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Norman P. LI

Singapore Management University, normanli@smu.edu.sg

Douglas T. KENRICK

Arizona State University

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Sex Similarities and Differences in Preferences for Short-Term Mates: What, Whether, and Why

Norman P. Li
University of Texas at Austin

Douglas T. Kenrick
Arizona State University

Are there sex differences in criteria for sexual relationships? The answer depends on what question a researcher asks. Data suggest that, whereas the sexes differ in whether they will enter short-term sexual relationships, they are more similar in what they prioritize in partners for such relationships. However, additional data and context of other findings and theory suggest different underlying reasons. In Studies 1 and 2, men and women were given varying "mate budgets" to design short-term mates and were asked whether they would actually mate with constructed partners. Study 3 used a mate-screening paradigm. Whereas women have been found to prioritize status in long-term mates, they instead (like men) prioritize physical attractiveness much like an economic necessity in short-term mates. Both sexes also show evidence of favoring well-rounded long- and short-term mates when given the chance. In Studies 4 and 5, participants report reasons for having casual sex and what they find physically attractive. For women, results generally support a good genes account of short-term mating, as per strategic pluralism theory (S. W. Gangestad & J. A. Simpson, 2000). Discussion addresses broader theoretical implications for mate preference, and the link between method and theory in examining social decision processes.

Keywords: mate selection, short-term mating, economics

Are men and women similar or different when it comes to preferences for short-term relationships? The answer may depend on how the question is asked and what method is used to ask it. The question of sex differences in short-term relationships is of more than prurient interest. Several social psychologists have argued that short-term sexual relationships highlight central theoretical questions about sex differences in mating strategies (e.g., Buss & Schmitt, 1993; Clark & Hatfield, 1989; Gangestad & Simpson, 2000; Kenrick, Groth, Trost, & Sadalla, 1993; Kenrick, Sadalla, Groth, & Trost, 1990). Indeed, studies of casual sexual relationships have demonstrated some of the largest empirical differences between men and women (Oliver & Hyde, 1993). In this article, however, we examine people's priorities and argue that men's and women's criteria for short-term partners are, at least in one important way, more similar than their criteria for long-term partners. Just as theoretically interesting sex differences can be highlighted by using particular research methods (Kenrick et al., 1990), so too can theoretically interesting sex similarities. Uncovering the similarities alongside the differences should provide a fuller theoretical understanding of the mate selection process. More generally, we clarify that there are three distinct questions with regard to mate choice: whether, what, and why.

Whether and What: Entry Thresholds Versus Content

Sex differences in short-term mating emphasized by previous researchers have been concerned mainly with thresholds for entering into such relationships. Specifically, men tend to be more eager than women on the question of "whether" they will enter a short-term relationship. In fact, men reported being much more willing than women to engage in sexual relations after any length of acquaintance from 1 hr up to 5 years (Buss & Schmitt, 1993). When approached by an opposite-sex stranger who immediately makes an invitation for casual sex, 75% of men said yes, whereas 100% of women said no (Clark & Hatfield, 1989). When asked to consider minimum requirements for long-term mates, both sexes had relatively high standards for various characteristics; however, only men significantly lowered their standards for short-term partners, especially for one-night stands (Kenrick et al., 1990; Kenrick et al., 1993; Regan, 1998).

One explanation for men's lower thresholds for short-term mating focuses on cultural factors. According to this view, societal norms tend to influence men to be more agentic and women to be more passive across a wide variety of endeavors, including sexual behaviors. Thus, the difference in whether to enter short-term relationships or not may be due to gender role differences, whereby men are more sexually autonomous and women are more sexually restrained (Peplau, Rubin, & Hill, 1977). Related to this is the assumption that there is a cultural double standard for the sexual behavior of men and women, with promiscuous sexuality being more acceptable for men than women (e.g., D'Emilio & Freedman, 1997). Some research indicates that the double standard of sexuality may not currently be as strong as it once was. For example, although one or two sexual partners is viewed as slightly more attractive in a man than a woman, anything more than that is regarded as unattractive by both sexes, and the attractiveness

Norman P. Li, Department of Psychology, University of Texas at Austin; Douglas T. Kenrick, Department of Psychology, Arizona State University.

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Correspondence concerning this article should be addressed to Norman P. Li, Department of Psychology, University of Texas at Austin, 1 University Station A8000, Austin, TX 78712. E-mail: normli@mail.utexas.edu

penalties for more than five partners may actually be stronger for men than women (Kenrick, Sundie, Nicastle, & Stone, 2001).

Another explanation focuses on differences in minimum obligatory parental investment (Trivers, 1972). Whereas men are physiologically required to contribute only a few sex cells to offspring, women must provide substantial pre- and postnatal resources if offspring are to survive. So, although offspring provide equal reproductive benefits to both parents, they present much higher costs to women if they are the results of uncommitted sex. Thus, in reproductive terms, the prospect of a short-term relationship typically has a higher cost-to-benefit ratio for women than for men (e.g., Geary, 2000; Landolt, Lalumiere, & Quinsey, 1995; Symons, 1979).

In addition to the question of *whether* to enter into particular relationships, an equally important consideration concerns *what* characteristics are valued in each relationship. When the “what” question has been empirically addressed for short-term mates, a preference for physical attractiveness has been identified consistently (e.g., Regan, 1998; Regan & Berscheid, 1997). Recently, Buunk, Dijkstra, Fetchenhauer, and Kenrick (2002) found that both sexes desired more physical attractiveness as relationship duration shortened. College students (Sprecher & Regan, 2002) considered it important to have higher levels of physical attractiveness for romantic partners than for friends. Adolescents (Regan & Joshi, 2003) as well as homosexual men and women (Regan, Medina, & Joshi, 2001) valued attractiveness more in short- than in long-term partners. Fletcher, Tither, O’Loughlin, Friesen, and Overall (2004) had people choose between pairs of individuals who were very high or very low on three factor-analyzed dimensions. Both sexes tended to favor a short-term fling partner who was high on attractiveness/vitality over one who had high warmth/trustworthiness. The least preferred fling partner from the forced choices was one with high status/resources (who was less likely to be chosen than an alternative who had high attractiveness/vitality or high warmth/trustworthiness).

