticing to the average woman. Schmitt and Buss concluded that

the effectiveness of human romantic attraction tactics was, as with all other sexually reproducing species, at least partially guided by the evolved preference psychology inherent to each sex and to each type of mating context.

Most of the evidence supporting this evolutionary perspective on human romantic desire has thus far relied heavily on people's conscious, reflective perceptions of what they think is attractive. For example, Schmitt and Buss (1996) examined men's and women's self-reports of what they thought would be effective at attracting mates. They did not evaluate whether people actually were effective in using context-specific and preference-related tactics of attraction. This is a serious methodological concern because self-reports of sexual desire and romantic attraction are susceptible to several assessment biases, including demand characteristics (Andersen & Broffitt, 1988). Moreover, experimental studies on romantic desire using methods other than self-report have, at times, come up with different results than survey studies that relied solely on self-report (Wiederman & Dubois, 1998). Although a few experimental studies have been conducted on sex differences in romantic desire being linked to evolved mate preference psychology (e.g., Kenrick, Neuberg, Zierk, & Krones, 1994; Townsend & Wasserman, 1998), no single study has yet demonstrated that men and women actually feel more desire toward potential mates if they possess the sex-specific and temporal context-specific attributes outlined by sexual strategies theory (Buss & Schmitt, 1993). The most relevant question for evaluating an evolutionary perspective on human mating—whether adaptive attributes can directly influence feelings of romantic desire—remains unanswered.

In the current set of studies, we attempted to document in five person-perception experiments that feelings of romantic desire can be systematically manipulated by the presence of someone with a context-specific adaptive characteristic. Moreover, we sought to demonstrate that romantic desire can be effected without explicitly communicating to participants the precise nature of the experimental manipulation. It was generally thought that the attributes most effective at influencing romantic desire would be those specifically linked to the evolved mate preference adaptations of men and women, adaptations designed by natural selection to function in short-term and long-term mating contexts. Our two formal hypotheses were as follows:

Hypothesis 1: Because men prefer easy sexual access in potential short-term mating partners (Buss & Schmitt, 1993; Schmitt & Buss, 1996), observing cues to easy sexual access should positively influence feelings of short-term romantic desire in men more than in women.

Hypothesis 2: Because men and women prefer relationship exclusivity in potential long-term mating partners (Buss & Schmitt, 1993; Schmitt & Buss, 1996), observing cues to relationship exclusivity should positively influence feelings of long-term romantic desire in both men and women.

EXPERIMENT 1: TRANSCRIPT INTERVIEWS AND ROMANTIC DESIRABILITY

Method

Sample. In Experiment 1, 206 college students (88 men, 118 women) currently enrolled in introductory psychology courses at a medium-sized private university in Illinois participated for extra credit. These were primarily Caucasian, middle-class, 18- to 24-year-olds.

Procedure. As part of a cover story, each participant was asked to form some personality impressions about a target person of the opposite sex based on a written transcript of an interview conducted with the target person. Participants were randomly assigned to receive one of three different versions of the interview transcript. Each version of the transcript contained a list of nine questions ostensibly asked by an experimenter and nine specific answers supposedly given by the target person. The questions concerned the target's family, favorite foods, and other purposefully innocuous items that were identical across the three transcript versions (see the appendix).

The first transcript version contained just 9 questions and answers and served as the control condition. The other two versions contained a 10th question: "How would you describe your previous dating experiences?" The two experimental responses to that question were designed to signal to the participant that the target person either provided easy sexual access or tended toward relationship exclusivity. The response in the easy sexual access experimental condition was, "Well, I've dated a few times. I'm kind of a flirt really. Lately, though, my dates have been calling me too much, you know what I mean; especially the 'night after.'" In the relationship exclusivity experimental condition, the target person answered, "Well, I've dated a few times. I don't like to waste time on dates, though, unless it's with someone interested in the same thing I am—a long-term, exclusive relationship."

The dependent variables in Experiment 1 were the participants' ratings on a subsequent questionnaire of how desirable they personally felt the target person was as a long-term mate and then separately as a short-term mate. These ratings were on Likert-type scales ranging from 1 (*not at all desirable*) to 9 (*extremely desirable*). The dependent variable scales were counterbalanced and

came first in a list of several personality and demographic rating scales, including a description of the participants' current relationship status. All questions were presented as part of the personality impressions cover story.

Design and analysis. The overall design was a $2 \times 3 \times 2$ mixed ANOVA, with sex of participant (male and female) and experimental condition (easy sexual access, relationship exclusivity, and the control condition) as between-subjects factors and the temporal context of romantic feelings (long-term desire and short-term desire) as a within-subjects factor.

To test directly Hypothesis 1, the following analysis plan was used. First, the 2×2 interaction of sex (male versus female) and two experimental conditions (easy sexual access versus relationship exclusivity) on short-term desire was examined. Next, we tested the simple effects of these experimental conditions on short-term desire within each sex. Based on Hypothesis 1, we predicted a significant interaction between sex and experimental condition, a significant effect of experimental condition on short-term desire within men, and no effect of experimental condition on short-term desire within women. Thus, we expected the interaction of sex and experimental condition to be driven primarily by men's heightened short-term desire in the easy sexual access condition.

An additional test of Hypothesis 1 came from examining the 2×2 interaction of sex and the experimental conditions of easy sexual access and control on short-term desire. Again, we then tested the simple effects of experimental condition on short-term desire within each sex. From Hypothesis 1, we predicted a significant interaction between sex and experimental condition, a significant effect of experimental condition on short-term desire within men, and no effect of experimental condition on short-term desire within women.

A similar set of analyses was used to directly test Hypothesis 2. First, the main effect of experimental condition (easy sexual access vs. relationship exclusivity) on long-term desire was examined. Next, we tested the simple effects of these two experimental conditions on long-term desire within each sex. According to Hypothesis 2, we predicted a significant main effect of experimental condition on long-term desire overall, a significant effect of experimental condition on long-term desire within men, and a significant effect of experimental condition on long-term desire within women. A second set of tests of Hypothesis 2 came from examining the main effect of the experimental conditions relationship exclusivity and control on long-term desire. Again, we then tested the simple effects of experimental condition on long-term desire within each sex. From Hypothesis 2, we predicted

a significant main effect of experimental condition on long-term desire overall and simple within-sex effects for both men and women.