The Question of Priority: A More Complete Picture of What

Although physical attractiveness is highly valued in a short-term mate, it is not clear whether it is prioritized as either a necessity or a luxury. A necessity is an item that is initially desirable but, once obtained in sufficient quantities, yields to other items in terms of importance (e.g., water, food). In contrast, a luxury is not initially prioritized but becomes important once sufficient levels of necessities have been obtained (e.g., fine dining, vacations). Is physical attractiveness in short-term mates desired first and foremost above other characteristics (necessity), or does its importance come into play only when there are sufficient levels of other traits (luxury)? Or, does physical attractiveness hold a high value at all budget levels, such that it is not only prioritized initially but continues to be strongly favored over other traits?

This question is important because preferences often revolve around priorities. Without a thorough consideration of priorities, an incomplete and misleading picture of preferences may be painted. For instance, with long-term mates, theoretically important traits such as resources and physical attractiveness were rated as relatively unimportant in mate preference surveys, whereas other traits were rated as more important (e.g., creativity was rated

higher than social status variables in Buss & Barnes, 1986). By using methods that force participants to set priorities, however, we found that resources and status were considered necessities by women and physical attractiveness was considered a necessity by men. These qualities are very important initially but become much less important once sufficient levels have been obtained. On the other hand, we found that traits such as creativity were regarded more as luxuries. They are important but only after there are sufficient levels of necessities (Li, Bailey, Kenrick, & Linsenmeier, 2002).

From a sociocultural perspective (e.g., Howard, Blumstein, & Schwartz, 1987), women may place less emphasis on physical attractiveness in long term partners because women have less access to status, power, and economic resources than men do. Thus, to gain upward mobility, women place relatively greater emphasis on status-linked traits in their marriage partners. On the other hand, if the intended mating duration is short-term, then economic constraints should be less relevant and both sexes should be free to prioritize the physical quality of their potential short-term mates as men do for long-term mates. However, this perspective does not address why physical attractiveness should be prioritized over other desirable traits.

To examine this question for short-term mates, it may be helpful to consider the adaptive significance of physical attractiveness and the benefits and costs of short-term mating—the *why* question. According to evolutionary theorists, mating psychologies may have developed in response to specific adaptive issues that long- and short-term mating pose to women and men (Buss & Schmitt, 1993; Gangestad & Simpson, 2000; Geary, 1998). Because of time constraints and variation in women’s reproductive capacity, ancestral men may have had an adaptive need to identify and pursue short-term partners who were healthy and fertile (Symons, 1979). Accordingly, men are inclined to value physical features such as full lips, soft hair, smooth skin, colorful cheeks, good muscle tone, and secondary sexual characteristics including breasts and buttocks, which tend to be cues to youth, sexual maturity, and fecundity (e.g., Cant, 1981; Johnston & Franklin, 1993; Manning, Scutt, Whitehouse, & Leinster, 1997; Symons, 1979, 1995). Men are also attracted to a low waist-to-hip ratio (WHR), which is highly dependent on women’s current estrogen levels and tends to be correlated with fertility and reproductive health (e.g., Singh, 1993, 2002). For instance, in one study, a significant negative relationship was found between WHR and fertility, such that a 0.1 increase in WHR was associated with a 30% drop in conception probability (Zaavra et al., 1993).

In contrast to female fertility, male fertility decreases at a much slower rate over the life span. Thus, age is less often a binding constraint on male reproductive health. According to strategic pluralism theory, women looking for short-term mates may value physical attractiveness in response to other adaptive issues, including that of identifying partners with desirable heritable characteristics (Gangestad & Simpson, 2000). Consistent with this idea, men whom women consider physically attractive tend to exhibit facial masculinity (e.g., Johnston, Hagel, Franklin, Fink, & Grammer, 2001; Penton-Voak et al., 1999) and bilateral symmetry (e.g., Scheib, Gangestad, & Thornhill, 1999; Thornhill & Gangestad, 1994). Symmetrical men are more desirable as affair partners, and consequently have more sexual partners than asymmetrical men (Gangestad & Thornhill, 1997a; Thornhill & Gangestad, 1994).

Such features may signal underlying genes that are resistant to local toxins and pathogens encountered in development (Gangestad & Thornhill, 1997b; Møller & Thornhill, 1998; Thornhill & Gangestad, 1993). In ancestral environments, women who mated with physically attractive men may have accrued reproductive benefits by passing on such genes to offspring (Møller & Thornhill, 1998; Waynforth, 1998).

In line with these theories, the reproductive gains from short-term mating would be largely eliminated if a target female was not fertile or a target male had undesirable heritable characteristics. Significant deficiencies in other areas may not be as reproductively critical. Consider also that short-term mating typically has costs: A woman may incur safety risks and potentially large pregnancy costs; both sexes, especially men, could face various other costs, including conflict with male relatives or others interested in the same mate, conflict over commitment, interference with any existing relationship, or demand for resources. To sufficiently clear the key adaptive hurdles of infertility or poor gene quality, individuals considering a short-term partner may prioritize physical attractiveness as a necessity: Obtaining some physical attractiveness should take precedence over getting any amount of other characteristics. However, once a moderate amount of physical attractiveness has been obtained, its relative value may decrease. For instance, a woman who is considered moderately attractive is likely able to reproduce (e.g., Singh & Young, 1995).¹ Once a man has implicitly verified the fertility of a potential partner, the reproductive benefits of obtaining further physical attractiveness may be outweighed by the benefit of obtaining positive levels on other traits.

Alternatively, according to sexual strategies theory (Buss & Schmitt, 1993), by being open to short-term relationships, a woman may increase her options for long-term ones. She can solicit the interest of many men and use this wider net to evaluate potential long-term mates, or she may be able to turn short-term relationships into long-term ones. If women use short-term mating to assess or attain potential long-term relationships, then we would expect women to prioritize the same traits in short-term partners that they prioritize in long-term partners—status/resources and kindness (Li et al., 2002)—and to treat physical attractiveness as more of a luxury.

An Economic Framework Is Needed to Determine What Is Prioritized

To investigate priority in a set of mate characteristics, it is essential to examine decisions that consider the characteristics simultaneously, as opposed to one at a time (Li et al., 2002). Fletcher et al. (2004) offered participants choices between pairs of mates who were high on different dimensions. Although they found high levels of attractiveness/vitality to be favored for short-term mates, the method they used was not designed to reveal priorities. Priorities begin with choices at the lowest possible level (e.g., “What is the first thing people are concerned about when considering a short-term mate?”), before incrementally moving on to choices at higher levels (e.g., “Do they want more of the same thing, or something else?”).

For instance, consider the market value of oxygen, water, and food. One might deem food to be most valuable and oxygen least valuable according to time, money, and effort typically spent

pursuing these items. Next, imagine choosing among high levels of each. Again, one might pass on the less usable excess oxygen and opt for extra food or water. However, compared with food and water, a person cannot survive long without oxygen. Thus, a more complete account of the relative importance of these items should consider tradeoffs from the ground up: At the lowest level, oxygen is most essential. Once a person has enough oxygen to breathe, oxygen becomes much less of a concern than water or food. All three are important but have different priorities.²

For uncovering priorities in mate preferences, the specialized theoretical framework of microeconomics is useful for its analysis of costs and benefits associated with choices and its distinction between necessities and luxuries. Necessities receive initial priority, but diminishing marginal returns occur when the benefits accruing from pursuing such items decrease as more units are obtained (e.g., the pleasure a thirsty person gets from the 10th cup of water as opposed to the first). As this occurs, preferences shift toward other items (e.g., luxuries) which then offer greater marginal benefits (e.g., water might be initially favored over a tasty Chilean sea bass, but the fish may be preferred after five cups of water).

Without the concept of diminishing marginal returns, it is difficult to frame, let alone answer, the question of priority. Traditionally, mate choice researchers have not considered diminishing marginal returns. However, this is a fundamental concept underlying not only consumer choice but also how living organisms adaptively allocate effort across their alternatives (e.g., behavioral ecology—animals’ foraging patterns, Krebs & Davies, 1993). Thus, it should be valuable to incorporate this concept into the study of mate choice psychology, especially from an evolutionary perspective.

The Present Studies

To investigate people’s priorities for short-term relationships, we applied the economic framework and methods introduced by Li et al. (2002). In particular, we examined how men and women allocate budgets of varying constraints across different characteristics and how they screen a list of potential targets for short-term and long-term relationships.

In line with previous research on minimum standards (Kenrick et al., 1990; 1993), men were expected to be more willing than

¹ In harsh ancestral environments, fertility and reproductive health among females may have varied greatly, thereby creating the adaptive problem for males of identifying physically attractive partners (Buss & Schmitt, 1993). The resulting adaptive mechanisms for evaluating physical attractiveness have been hypothesized to operate in a relative, rather than absolute, manner. That is, what constitutes acceptable physical attractiveness may depend on comparisons within one’s local pool (Symons, 1979). Although the variance in reproductive health among modern day college-aged women may be much smaller and differences in physical attractiveness less meaningful than in the ancestral past, the standard-setting mechanisms for physical attractiveness are still expected to operate within this pool.

² We are not suggesting that people consciously consider their choices in a rational, serial manner whether dealing with oxygen, food, and water or the various qualities found in potential mates. Rather, priorities may underlie such choices, and an economic framework as well as methods such as the ones used here may be helpful in revealing these priorities.

women to accept a lower quality mate for short-term, but not long-term, relationships. Men, relative to women, are generally more eager for short-term relationships. For example, Clark and Hatfield (1989) found that two thirds of men, but no women, were willing to sleep with a complete stranger who approached them on campus—a result that replicated virtually identically in two studies conducted a decade apart. Such results may lead one to presume that men are relatively nondiscriminating and have few strong preferences for particular characteristics in sexual partners. That is, men's low stance on the *whether* question may diminish the relevancy of prioritizing *what*. After all, if the investment is so low, why bother? One answer is that men's actual investment is rarely, if ever, as low as the theoretical minimum discussed by evolutionary theorists, and as mentioned earlier, there are costs associated with short-term mating. Given such constraints, as well as our earlier reasoning, we expected men to prioritize physical attractiveness as an economic necessity in the short-term mating market. However, beyond an average amount of physical attractiveness, they may shift their emphasis onto other traits.

Although the benefit-to-cost ratio may be less favorable for women, short-term relationships may be reproductively worthwhile for some women in some situations. In bird species, when females cannot secure long-term investment from males, and male parenting is not absolutely necessary, females seek short-term matings with healthy, attractive males (e.g., Birkhead & Møller, 1996). Similarly, according to strategic pluralism theory, women may see short-term relationships as a means to mate with males having highly desirable heritable traits (Gangestad & Simpson, 2000) and, hence, would be likely to consider physical attractiveness as a necessity. Beyond this initial priority, diminishing returns may set in, causing a shift toward other characteristics. Alternatively, according to sexual strategies theory (Buss & Schmitt, 1993), women may use short-term mating to evaluate or attain potential long-term relationships. If so, women should favor criteria identified in research on long-term priorities and treat physical attractiveness as more of a luxury.

By applying an economic framework, we sought to examine these possibilities and to extend previous findings by uncovering priorities that women and men have for short-term mates. Because the short-term data in Studies 1 and 3 were collected in conjunction with long-term data,³ we were able to compare short- and long-term priorities in those studies, as well as in Study 2. In Studies 4 and 5, we probed further into the reasons why people have casual sex and why they find potential sex partners physically attractive. Altogether, we sought (a) to provide a test between the good genes view of strategic pluralism and a sex-for-long-term relationship account of sexual strategies theory and (b) to integrate our results with past findings to uniquely present an overall picture of how the sexes might differ or be similar in both short- and long-term mating.

Study 1

Method

A three-factor, mixed model design was used. The between-subjects variable was participant sex (male, female). Within-subject variables were budget (low, medium, high) and characteristic, which included physical attractiveness, our primary variable of interest, and social status, which was

a long-term necessity for women (Li et al., 2002). We also included other variables that were highly desirable in previous research: kindness ("kind and understanding" was ranked 1st out of 13 by both sexes in Buss & Barnes, 1986), which was a long-term necessity for both sexes, and exciting personality (which ranked 2nd in Buss & Barnes, 1986). Finally, we included creativity, which ranked below physical attractiveness and above socioeconomic variables for both sexes in the Buss and Barnes (1986) study and was a luxury for long-term mates (Li et al., 2002).

Participants

Participants were 178 Arizona State University undergraduates enrolled in introductory psychology. There were 95 women, aged 17 to 45 ($M = 19.5$), and 83 men, aged 17 to 47 ($M = 20.2$).