Normally, omnibus hypothesis tests are conducted before looking at more specific contrasts in factorial experimental designs. However, because our analysis plan involved a priori planned comparisons, there was no need to test for overall effects, nor was there a need to control for family-wise error rates, as would be the case with post hoc specified contrasts (Rosenthal & Rosnow, 1991).

Results and Discussion

Men's and women's ratings of romantic desire from Experiment 1 are listed in Table 1. Although not explicitly predicted, men expressed greater overall short-term romantic desire than women, $t(204) = 3.83, p < .001$, and greater overall long-term romantic desire than women, $t(204) = 2.76, p < .01$. One possible explanation for this finding is that the women in our sample were already in mating relationships. However, all analyses comparing those who were currently in romantic relationships with those who were unattached revealed no significant differences. Across men and women, those who were already in relationships displayed slightly higher, although insignificant, levels of romantic desire toward target individuals across all contexts. The greater interest of men than women in the target persons likely resulted from the tendency for men to express a greater desire for sexual relationships than do women (Schmitt & Buss, 2000).

It should be noted that the mean level of desirability was rather low across all rating contexts. Only men's short-term desires in the easy sexual access condition ($M = 4.62$) and men's long-term desires in the relationship exclusivity condition ($M = 4.74$) approached the midpoint of the romantic desirability scale. However, this pattern of findings is not uncommon in documenting the romantic effects of relatively unknown individuals (e.g., Kenrick et al., 1994). Strangers are normally relatively unappealing, even when photographs are presented in addition to written descriptions of their behavior (Gutierrez, Kenrick, & Partch, 1999). Importantly, the focus of the current study was to test for patterns of desirability across the key factors of sex, temporal context, and experimental condition. Thus, enough systematic variability appeared to exist among the experimental factors to meaningfully test Hypotheses 1 and 2 from sexual strategies theory (Buss & Schmitt, 1993).

Tests of Hypothesis 1. According to Hypothesis 1, men's feelings of romantic desire should be positively influenced in the context of short-term mating by exposure

to a target person who suggests easy sexual access. Therefore, a significant overall interaction was predicted between sex and the experimental conditions of easy sexual access and relationship exclusivity on feelings of short-term romantic desire. This interaction effect was significant, $F(1, 200) = 4.01, p < .05$, supporting Hypothesis 1. A further test of Hypothesis 1 was that men's ratings of short-term desirability in the easy sexual access condition should be higher than men's ratings of short-term desirability in the relationship exclusivity condition. This simple within-sex effect was highly significant, $F(1, 200) = 8.11, p < .001$. Finally, women's short-term romantic desire was expected to be unaffected by experimental condition. As predicted, the short-term desires of women in the easy sexual access condition compared with the relationship exclusivity condition were not significantly different. Thus, the interaction of sex and experimental condition appeared to be driven primarily by men's heightened short-term desire in the easy sexual access condition.

A further test of Hypothesis 1 came from examining the interaction between sex and the experimental conditions of easy sexual access and control on feelings of short-term romantic desire. This interaction effect was highly significant, $F(1, 200) = 8.80, p < .001$, supporting Hypothesis 1. A further test of Hypothesis 1 was that men's ratings of short-term desirability in the easy sexual access condition should be higher than men's ratings of short-term desirability in the control condition. This simple within-sex effect of experimental condition was highly significant, $F(1, 200) = 8.61, p < .001$. Finally, women's short-term romantic desire was expected to be unaffected by experimental condition. As predicted, the short-term desires of women in the easy sexual access condition were not significantly different from the control condition. The interaction of sex and experimental condition was, once again, primarily driven by an increase in men's short-term desire when exposed to easy sexual accessibility. Overall, the predictions from Hypothesis 1 were strongly supported. Empirically, we uncovered new experimental evidence in favor of the larger hypothesis that men possess an evolved mate preference for sexually accessible women in the context of short-term mating.

Tests of Hypothesis 2. Based on Hypothesis 2, we predicted a main effect of experimental condition (easy sexual access vs. relationship exclusivity) on long-term desire. This main effect was highly significant, $F(1, 200) = 52.14, p < .001$, supporting Hypothesis 2. Next, we tested the effect of experimental condition on long-term desire within each sex. In support of Hypothesis 2, we found significant simple effects of experimental condition among

men, $F(1, 200) = 17.46, p < .001$, and women, $F(1, 200) = 36.52, p < .001$. A second set of tests of Hypothesis 2 came from examining the main effect of experimental condition (relationship exclusivity vs. control) on long-term desire. Again, we found a significant main effect of experimental condition in long-term desire, $F(1, 200) = 6.70, p < .05$. The corresponding simple effect was significant within men, $F(1, 200) = 7.23, p < .01$, but not among women. Overall, the predictions from Hypothesis 2 were largely supported. Only the comparison of long-term desire between women in the relationship exclusivity and women in the control condition did not display the predicted pattern of desire.

In sum, Hypotheses 1 and 2 from sexual strategies theory received significant empirical support from Experiment 1. Exposure to easy sexual access had the most positive impact on men's short-term desires; exposure to relationship exclusivity had the most impact on long-term romantic desire. Although in both cases the romantic desirability was low on the rating scale, this is typical when participants rate their personal attraction toward an unknown target person (Gutierrez et al., 1999). We feel the key finding to be taken away from this experiment is that the distribution of romantic desire largely followed the evolutionary-predicted pattern across the sexes, temporal contexts, and experimental conditions. In Experiment 2, we examined whether we could replicate these findings and manipulate context-specific feelings of romantic desire when participants conducted live interviews with target persons possessing these key adaptive attributes of human mating.

EXPERIMENT 2: LABORATORY INTERVIEWS AND ROMANTIC DESIRABILITY

Method

Sample. In Experiment 2, 52 college students (25 men, 27 women) currently enrolled in introductory psychology courses at a private university in Illinois participated for extra credit. These were mainly 18- to 24-year-olds, none of whom took part in the previous study.

Procedure. The design of Experiment 2 mirrored Experiment 1, except that each participant was asked to form some personality impressions about a target person based upon an actual laboratory interview that they conducted with the target person (the target was always an experimental confederate of the opposite sex). Our procedure had the participant first arrive at the laboratory at a prearranged time and meet the experimenter in a designated psychology interview room. Then, the experimental confederate would ostensibly arrive a little late and act as the other participant in a two-person personality impressions study. The 2 participants were next

presented with a random draw of slips from a bowl to see who would take part as the interviewer and who would be the interviewee (actually both slips of paper read *interviewer* but the confederate always announced that their slip read *interviewee*). Thus, the participants were led to believe that they could have been the person interviewed but were always the one to ask the experimental confederate our set list of questions.

The participants were instructed to ask the interviewee a scripted list of questions from a sheet that we provided. The experimenter then left the room, the participants asked the questions from the sheet, and the confederate provided a standard set of memorized responses (see the appendix). As with Experiment 1, the independent variables were sex of participant and whether the confederate answered the final interview question with an easy sexual access or relationship exclusivity response. The type of response given to each participant was determined before each session. Experiment 2 had no control condition. We used three confederates of each sex and made sure to distribute them evenly across both levels of the experimental condition factor. We tried to use only confederates of average attractiveness (as independently judged by three experimenters). We also held training sessions to standardize the recitation of the scripted responses given by the confederates.

The dependent variables in Experiment 2 were the participants' ratings of how desirable they personally felt the target person was as a long-term mate and as a short-term mate. All scales mirrored those of Experiment 1 and were completed by participants after they and the confederates were independently escorted to private psychological assessment rooms. All participants were then thoroughly debriefed and were fully informed of the deception used in the study. Each participant was further asked to complete poststudy questionnaires concerning his or her knowledge about and comfort with the use of deception. Few participants suspected deception, and no participant reported knowing the precise purpose of the experiment.

Results and Discussion

Men's and women's ratings of romantic desire from Experiment 2 are listed in Table 1. As with Experiment 1, men generally expressed greater short-term romantic desire than did women, $t(50) = 3.97, p < .001$. Unlike Experiment 1, men's long-term desire was not significantly different from women's, although the difference approached marginal significance, $t(50) = 1.64, p < .11$. The mean level of romantic desirability appeared slightly higher in Experiment 2 overall, with the exception of women's short-term romantic desires. Detailed statistical analyses across sex, temporal context, and

TABLE 1: Sex and Temporal Context Effects on Feelings of Romantic Desire in Experiments 1 and 2

Temporal Context	<i>Easy Sexual Access</i>			<i>Experimental Condition</i>			<i>Control</i>		
	M	SD	n	M	SD	n	M	SD	n
Experiment 1									
Short-term context									
Men's feelings of desire	4.62	2.40	26	3.48	1.65	27	3.51	1.88	35
Women's feelings of desire	2.57	2.30	30	2.52	1.62	33	2.95	1.99	55
Long-term context									
Men's feelings of desire	3.08	1.35	26	4.74	1.38	27	3.74	1.42	35
Women's feelings of desire	1.70	1.06	30	3.91	1.70	33	3.58	1.74	55
Experiment 2									
Short-term context									
Men's feelings of desire	5.42	2.28	12	4.38	2.29	13			
Women's feelings of desire	2.84	1.99	13	2.43	1.60	14			
Long-term context									
Men's feelings of desire	4.17	1.64	12	5.23	2.05	13			
Women's feelings of desire	2.69	1.55	13	4.86	1.96	14			

NOTE: Ratings were made on a Likert-type scale ranging from 1 (*not at all desirable*) to 9 (*extremely desirable*). Temporal context was a within-subjects variable. Sex and experimental condition were between-subjects variables.

experimental condition comparing romantic desire differences between experiments are available from the authors. To test Hypotheses 1 and 2, we followed the same analysis plan used in Experiment 1.

Tests of Hypothesis 1. An interaction was predicted between sex and experimental condition (easy sexual access vs. relationship exclusivity) on feelings of short-term romantic desire. This interaction effect was not significant, $F(1, 48) = 0.56$, a predictive failure for Hypothesis 1. However, the simple within-sex effect of experimental condition in men was marginally significant, $F(1, 48) = 3.05$, $p < .10$. In addition, women's short-term romantic desire was expected to be unaffected by experimental condition. As predicted, the short-term desires of women in the easy sexual access condition compared with the relationship exclusivity condition were not significantly different.

Tests of Hypothesis 2. We predicted a main effect of experimental condition (easy sexual access vs. relationship exclusivity) on long-term romantic desire. This effect was highly significant, $F(1, 48) = 15.50$, $p < .001$, supporting Hypothesis 2. We also tested the effect of experimental condition on long-term desire within each sex. In support of Hypothesis 2, we found a marginally significant simple effect of experimental condition among men, $F(1, 48) = 3.24$, $p < .10$, and highly significant effect of experimental condition among women, $F(1, 48) = 14.50$, $p < .001$.

In sum, Hypotheses 1 and 2 from sexual strategies theory received only some empirical support from Experiment 2. Exposure to easy sexual access in a laboratory

interview had a marginal impact on men's short-term desires, and exposure to relationship exclusivity had a marginally positive impact on men's long-term romantic desires. For women, exposure to easy sexual access in a laboratory interview had no impact on their short-term desires, whereas exposure to relationship exclusivity had a significantly positive impact on feelings of long-term romantic desire.

Across Experiments 1 and 2, we found preliminary evidence that manipulating exposure to key adaptive attributes can have an impact on feelings of romantic desirability. However, the specific cues used in these experiments may have contained confounding information. The cue to easy sexual access, with the expression "my dates have been calling me too much," may have been interpreted as indicating the confederates lacked concern for their short-term partners, in addition to the fact that they provide easy sexual access. Furthermore, specific expressions within each cue may have drawn more attention than other aspects of the cue. The cue to relationship exclusivity included the phrase "I don't like to waste time on my dates." This may have preoccupied the male participants and suggested to them that the female confederate likes to move her dates along. Such an interpretation would have increased men's short-term desires in that condition and lessened the simple effect of experimental condition on men's reports of short-term desirability.

Ultimately, the findings from Experiments 1 and 2 need to be replicated in other samples using cues to the specialized adaptive attributes of easy sexual access and

TABLE 2: Explicit Interpretations of Different Cues to Easy Sexual Access and Relationship Exclusivity

Interpretation Rating Scales	Experimental Cues									
	Experiments 1 and 2					Experiments 4 and 5				
	Easy Sexual Access (n = 16)		Relationship Exclusivity (n = 16)			Easy Sexual Access (n = 16)		Relationship Exclusivity (n = 15)		
	M	SD	M	SD	t	M	SD	M	SD	t
Is easy to get into bed	7.13	1.15	2.88	1.50	9.00***	7.00	1.46	2.27	1.28	9.57***
Is emotionally distant	6.56	0.73	3.81	2.20	4.75***	2.06	0.85	2.47	1.77	-0.82
Shows a lack of caring	7.06	0.93	3.88	2.22	5.30***	2.88	1.36	2.73	2.22	0.22
Is sexually faithful	2.75	1.34	7.44	1.59	-9.01***	5.44	1.32	7.47	1.64	-3.81***

NOTE: Ratings were made on a 9-point scale, ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). Interpretation ratings were within subjects; experimental cues were between subjects.