Materials and Procedure

Participants designed one-night stand partners on a computer by allocating low, medium, and high budgets of "mate dollars" to purchase percentile levels of the characteristics. For each budget, they started with a potential mate who was at the 0th percentile for each of the five characteristics, appearing across the screen. Above each characteristic was a bar graph depicting its percentile. Under each characteristic were an up arrow and a down arrow. Clicking on an up arrow increased the percentile of the characteristic according to a purchase schedule, while also deducting 1 mate dollar from the budget. Clicking on the down arrow decreased the percentile of the characteristic according to the purchase schedule while adding 1 mate dollar back to the budget. Once a participant had fully allocated a budget and was satisfied, the participant indicated how likely he or she would be to accept such a mate if encountered in real life.

In actual mating markets, it is increasingly difficult to locate and obtain further increments on any characteristic (e.g., going from a 9 to a 10 on physical attractiveness is more difficult than going from a 4 to a 5). To take into account these increasing marginal costs and to ensure against ceiling effects, we set the purchase schedule to increase at an exponentially decreasing rate: Every two purchase increments on a characteristic would bring its percentile level up half the distance from its current level to 100. We also used labels for our characteristics as we did previously (Li et al., 2002)—liveliness referred to exciting personality, and social level referred to social status. We provided a list of the labels, along with their most common definitions from pretesting, so that all participants would be referring to the same concept when they encountered a label. The order of characteristics and the order of budgets were balanced.

Results

The dependent measure was percentage of budget spent on a characteristic. We used an analysis of variance (ANOVA) and performed planned comparisons to test the necessity of physical attractiveness.

Spending on a Tight Budget

Table 1 (top part) shows expenditures across all five characteristics under the low budget. Bonferroni-corrected individual trait

³ The short-term data in Studies 1 and 3 were collected together with the long-term data appearing in Li et al. (2002, Studies 2 & 3, respectively), but they were not published along with the long-term data. At that time, we and the editor thought that the long-term data were more interesting, given that they demonstrated stronger sex differences and addressed a paradox that was specific to the long-term mating literature. This was before we clearly understood the distinctions we are making here.

Table 1
Low and High Income Consumption: Mean Percentage Allocated to Each Characteristic

Characteristic	Low budget (first set of 20 mate dollars)		High incremental budget (third set of 20 mate dollars)		Change in percent spent from low to high incremental budget			
	Women	Men	Women	Men	Women	<i>d</i>	Men	<i>d</i>
Study 1 (short-term)								
Phys. attr.	40.8 _a	52.3 _a	26.9 _a	34.2 _a	-13.9***	0.72	-18.1***	0.77
Social level	20.2 _b	13.3 _b	18.9 _{a,b}	12.3 _c	-1.3	0.08	-1.0	0.07
Creativity	6.1 _c	6.0 _c	14.1 _b	15.2 _{b,c}	8.0***	0.66	9.2***	0.59
Kindness	17.1 _b	13.7 _b	21.5 _{a,b}	21.2 _b	4.4	0.30	7.5**	0.40
Liveliness	15.8 _b	14.7 _b	18.5 _{a,b}	17.1 _{b,c}	2.7	0.22	2.4	0.14
Study 2								
Long-term								
Phys. attr./liveliness	26.8 _b	42.7 _a	25.4 _b	33.3 _{a,b}	-1.5	0.07	-9.4**	0.41
Social status/resources	32.4 _b	19.1 _b	33.3 _{a,b}	27.5 _b	.9	0.05	8.4**	0.36
Warmth/trustworthiness	40.7 _a	38.2 _a	41.3 _a	39.2 _a	.6	0.03	1.0	0.04
Short-term: one-night stand								
Phys. attr./liveliness	59.3 _a	73.4 _a	52.5 _a	63.8 _a	-6.8†	0.21	-10.0*	0.34
Social status/resources	21.5 _b	14.6 _b	22.4 _b	17.2 _b	.9	0.03	2.6	0.13
Warmth/trustworthiness	19.2 _b	11.7 _b	25.1 _b	19.1 _b	5.9*	0.23	7.4*	0.32
Short-term: affair partner								
Phys. attr./liveliness	53.7 _a	65.7 _a	44.0 _a	57.6 _a	-9.7*	0.35	-8.1*	0.28
Social status/resources	24.5 _b	16.2 _b	31.9 _b	21.0 _b	7.4*	0.29	4.9	0.23
Warmth/trustworthiness	21.8 _b	18.1 _b	24.2 _b	21.4 _b	2.4	0.10	3.2	0.14

Note. Subscripts denote comparisons within a column. Means with different subscripts are significantly different from one another ($p < .05$, Bonferroni adjusted). Phys. attr. = physical attractiveness.
 $\dagger p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

comparisons indicated that both women and men spent a significantly higher proportion of their respective low budgets on physical attractiveness than any other characteristic. On the other hand, women's spending on social level was only significantly higher than their spending on creativity and was not different from their spending on an aggregate of the other characteristics, $F(1, 176) = 0.02$.

Spending Across Budgets

Sex differences. A Sex \times Characteristic interaction was significant at the low, $F(4, 704) = 7.71, p < .001$; medium, $F(4, 704) = 11.23, p < .001$; and high budget level, $F(4, 704) = 12.24, p < .001$, indicating that women's and men's spending patterns differed at each budget level. The interaction contrast of spending on physical attractiveness versus the other four characteristics by sex was significant at the low, $F(1, 176) = 14.89, p < .001$, medium, $F(1, 176) = 21.41, p < .001$, and high budget, $F(1, 176) = 20.56, p < .001$, indicating that at each level, men's relative preference for physical attractiveness was stronger than women's. Similarly, women's relative preference for social level was stronger than men's at the low, $F(1, 176) = 10.31, p < .001$, medium, $F(1, 176) = 10.25, p < .001$, and high budget level, $F(1, 176) = 21.14, p < .001$.

To examine every possible sex difference in spending, we tested the effect of sex for each characteristic at the low budget. Men spent more than women did on physical attractiveness, $F(1, 176) = 14.89, p < .001$, and women spent more on social level, $F(1, 176) = 10.31, p < .01$. Both remained significant after a Bonferroni correction ($\alpha = .05/5 = .01$), and no other effects were found. Although these sex differences appear to have decreased as

budgets increased (see Figure 1), the three-way Budget \times Sex \times Characteristic interaction was not significant, $F(8, 1408) = 1.15$.