*** $p < .001$.

relationship exclusivity that are not confounded with a lack of concern or contain attention-diverting phrases. In Experiment 3, we sought to document whether the specific cues used in Experiments 1 and 2 were being interpreted as containing information beyond the targeted adaptive attributes and whether a new set of cues could be shown to not possess the critical confounding information.

EXPERIMENT 3: EXPLICIT INTERPRETATIONS OF CUES TO KEY ADAPTIVE ATTRIBUTES

Method

Sample. In Experiment 3, 63 college students (29 men, 34 women) currently enrolled in experimental psychology and introductory statistics courses at a medium-sized private university in Illinois participated for extra credit. None of the participants had taken part in previous studies.

Procedure. As part of a cover story, each participant was asked to form some personality impressions about a target person of the opposite sex based on a written transcript of an interview conducted with the target person. Participants were randomly assigned to receive one of four different versions of the transcript. Each version contained one question ostensibly asked by an experimenter and the answer supposedly given by the target person. The question was "How would you describe your previous dating experiences?"

Two of the experimental responses to that question were designed to signal to the participant that the target person provided easy sexual access and two were designed to signal that the target person tended toward relationship exclusivity. The first response meant to indicate easy sexual access came from Experiments 1 and 2. Seven men and 9 women received this version of the transcript. The second response was meant to indicate

easy sexual access but was also designed to indicate that the target was not emotionally distant or lacked caring: "Well, I like to date a lot. I really care deeply about all kinds of people. And on my dates I usually become romantically involved fairly quickly, and fairly often." Eight men and 8 women received this version of the transcript.

The first response indicating relationship exclusivity came from Experiments 1 and 2. Seven men and 9 women received this version of the transcript. The second response was meant to indicate relationship exclusivity but was further designed to not contain any expressions that could distract participants from comprehending the full cue: "Well, I like to go out on dates, but only serious ones. I date because I'm interested in finding someone who will be committed to me over the long haul. Basically, I'm looking to find my one true love." Seven men and 8 women received this version of the transcript.

The dependent variables in Experiment 3 were the participants' responses on four subsequent rating scales of whether they agreed that the dating experience response they read about indicated certain features of the target person's personality. All scales were coded so that participants rated a target person of the opposite sex. Thus, for female participants, the first rating scale asked, "He is easy to get into bed?" The second rating scale asked, "He is emotionally distant from others?" The third rating scale asked, "He shows a lack of caring?" The fourth rating scale asked, "He is sexually faithful?" All ratings were completed using Likert-type scales ranging from 1 (*strongly disagree*) to 9 (*strongly agree*), with 5 as a neutral point.

Results and Discussion

Men's and women's interpretations of the meaning of the cues overall and within each cue did not differ significantly. Consequently, all statistics are reported collaps-

TABLE 3: Sex and Temporal Context Effects on Feelings of Romantic Desire in Experiments 4 and 5

Temporal Context	Experimental Condition								
	Easy Sexual Access			Relationship Exclusivity			Control		
	M	SD	n	M	SD	n	M	SD	n
Experiment 4									
Short-term context									
Men's feelings of desire	5.44	2.04	18	3.37	1.67	19	3.56	1.85	18
Women's feelings of desire	3.71	2.08	21	3.14	1.85	21	3.18	1.56	22
Long-term context									
Men's feelings of desire	3.28	1.71	18	5.11	2.07	19	4.33	1.68	18
Women's feelings of desire	2.81	1.50	21	4.95	2.16	21	4.32	1.86	22
Experiment 5									
Short-term context									
Men's feelings of desire	5.71	1.94	14	4.13	1.69	15			
Women's feelings of desire	4.37	1.67	19	4.26	1.52	19			
Long-term context									
Men's feelings of desire	3.87	1.75	14	5.67	1.92	15			
Women's feelings of desire	3.79	1.58	19	5.21	1.81	19			

NOTE: Ratings were made on a Likert-type scale ranging from 1 (*not at all desirable*) to 9 (*extremely desirable*). Temporal context was a within-subjects variable. Sex and experimental condition were between-subjects variables.

ing across sex of participant. The interpretations of each of the cues to adaptive attributes are summarized in Table 2. As seen down the left side of Table 2, the 16 participants who were asked to interpret the cue to easy sexual access used in Experiments 1 and 2 felt that it indicated the target was easier to get into bed than did the 16 participants who were exposed to the cue to relationship exclusivity. When viewed as a manipulation check, this validated the use of the easy sexual access cue in Experiments 1 and 2. However, the cue to easy sexual access was also interpreted as indicating the target was emotionally distant and showed a lack of caring compared with the relationship exclusivity cue. Finally, the cue to relationship exclusivity used in Experiments 1 and 2 was interpreted as indicating sexual faithfulness more than the easy sexual access cue, again a supportive manipulation check.

As seen down the right side of Table 2, 16 participants rated the new cue to easy sexual access and 15 participants rated the new cue to relationship exclusivity. It was anticipated that these new cues might overcome the corrupting confounds displayed by the original cues. As expected, the new cues did show differences in easier to into bed and sexual faithfulness but did not suffer from the confound of emotional distance and lack of caring differences. However, the new easy sexual access cue ($M = 5.44$) significantly differed from the old easy sexual access cue ($M = 2.75$) in terms of indicating sexual faithfulness, $t(30) = -5.72$, $p < .001$, which is a point to be addressed later. Overall, the results from Experiment 3 provided an opportunity to test Hypotheses 1 and 2 with a new set of largely unconfounded experimental manipulations. Experiments 4 and 5 were conducted to exam-

ine whether the results from the original experiments were replicable in new samples using a new set of cues to the key adaptive attributes of easy sexual access and relationship exclusivity.

EXPERIMENT 4: TRANSCRIPT INTERVIEWS AND ROMANTIC DESIRABILITY REPLICATION

Method

Sample. In Experiment 4, 120 college students (55 men, 65 women) currently enrolled in human sexuality courses at a medium-sized private university in Illinois participated for extra credit. These were primarily 20- to 25-year-olds, none of whom took part in previous studies.

Procedure, design, and analysis. The procedures followed in Experiment 4 mirrored those of Experiment 1, with the exception of the new cues to easy sexual access and relationship exclusivity from Experiment 3. The design was a $2 \times 3 \times 2$ mixed ANOVA. Sex of participant (male and female) and experimental condition (easy sexual access, relationship exclusivity, and the control condition) were between-subjects factors, and temporal context (long-term desire and short-term desire) was as a within-subjects factor. The analysis plan mirrored that used in Experiment 1.

Results and Discussion

Men's and women's ratings of romantic desire from Experiment 4 are listed in Table 3. As with Experiment 2, men expressed greater overall short-term romantic desire than did women, $t(117) = 2.15$, $p < .05$, but did not show greater long-term romantic desire than women. In

addition, women's reported levels of short-term desire, $t(180) = -2.06$, $p < .05$, and long-term desire, $t(180) = -2.85$, $p < .01$, were significantly higher in Experiment 4 compared with Experiment 1. One possible explanation for these findings is that the age and college rank of the sample in Experiment 4 was more advanced than in Experiment 1, and shifts during college in generally seeking short-term and long-term mates have been observed in women (Schmitt et al., in press). Moreover, the present sample was drawn from a human sexuality class, which tends to be composed of more erotophilic individuals (Fisher et al., 1988). Finally, the use of the new cues to easy sexual access and relationship exclusivity may simply have been more appealing to the participants than the original cues. Importantly, however, the focus of the current set of analyses was to test for patterns of desirability across the key factors of sex, temporal context, and experimental condition. Enough systematic variability appeared among the experimental factors to meaningfully test Hypotheses 1 and 2 from sexual strategies theory.

Tests of Hypothesis 1. A significant interaction between sex and the two experimental conditions of easy sexual access and relationship exclusivity on feelings of short-term romantic desire was predicted. This interaction effect was significant, $F(1, 118) = 5.83$, $p < .05$, supporting Hypothesis 1. The simple within-men effect of experimental condition was highly significant, $F(1, 118) = 20.86$, $p < .001$. Women's short-term romantic desire was unaffected by experimental condition. Similar to Experiment 1, the interaction of sex and experimental condition appeared to be primarily driven by an increase in men's short-term desire when exposed to easy sexual accessibility.

An additional test of Hypothesis 1 involved the overall interaction between sex and the experimental conditions of easy sexual access and control on feelings of short-term romantic desire. This interaction effect was significant, $F(1, 118) = 4.72$, $p < .05$, supporting Hypothesis 1. The simple within-men effect of experimental condition was highly significant, $F(1, 118) = 16.81$, $p < .01$. Women's short-term romantic desire was unaffected by experimental condition. The statistical interactions in Experiment 4 appeared to be driven primarily by men's heightened short-term desire in the easy sexual access condition. Overall, the predictions from Hypothesis 1 were strongly supported in Experiment 4. We empirically replicated the pattern of results found in Experiment 1 in a second sample using a new set of cues to key adaptive attributes that were not differentially interpreted across conditions as indicating emotional distance and showing a lack of caring.

Tests of Hypothesis 2. The main effect of the experimental conditions easy sexual access and relationship exclusivity on long-term desire was highly significant across both sexes, $F(1, 118) = 41.33$, $p < .001$, supporting Hypothesis 2. The effect of experimental condition on long-term desire was significant among men, $F(1, 118) = 16.16$, $p < .001$, and among women, $F(1, 118) = 25.24$, $p < .001$. These findings strongly support Hypothesis 2.

A second set of tests of Hypothesis 2 came from examining the main effect of experimental condition (relationship exclusivity vs. control) on long-term desire. Again, we found a significant main effect of experimental condition in long-term desire, $F(1, 118) = 5.13$, $p < .05$. However, the corresponding simple effects were insignificant within men, $F(1, 118) = 2.88$, *ns*, and among women, $F(1, 118) = 2.26$, *ns*. This predictive failure of documenting within-sex effects on long-term romantic desire may have been due to participants in Experiment 4 possessing significantly higher levels of long-term desire than in Experiment 1, $t(324) = 3.12$, $p < .01$. Overall, the predictions from Hypothesis 2 were largely supported. Only the within-sex comparisons between relationship exclusivity and control conditions did not display the predicted pattern of long-term romantic desire.

In sum, Hypotheses 1 and 2 received significant empirical support from Experiment 4. Exposure to easy sexual access had the most positive impact on men's short-term desires, whereas exposure to relationship exclusivity had an overall impact on men's and women's long-term romantic desire. The key finding to be taken away from this experiment is the basic replication of findings from Experiment 1 in a different sample using different cues to adaptive attributes. In Experiment 5, we examined whether we could further replicate the findings from Experiment 2 and manipulate context-specific feelings of romantic desire when participants conducted live interviews with target persons possessing these key adaptive attributes of human mating.

EXPERIMENT 5: LABORATORY INTERVIEWS AND ROMANTIC DESIRABILITY REPLICATION

Method

Sample. In Experiment 5, 70 college students (29 men, 41 women) currently enrolled in advanced theoretical psychology courses at a medium-sized private university in Illinois participated for extra credit. These were mainly 21- to 30-year-olds, none of whom took part in previous studies.

Procedure. The design of Experiment 5 mirrored Experiment 2 in every way, with the exception of the new cues used to indicate easy sexual access and relationship exclusivity. In addition, we used only two confederates of each sex in Experiment 5, none of whom had been

involved in Experiments 1 or 2. As with Experiment 2, each participant was asked to complete poststudy questionnaires concerning his or her knowledge about and comfort with the use of deception. Three female participants in Experiment 5 suspected deception, 1 of whom reported having heard about the experiment. All 3 of these participants received credit for their participation but were eliminated from subsequent analyses.

Results and Discussion

Men's and women's ratings of romantic desire from Experiment 5 are listed in Table 3. Unlike previous experiments, men and women were not significantly different in their short-term or long-term romantic desire, although this difference approached marginal significance in context of short-term desire, $t(65) = 1.35$, $p = .18$. This may be explained, in part, by women's significantly higher levels of short-term desire in Experiment 5 compared with Experiment 2, $t(63) = -4.03$, $p < .001$. As with Experiment 4, this may be due to the use of older participants in Experiment 5 and may also be related to the new cue to easy sexual access. To test Hypotheses 1 and 2, we followed the same analysis plan used in Experiment 2.