Necessities versus luxuries. As additional income becomes available, people spend an increasingly smaller percentage of the extra income on necessities, and a larger percentage on luxuries. To investigate which characteristics fit these two classifications, we compared allocations of the first set of mate dollars with those of the third set (see Table 1) and tested the effect of budget on each characteristic for each sex. Table 1 shows the marginal changes in percentage of funds allocated to each characteristic as budget increased. Physical attractiveness was a necessity and creativity was a luxury for both women and men. Also, kindness was a luxury for men, becoming increasingly important as budget increased. Overall, the Budget \times Characteristic interaction was significant, $F(8, 1408) = 34.20, p < .001$, reflecting that as budget increased, both sexes tended to flatten their preferences (i.e., differentiate less among characteristics).

Long- Versus Short-Term Mating

An additional ANOVA was performed, adding duration (long vs. short) as a within-subjects independent variable (duration order was balanced). For the budget allocation analysis, only effects involving duration and characteristic are discussed (as the data are not meaningful if spending is collapsed across traits, thereby eliminating relative preferences for different traits).

Budget allocation. For men, an interaction contrast of physical attractiveness versus the other four characteristics by duration at the low budget was significant, $F(2, 352) = 176.12, p < .001$; their prioritization of physical attractiveness was even more pronounced for short-term than for long-term mates. The same contrast was

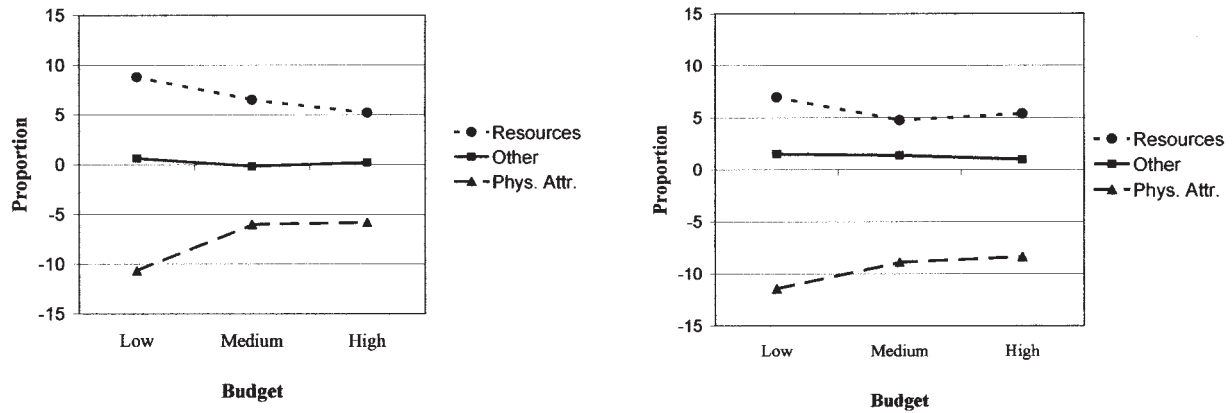


Figure 1. The graph on the left refers to long-term mates; the graph on the right refers to short-term mates. Sex differences in proportion spent on physical attractiveness (Phys. Attr.), status/resources, and other characteristics as a function of budget (positive number denotes greater female spending).

significant for women, $F(2, 352) = 74.86, p < .001$; their prioritization of attractiveness was only for short-term mates.

Table 2 compares short-term low budget spending for each sex in Study 1 with the corresponding long-term data in Study 2 of Li et al. (2002). For short- as opposed to long-term mates, women tended to spend more on physical attractiveness and less on social level and kindness. Men tended to spend more on physical attractiveness and less on social level, creativity, and kindness. Each of these except for men's decreased spending on creativity remained significant after a conservative Bonferroni alpha correction ($\alpha = .05/10 = .005$).

A significant three-way interaction of Duration \times Budget \times Characteristic, $F(8, 1408) = 13.68, p < .001$, reflected that when budgets increased, both sexes tended to flatten their preferences, although somewhat differently for short-term mates than for long-term mates. A significant interaction of Duration \times Sex \times Characteristic, $F(4, 704) = 2.49, p < .05$, reflected that men and

women were more similar in their preferences for short- versus long-term mates, in that both sexes tended to prioritize physical attractiveness for the former.

Likelihood of accepting mates. A Duration \times Sex interaction, $F(1, 175) = 6.32, p = .01$, reflected that men and women were equally likely to accept their long-term mates, but men were more willing to accept their short-term mates. As budgets increased, men and women were more likely to accept each type of mate (for all F s, $p < .001$). However, a Budget \times Duration interaction, $F(2, 350) = 27.94, p < .001$, indicated that an increasing budget (and thus, overall mate quality) had a greater positive impact on both sexes' likelihood of accepting long-term mates.

Different Strategies

Although, on average, both sexes prioritized physical attractiveness in short-term mates, which is consistent with strategic

Table 2
Low Budget Consumption for Long- and Short-Term Mates (One-Night Stands): Mean Percentage Allocated to Each Characteristic

Characteristic	Allocation for long-term mates		Allocation for short-term mates		Difference between long-term and short-term mates			
	Women	Men	Women	Men	Women	<i>d</i>	Men	<i>d</i>
Study 1								
Phys. attr.	20.6 _b	31.3 _a	40.8 _a	52.3 _a	20.2***	1.31	21.0***	1.18
Social level	27.2 _a	18.3 _b	20.2 _b	13.3 _b	-6.9**	0.50	-5.1***	0.36
Creativity	8.4 _c	9.9 _c	6.1 _c	6.0 _c	-2.3	0.22	-3.9*	0.33
Kindness	26.5 _a	26.8 _a	17.1 _b	13.7 _b	-9.5***	0.73	-13.0***	0.88
Liveliness	17.3 _b	13.7 _{b,c}	15.8 _b	14.7 _b	-1.5	0.13	1.0	0.08
Study 2								
Phys. attr./liveliness	26.8 _b	42.7 _a	59.3 _a	73.8 _a	32.4***	1.39	31.1***	1.46
Social status/resources	32.4 _b	19.1 _b	21.5 _b	14.6 _b	-10.9***	0.60	-4.5†	0.26
Warmth/trustworthiness	40.7 _a	38.2 _a	19.2 _b	11.7 _b	-21.5***	0.99	-26.5***	1.40