Tests of Hypothesis 1. An interaction was predicted between sex and experimental condition (easy sexual access vs. relationship exclusivity) on feelings of short-term romantic desire. This interaction effect was marginally significant, $F(1, 63) = 2.96$, $p < .10$. Similar to the result from Experiment 2, this was somewhat of a predictive failure for Hypothesis 1. However, the simple within-sex effect of experimental condition in men was significant in Experiment 5, $F(1, 63) = 5.99$, $p < .05$. In addition, women's short-term romantic desire was unaffected by experimental condition.

Tests of Hypothesis 2. A main effect of experimental condition (easy sexual access vs. relationship exclusivity) on long-term romantic desire was predicted. This main effect was highly significant, $F(1, 63) = 14.20$, $p < .001$, supporting Hypothesis 2. A significant simple effect of experimental condition was also found among men, $F(1, 63) = 7.85$, $p < .01$, and women, $F(1, 63) = 6.35$, $p < .05$. This finding is especially important because in Experiment 3, we found that the new easy sexual access cue indicated a higher level of sexual faithfulness than the old easy sexual access cue. The reliability of experimental condition effects across the differing cues augments the view that long-term romantic desire is linked to attributes of relationship exclusivity.

In sum, Hypotheses 1 and 2 from sexual strategies theory received some empirical support from Experiment 5. Exposure to easy sexual access in a laboratory interview had a significant impact on men's short-term desires,

and exposure to relationship exclusivity had a positive impact on men's long-term romantic desires. For women, exposure to easy sexual access in a laboratory interview had no impact on their short-term desires, whereas exposure to relationship exclusivity had a significantly positive impact on feelings of long-term romantic desire.

GENERAL DISCUSSION

Across five person-perception experiments, we examined the basic evolutionary psychological proposition that feelings of romantic desire are partly guided by mate preference adaptations. Because human mate preferences are highly context specific (Buss & Schmitt, 1993), we hypothesized that actual feelings of romantic desire should be likewise. For example, because men's short-term sexual strategy is based on obtaining high numbers of partners, we predicted that exposure to a target person who possessed cues to easy sexual access would especially intensify men's short-term romantic desires. We found evidence that targets who exhibit cues to easy sexual access were rated the most desirable by men in the context of short-term mating. In Experiments 1, 4, and 5, men expressed significantly more short-term desire when exposed to easy sexual access than when exposed to other attributes. In Experiment 2, this difference was marginally significant. Across all experiments, women exposed to easy sexual access cues did not express particularly high levels of short-term desire. These results support the evolutionary hypothesis that feelings of romantic desire are guided by context-specific mate preference adaptations. In this case, men's feelings of short-term romantic desire are linked to their short-term mate preferences for easy sexual access. When exposed to adaptive attributes that satisfy their desire for easy sexual access, men's feelings of short-term romantic desire seem to be intensified.

In contrast, because men's and women's long-term sexual strategy is based, for sex-differentiated reasons, on a sustained and committed relationship, we predicted that exposure to a target person who possessed cues to relationship exclusivity would augment their long-term romantic desires. We found that targets exhibiting cues to relationship exclusivity were generally rated the most desirable by participants in the context of long-term mating. The primary exceptions to this trend were that in Experiments 1 and 4, relationship exclusivity did not elicit significantly more long-term desire in women than did the control condition, and a similar predictive failure was found among men in Experiment 4. However, most tests of Hypothesis 2, including all tests across both sexes, were significant. Thus, the current set of studies largely confirmed the context-specific nature of long-term romantic desire. Short-term and long-term

romantic desire seem to depend, at least in part, on sex and temporal context.

Although previous survey research has documented similar findings (Schmitt & Buss, 1996), such studies are susceptible to criticisms concerning social desirability and sex role stereotyping in reports of romantic desire. The present experimental design was much less susceptible to these biasing influences. Because we used deception in regard to the sexual nature of the study and a between-subjects design across experimental condition, the context specificity of this evidence is unlikely to have resulted from simple sex role stereotypes about what men and women think others or they themselves should desire in a romantic partner. These experiments, therefore, support the perspective that cues linked to adaptive attributes can influence feelings of romantic desirability in humans, and they represent an important experimental contribution to the mounting body of evidence that romantic desire is partly guided by evolved mate preference adaptations (Buss, 1999).

Limitations and Future Research Directions

The current research had several important limitations, each of which highlights a possible avenue for future investigation. First, our samples were composed of young college students and lacked significant social and cultural diversity. Although evolutionary hypotheses are in most ways no different from other psychological predictions (Ketelaar & Ellis, 2000), before evolutionists make strong claims about the existence of an evolved psychological adaptation in human nature the cross-cultural expressions of the adaptation should be explored and documented. Furthermore, human psychological adaptations should also be examined from a cross-species perspective, linked to human physiological substrates, and placed within a chronicled framework of Darwinian selection (see Bock & Cardew, 1997). In terms of the psychological adaptations involving human mate preferences, much of this work is currently under way (Buss, 1999). However, the psychological adaptations posited as the source of romantic desire in the current research have yet to be fully embedded within the broad spectrum of evolutionary science. As a result, the current findings should be regarded merely as supporting evidence of the tentative position that adaptations sensitive to easy sexual access and relationship exclusivity exist within human sexual psychology. As yet, evolutionists are far from concluding with confidence that these mate preference adaptations undoubtedly exist in human nature.

Second, our studies involved laboratory experiments and should be replicated in more ecologically valid contexts of romantic desire. Recent experimental work on human pheromones and their impact on romantic

desire has been conducted in real-life settings (Cutler, Friedmann, & McCoy, 1998). The same could be accomplished with the attraction cues employed in the present research. For example, exposure to cues of easy sexual access and relationship exclusivity could be evaluated in naturalistic mate attraction settings. In our culture, this could include experimentally exposing men and women to adaptive attributes in bars, dance clubs, personal ads, and computer chat rooms. Evidence from more real-life mate attraction settings would be an important complement to the present findings.