Note. Subscripts denote comparisons within a column. Means with different subscripts are significantly different from one another ($p < .05$, Bonferroni adjusted). To obtain differences, long-term numbers were subtracted from short-term numbers (positive numbers indicate greater short-term spending). Phys. attr. = physical attractiveness.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

pluralism theory, there may be some women who did not prioritize physical attractiveness in their short-term mates but instead prioritized long-term qualities, as sexual strategies theory would suggest. Because these are two distinctly different strategies, we performed a *k*-cluster analysis on women's short-term, low-budget purchases to examine this possibility. The two-cluster short-term solution is shown in Table 3, along with the long-term selections made by each cluster. We performed an ANOVA on the selections, using the 2 one-night-stand cluster groups, five characteristics, and two durations as independent variables. For women, the three-way interaction was significant, $F(4, 372) = 16.90, p < .001$, indicating that the two clusters differed in their short-term selections (as we expected from performing cluster analysis) but not in their long-term selections. Both clusters prioritized kindness and social level in their long-term selections. However, women in Cluster 2 ($n = 39$) tended to heavily prioritize physical attractiveness in their short-term mates at the expense of significantly lowering expenditures on social level and kindness, whereas women in Cluster 1 ($n = 56$) made short-term selections that more closely resembled their long-term mate choices. Their short-term priorities indicated a smaller increase in physical attractiveness and a slight decrease in kindness, but social level remained near the same level.

A cluster analysis was also applied to men's short-term low budget choices, and an ANOVA also produced a significant three-way interaction, $F(4, 324) = 20.27, p < .001$. Although the two

clusters were relatively similar in long-term preferences, men in Cluster 2 ($n = 37$) differentiated more sharply between durations. For short-term mates, they heavily prioritized physical attractiveness while greatly reducing kindness, as well as lowering social level and creativity. Men in Cluster 1 ($n = 46$) tended to have less differentiated selections, giving a much smaller boost to physical attractiveness and much smaller drop in kindness for short-term mates.

Within each sex, we also compared the two clusters on their sociosexuality (SOI) scores (Simpson & Gangestad, 1991). Those higher on SOI tend to be more open to sexual encounters without signs of investment or commitment. Only men showed a significant difference, $t(79) = 2.00, p < .05$, in that those in the less differentiated Cluster 1 had lower (more sexually restricted) SOI scores ($M = 51.89, SD = 40.14$) than those in the more differentiated Cluster 2 ($M = 72.05, SD = 50.44$). Thus, for men, openness to casual sex was related to a greater favoring of physical attractiveness in short-term mates.

Last, within each sex, we examined the clusters' willingness to accept the two kinds of mates via an ANOVA, using cluster group, duration, and budget as independent variables. A Cluster \times Duration interaction was significant only for men, $F(1, 162) = 7.30, p < .01$. Across the budgets, men in the more duration-differentiated Cluster 2 were more likely than men in Cluster 1 to accept short-term mates, whereas Cluster 1 men were more likely than Cluster 2 men to accept long-term mates.

Table 3
Short-Term (One-Night Stand), Low Budget Cluster Groups

Characteristic	Short-term Cluster 1				Short-term Cluster 2			
	LT	ST	Diff.	<i>d</i>	LT	ST	Diff.	<i>d</i>
Female participants								
Study 1								
Phys. attr.	19.6 _b	30.0 _a	10.4***	0.90	22.0 _{ab}	56.4 _a	34.4***	2.55
Social level	27.5 _a	25.0 _a	-2.5	0.19	26.7 _a	13.3 _{bc}	-13.3***	0.96
Creativity	7.1 _c	6.8 _c	-0.4	0.03	10.3 _c	5.1 _c	-5.1*	0.47
Kindness	28.2 _a	23.2 _a	-5.0*	0.41	24.1 _{ab}	8.2 _{bc}	-15.9***	1.38
Liveliness	17.5 _b	15.0 _b	-2.5	0.28	16.9 _{bc}	16.9 _b	0.0	0.00
Study 2								
Phys. attr./liveliness	27.3 _b	63.2 _a	35.9***	1.67	20.8 _b	8.3 _b	-12.5	0.82
Social status/resources	32.7 _{a,b}	22.5 _b	-10.2***	0.57	29.2 _{a,b}	8.3 _b	-20.8*	1.20
Warmth/trustworthiness	40.0 _a	14.3 _c	-25.7***	1.46	50.0 _a	83.3 _a	33.3**	1.63
Male participants								
Study 1								
Phys. attr.	28.7 _a	37.0 _a	8.3***	0.71	34.6 _a	71.4 _a	36.8***	2.62
Social level	19.6 _{a,b}	17.4 _{b,c}	-2.2	0.15	16.8 _{b,c}	8.1 _{bc}	-8.6***	0.68
Creativity	12.2 _b	10.9 _c	-1.3	0.10	7.0 _d	0.0 _c	-7.0***	0.86
Kindness	25.2 _a	19.1 _b	-6.1**	0.43	28.6 _{a,b}	7.0 _{b,c}	-21.6***	1.56
Liveliness	14.3 _b	15.6 _{b,c}	1.3	0.11	13.0 _{c,d}	13.5 _b	0.5	0.04
Study 2								
Phys. attr./liveliness	41.4 _a	50.5 _a	9.1*	0.55	43.3 _a	84.8 _a	41.4***	2.22
Social status/resources	16.2 _b	13.1 _c	-3.0	0.16	20.5 _b	15.2 _b	-5.2	0.31
Warmth/trustworthiness	42.4 _a	36.4 _b	-6.1	0.38	36.2 _a	0.0 _c	-36.2***	2.65

Note. Subscripts denote comparisons within a column. Means with different subscripts are significantly different from one another ($p < .05$, Bonferroni adjusted). To obtain differences, long-term numbers were subtracted from short-term numbers (positive numbers indicate greater short-term spending). Diff. = difference; LT = long term; ST = short term; Phys. attr. = physical attractiveness.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Although the sexes were equally likely to accept a long-term mate, men were somewhat more likely than women to accept a short-term mate of any overall quality. Men gave more weight to physical attractiveness and women gave more to social level, but both sexes prioritized physical attractiveness as a necessity in short-term mates. The sexes were less alike for long-term mates in that women tended to prioritize social level. However, when given a chance, both sexes sought more well-rounded mates in both durations, especially in the long-term. Sex differences (men's relative preference for physical attractiveness, women's relative preference for social level) tended to decrease as choices became less constrained, especially for long-term mates.