Third, our findings do not allow us to rule out the many alternative explanations of sex and temporal context differences in romantic desire. Consistent with our documentation of context differences in men's romantic desires is the view that many men desire women who are hard to get and easy to get. That is, a man may desire a woman who is sexually available to him within the relationship but sexually restrained in relation to other men, especially once the relationship has turned to long-term mating (Walster, Walster, & Berscheid, 1971). It is possible that the context-specific nature of these psychological preferences and feelings of romantic attraction is due to complex socialization practices that are particular to American culture and are somehow independent of our evolved psychology. For example, the Madonna-whore complex often encountered in the U.S. culture could be related to the temporal context differences found in male sexual psychology. Young men might be taught to simultaneously desire two types of women: long-term mating partners, who are Madonnas, and short-term sexual partners, who are whores. Socialization undoubtedly plays a key role in the development of men's and women's romantic desires.

Nonetheless, proximate explanations such as social learning often obscure what evolutionists consider to be equally important and interesting questions. If such a socialization practice is found to pervade our culture, why are men but not women taught to prefer easy sexual access in short-term mates? Do men learn to desire certain cues in certain contexts more readily than do women? Do men learn these mate preferences across all cultures? Is cultural variation in male preference psychology systematically linked to local ecologies or sociopolitical conditions (see Low, 1989)? Conversely, are women especially taught across human cultures to prefer older and high-status men? If so, why? It seems likely that socialization practices related to romantic desire will be intimately linked with evolved mating psychology (Tooby & Cosmides, 1992). Research endeavors into the developmental, cross-cultural, cross-species, and physiological dimensions of these mate preferences and their connections to romantic desire are essential

tasks for the future and will help resolve issues of alternative explanation.

Conclusions

Previous research supporting the position that romantic desire is, in some ways, context specific has relied heavily on one data source: self-report surveys. Unfortunately, self-report methods of assessing sexuality are susceptible to the influences of social desirability, sexual stereotyping, and demand characteristics (Andersen & Broffitt, 1988). In a series of five experiments, we provided limited evidence from more rigorous laboratory procedures supporting the contention of sexual strategies theory (Buss & Schmitt, 1993) that romantic desire is highly context specific. In the context of short-term mating, person-perception targets who exhibited cues to easy sexual access tended to be rated the most desirable by men. In contrast, targets exhibit-

ing cues to relationship exclusivity were generally rated the most desirable by participants in the context of long-term mating.

Because these studies disguised the sexual nature of the experiment and because the participants were unaware of the attribute manipulations, romantic desire specificity was documented in a way that overcame the limitations of self-report methods. Alongside studies using other diverse research techniques (e.g., Hassebrauck, 1998; Speed & Gangestad, 1997), the present investigation contributes to the pluralistic documentation of romantic desire specificity from an evolutionary perspective. The current research findings, therefore, should be taken as a limited but important experimental addition to the growing assemblage of data demonstrating that romantic desire is a complex interaction of sex, context, and ultimately the psychological adaptations of the beholder.

APPENDIX

Interview Questions and Scripted Responses Used in Experiments

Interview Questions

Target's (Scripted) Responses

1. Where are you from?	From the "subs" outside Chicago; I grew up there but was born in Michigan.
2. Do you have any brothers and sisters?	Yes. I have one brother and one sister. They live in the Chicago area.
3. What type of music do you listen to?	Rock and alternative. Really, I like all types of music, but those two are my favorites.
4. Are you in a fraternity or sorority?	No, I'm not.
5. What are your hobbies?	I like to hang out with my friends and listen to music or watch TV and movies, that kind of stuff. You could probably say I watch too much TV.
6. What is your favorite food?	Pizza and Chinese food would have to top the list. I like, uh, going on a steak and shake run every once in a while.
7. What extracurricular activities were you involved in during high school?	Cross-country running was my main activity. I was involved in some other sports, but cross-country running was my favorite.
8. On average, how much time do you spend studying?	A couple of hours a day, I'd say. Some days more, like at the end of the semester or right before midterms.
9. Do you get along with your family?	Most of the time, but my brother and sister do get on my nerves a bit.
10. How would you describe your previous dating experiences?	Responses varied

NOTE: Question 10 is the key experimental question. The varying responses to this question (i.e., the independent variable) are described in the Method section of Experiment 1.

REFERENCES

- Alcock, J. (1993). *Animal behavior* (5th ed.). Sunderland, MA: Sinauer.
- Andersen, B. L., & Broffitt, B. (1988). Is there a reliable and valid self-report measure of sexual behavior? *Archives of Sexual Behavior, 17*, 509-525.
- Bailey, J. M., Gaulin, S., Agyei, Y., & Gladue, B. A. (1994). Effects of gender and sexual orientation on evolutionary relevant aspects of human mating psychology. *Journal of Personality and Social Psychology, 66*, 1081-1093.
- Berscheid, E., & Walster, E. H. (1978). *Interpersonal attraction*. Reading, MA: Addison-Wesley.
- Bock, G. R., & Cardew, G. (Eds.). (1997). *Characterizing human psychological adaptations*. West Sussex, UK: Wiley.
- Botwin, M. D., Buss, D. M., & Shackelford, T. K. (1997). Personality and mate preferences: Five factors in mate selection and marital satisfaction. *Journal of Personality, 65*, 107-136.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12*, 1-14.
- Buss, D. M. (1999). *Evolutionary psychology*. Needham Heights, MA: Allyn & Bacon.

- Buss, D. M., Larsen, R. J., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. *Psychological Science, 3*, 251-255.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204-232.
- Clark, C. L., Shaver, P. R., & Abrahams, M. F. (1999). Strategic behaviors in romantic relationship initiation. *Personality and Social Psychology Bulletin, 25*, 707-720.
- Cronin, H. (1991). *The ant and the peacock*. New York: Cambridge University Press.
- Cutler, W. B., Friedmann, E., & McCoy, N. L. (1998). Pheromonal influences on sociosexual behavior in men. *Archives of Sexual Behavior, 27*, 1-13.
- Darwin, C. (1871). *The descent of man and selection in relation to sex*. London: Murray.
- DeKay, W. T., & Buss, D. M. (1992). Human nature, individual differences, and the importance of context: Perspectives from evolutionary psychology. *Psychological Science, 1*, 184-189.
- Ellis, B. J. (1992). The evolution of sexual attraction: Evaluative mechanisms in women. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 267-288). New York: Oxford University Press.
- Fisher, H. (1998). Lust, attraction, and attachment in mammalian reproduction. *Human Nature, 9*, 23-52.
- Fisher, W. A., Byrne, D., White, L. A., & Kelley, K. (1988). Erotophobia-erotophilia as a dimension of personality. *Journal of Sex Research, 25*, 123-151.
- Foley, R. (1996). The adaptive legacy of human evolution: A search for the environment of evolutionary adaptedness. *Evolutionary Anthropology, 5*, 194-203.
- Gangestad, S. W., & Thornhill, R. (1997). Human sexual selection and developmental stability. In J. A. Simpson & D. T. Kenrick (Eds.), *Evolutionary social psychology* (pp. 169-195). Mahwah, NJ: Lawrence Erlbaum.
- Gangestad, S. W., Thornhill, R., & Yeo, R. A. (1994). Facial attractiveness, developmental stability, and fluctuating asymmetry. *Ethology and Sociobiology, 15*, 73-85.
- Geary, D. C. (1998). *Male, female*. Washington, DC: American Psychological Association.
- Gutierrez, S. E., Kenrick, D. T., & Partch, J. J. (1999). Beauty, dominance, and the mating game: Contrast effects in self-assessment reflect gender differences in mate selection. *Personality and Social Psychology Bulletin, 25*, 1126-1134.
- Hassebrauck, M. (1998). The visual process method: A new method to study physical attractiveness. *Evolution and Human Behavior, 19*, 111-123.
- Johnston, V. S., & Franklin, M. (1993). Is beauty in the eyes of the beholder? *Ethology and Sociobiology, 14*, 183-199.
- Kasser, T., & Sharma, Y. S. (1999). Reproductive freedom, educational quality, and female's preference for resource-acquisition characteristics in mates. *Psychological Science, 10*, 374-377.
- Kenrick, D. T., & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in reproductive strategies. *Behavioral and Brain Sciences, 15*, 75-133.
- Kenrick, D. T., Neuberg, S. L., Zierk, K. L., & Krones, J. M. (1994). Evolution and social cognition: Contrast effects as a function of sex, dominance, and physical attractiveness. *Personality and Social Psychology Bulletin, 20*, 210-217.
- Kenrick, D. T., Sadalla, E. K., Groth, G., & Trost, M. R. (1990). Evolution, traits, and the stages of human courtship: Qualifying the parental investment model [Special issue: Biological foundations of personality: Evolution, behavioral genetics, and psychophysiology]. *Journal of Personality, 58*, 97-116.
- Ketelaar, T., & Ellis, B. J. (2000). Are evolutionary explanations unfalsifiable? Evolutionary psychology and the Lakatosian philosophy of science. *Psychological Inquiry, 11*, 1-21.
- Langlois, J. H., & Roggman, L. A. (1990). Attractive faces are only average. *Psychological Science, 1*, 115-121.
- Low, B. S. (1989). Cross-cultural patterns in the training of children: An evolutionary perspective. *Journal of Comparative Psychology, 103*, 313-319.
- Low, B. S. (1998). The evolution of human life histories. In C. Crawford & D. L. Krebs (Eds.), *Handbook of evolutionary psychology* (pp. 131-161). Mahwah, NJ: Lawrence Erlbaum.
- Malamuth, N. M. (1996). Sexually explicit media, gender differences, and evolutionary theory. *Journal of Communication, 46*, 8-31.
- Nesse, R. M., & Williams, G. C. (1994). *Why we get sick*. New York: Times Books.
- Oliver, M. B., & Sedikides, C. (1992). Effects of sexual permissiveness on desirability of partner as a function of low and high commitment to relationship. *Social Psychology Quarterly, 55*, 321-333.
- O'Sullivan, L. F. (1995). Less is more: The effects of sexual experience on judgments of men's and women's personality characteristics and relationship desirability. *Sex Roles, 33*, 159-181.
- Regan, P. C. (1998). What if you can't get what you want? Willingness to compromise ideal mate selection standards as a function of sex, mate value, and relationship context. *Personality and Social Psychology Bulletin, 24*, 1294-1303.
- Regan, P. C., & Berscheid, E. (1997). Gender differences in characteristics desired in a potential sexual and marriage partner. *Journal of Psychology and Human Sexuality, 9*, 25-37.
- Rosenthal, R., & Rosnow, R. L. (1991). *Essentials of behavioral research* (2nd ed.). New York: McGraw-Hill.
- Schmitt, D. P., & Buss, D. M. (1996). Strategic self-enhancement and competitor derogation: Sex and context effects on the perceived effectiveness of mate attraction tactics. *Journal of Personality and Social Psychology, 70*, 1185-1204.
- Schmitt, D. P., & Buss, D. M. (2000). Sexual dimensions of person description: Beyond or subsumed by the Big Five? *Journal of Research in Personality, 34*, 141-177.
- Schmitt, D. P., Shackelford, T. K., Duntley, J., Tooke, W., & Buss, D. M. (in press). *The desire for sexual variety as a tool for understanding basic human mating strategies*. Manuscript submitted for publication.
- Singh, D. (1993). Adaptive significance of waist-to-hip ratio and female physical attractiveness. *Journal of Personality and Social Psychology, 65*, 293-307.
- Speed, A., & Gangestad, S. W. (1997). Romantic popularity and mate preferences: A peer-nomination study. *Personality and Social Psychology Bulletin, 23*, 928-935.
- Sprecher, S., McKinney, K., & Orbuch, T. L. (1991). The effect of current sexual behavior on friendship, dating, and marriage desirability. *Journal of Sex Research, 28*, 387-408.
- Sprecher, S., Regan, P. C., McKinney, K., Maxwell, K., & Wazienski, R. (1997). Preferred level of sexual experience in a date or mate: The merger of two methodologies. *Journal of Sex Research, 34*, 327-337.
- Sprecher, S., Sullivan, Q., & Hatfield, E. (1994). Mate selection preferences: Gender differences examined in a national sample. *Journal of Personality and Social Psychology, 66*, 1074-1080.
- Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.
- Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 19-136). New York: Oxford University Press.
- Townsend, J. M., & Wasserman, T. (1998). Sexual attractiveness: Sex differences in assessment and criteria. *Evolution and Human Behavior, 19*, 171-191.
- Trivers, R. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man: 1871-1971* (pp. 136-179). Chicago: Aldine.
- Walster, E., Walster, G., & Berscheid, E. (1971). The efficacy of playing hard-to-get. *Journal of Experimental Education, 39*, 73-77.
- White, S. G., & Hatcher, C. (1984). Couple complementarity and similarity: A review of the literature. *American Journal of Family Therapy, 12*, 15-25.
- Wiederman, M. W., & Dubois, S. L. (1998). Evolution and sex differences in preferences for short-term mates: Results from a policy capturing study. *Evolution and Human Behavior, 19*, 153-170.

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