Although physical attractiveness tended to be prioritized by all individuals for short-term mates, there was evidence that for some men and women, this prioritization was less pronounced. Men in this subgroup were more eager for long-term relationships and less willing to engage in short-term mating and had lower SOI scores.

Study 2

A concern about Study 1 is the possibility that there are important dimensions of mate choice that were not directly represented. Fletcher et al. (1999) factor analyzed 49 mate selection traits and found three distinct factors, which they identified as warmth/trustworthiness, attractiveness/vitality, and status/resources. Fletcher et al. (2004) offered choices between targets who were high on one dimension and low on the other two (Study 1), as well as choices between targets who were high on two dimensions and low on one (Study 2). Both sexes tended to favor a short-term fling partner with high attractiveness/vitality over one with high warmth/trustworthiness, and both of those were preferred over one with high status/resources.

Although our definition of social level corresponds to status and resources, and physical attractiveness and liveliness correspond to attractiveness and vitality, kindness may not have fully captured the warmth and trustworthiness factor. Thus, in Study 2, we focused on the exact three factor-analyzed dimensions of Fletcher et al. (1999, 2004). Although they pitted high levels of these characteristics against each other, our budget allocation methodology allows an examination of preferences for these factors from the ground up. Thus, we are able to see not only what people prioritize, but whether they continue to prefer it over the other factors when given the freedom to do so. If physical attractiveness is a necessity, then people should prioritize having a moderate amount of it but subsequently shift their preferences away from physical attractiveness toward the other two dimensions. In contrast, if physical attractiveness is a luxury, then we would expect it not to be prioritized initially but only after other more essential qualities are sufficient.

Although, on average, physical attractiveness was prioritized for short-term mates in Study 1, there was also support for the possibility that some women and men differentiate less between long- and short-term mates, and thus might be viewing their short-term mates as possible long-term ones. This occurred despite our use of one-night stands, which arguably diminishes the possibility of long-term relations. In Study 2, we also asked participants about a partner for a sexual affair. Cross-cultural evidence indicates that

extramarital affairs are relatively common in modern societies (e.g., Fisher, 1987; Hite, 1987; Marshall & Suggs, 1971) as well as tribal societies (e.g., Chagnon, 1983; Hill & Hurtado, 1996; Shostak, 1981), and such relationships leave open the possibility of ensuing long-term relationships.

Method

A four-factor, mixed model design was used. The between-subjects variable was sex of participant (male, female). Within-subject variables were duration (marriage, one-night stand, affair partner), budget (low, medium, high), and characteristic (physical attractiveness/liveliness, social status/resources, warmth/trustworthiness). The method used was similar to that of Study 1. Participants were 216 psychology undergraduates at the University of Texas at Austin: 113 women, aged 17 to 57 ($M = 21.0$), and 103 men, aged 17 to 46 ($M = 21.0$).

Results

Spending on a Tight Budget

The lower part of Table 1 shows low-budget expenditures across the three characteristics (hereinafter referred to by the first part of their labels) and the results from Bonferroni-corrected comparisons of the characteristics. For one-night stands, both women and men spent a significantly higher proportion of their respective low budgets on physical attractiveness than on social status or warmth. The same pattern was found in affair partners for both sexes. For long-term mates, the sexes differed. Men once again prioritized physical attractiveness, but women prioritized warmth over physical attractiveness and social status; for men, the planned comparison of physical attractiveness versus an average of the other two traits was significant, $F(1, 214) = 28.86, p < .001$, but the Bonferroni-adjusted comparison of physical attractiveness to warmth was not.

Spending Patterns Across Budgets

For both sexes, spending patterns differed across budgets, and this occurred differently depending on the type of mate, as indicated by an interaction of Duration \times Budget \times Characteristic, $F(4, 856) = 4.35, p < .01$.

Long-term. For long-term mates only, a Sex \times Budget \times Characteristic interaction, $F(4, 856) = 2.37, p = .05$, indicated that sex differences changed across budgets. With a low budget, women valued social status more than men did for long-term mates, $F(1, 214) = 34.20, p < .001$, and men valued physical attractiveness more than women did, $F(1, 214) = 43.19, p < .001$. Sex \times Budget interactions for social status, $F(2, 428) = 3.04, p < .05$, and physical attractiveness, $F(2, 428) = 3.95, p < .05$, indicated that these sex differences diminished as budgets increased.

Short-term. A significant Sex \times Characteristic interaction at each budget for both types of short-term mates (all F s had $p < .001$), indicated that women's and men's spending patterns differed at each budget level for each type of mate. Sex differences tended to hold across budgets. At all budgets for both types of mates, men desired physical attractiveness more than women did. However, the Budget \times Characteristic interaction was significant for both one-night stands, $F(4, 860) = 12.99, p < .001$, and affair

partners, $F(4, 860) = 18.53, p < .001$, indicating that both sexes flattened out their preferences as choices were less constrained. That is, both sexes chose less physical attractiveness and more of the other two dimensions as budgets increased.

Necessities versus luxuries. We compared the allocations of the first set of mate dollars with those of the third set (see Table 1) and tested the effect of budget on each characteristic for each sex. Table 1 shows the marginal changes in percentage of funds allocated to each trait as budget increased. For long-term mates, physical attractiveness was a necessity, and status was a luxury to men but not women. For one-night stands, physical attractiveness was a necessity to both sexes (marginally for women), and warmth was a luxury to both sexes. For affair partners, physical attractiveness was a necessity for both sexes, and social status was a luxury for women.

Likelihood of accepting mates. A Duration \times Sex interaction, $F(2, 428) = 11.88, p < .001$, reflected that men and women were equally likely to accept their long-term mates, but men were more willing to accept their one-night stands, $F(1, 214) = 17.94, p < .001$, and affair partners, $F(1, 214) = 4.04, p < .05$. As budgets increased, so did the likelihood of acceptance for both sexes for each type of mate (all F s with $p < .001$). However, an interaction of Budget \times Duration, $F(4, 856) = 14.39, p < .001$, indicated that an increasing overall mate quality had a more positive impact on both sexes' likelihood of accepting long- versus short-term mates (see Figure 2).

Different Strategies

One-night stands. To investigate the possibility of different strategies for pursuing short-term mates, we performed k -cluster analyses on women's and men's low-budget purchases for one-night stands. The two-cluster one-night stand solutions for each sex are shown in Table 3, along with the selections made by each cluster for long-term mates. For each sex, we performed an ANOVA on the selections, using the 2 one-night stand cluster groups, three characteristics, and two durations as independent variables. For women, the three-way interaction was significant, $F(2, 222) = 22.75, p < .001$, indicating that the two clusters differed in their one-night stand priorities (as expected from performing cluster analysis) but not in their long-term priorities. For long-term mates, both short-term clusters of women favored warmth, then social status, then physical attractiveness. However, for one-night stands, women in Cluster 1 ($n = 105$) tended to heavily prioritize physical attractiveness, whereas the 8 women in Cluster 2 strongly prioritized warmth.

For men, the same three-way interaction on the low-budget selections was also significant, $F(2, 202) = 27.76, p < .001$. Those in Cluster 2 ($n = 70$) clearly favored physical attractiveness while greatly reducing warmth and social status for one-night stands, whereas men in Cluster 1 ($n = 33$) differentiated less between long- and short-term mates, giving a much smaller boost to physical attractiveness while not substantially decreasing social status or warmth.

We also examined the clusters' willingness to accept mates via an ANOVA, using cluster group, duration, and budget as independent variables. A Cluster \times Duration interaction was significant for women, $F(1, 222) = 4.52, p < .05$. Across the budgets, Cluster 1 women (favoring physical attractiveness) were more likely than

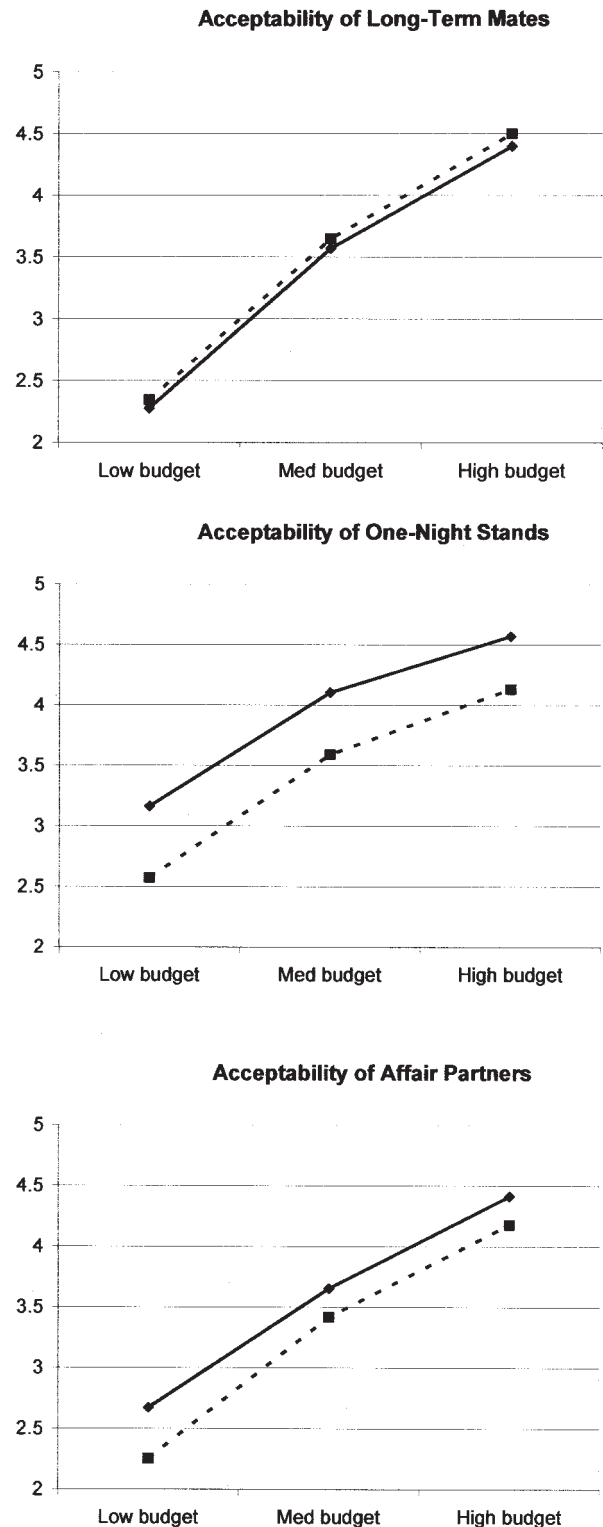


Figure 2. Sex differences in the acceptability of mates (1 = very unlikely, 5 = very likely). Men, solid line; women, dashed line. Med = medium.

Cluster 2 women (favoring warmth) to accept one-night stands, but Cluster 2 women were more likely than Cluster 1 women to accept long-term mates. The same interaction was also significant for men, $F(1, 202) = 4.43, p < .05$. The cluster favoring physical attractiveness was more likely than the other cluster to accept one-night stands, whereas the less differentiated cluster was more likely to accept long-term mates.

Affair partners. For affair partners, a two-cluster analysis for women produced a pattern that was very similar to the one for one-night stands. The ANOVA on the selections produced a significant Cluster \times Characteristic \times Duration interaction, $F(2, 222) = 10.56, p < .001$. The large majority of women were in one cluster ($n = 106$), strongly prioritizing physical attractiveness in their affair partners, and a small minority were in the other cluster ($n = 7$), strongly prioritizing warmth. For long-term mates, both clusters favored warmth, then social status, then physical attractiveness. For the ANOVA on mate acceptability, there was a significant Cluster \times Duration interaction, $F(1, 222) = 8.48, p < .01$. Those in the cluster favoring physical attractiveness were more likely than those in the cluster favoring warmth to accept affair partners, whereas the reverse was true for long-term mate acceptability.

For men considering affair partners, a two-cluster analysis also resulted in a significant three-way interaction, $F(2, 202) = 17.32, p < .001$. The large majority were in one cluster ($n = 94$), favoring physical attractiveness, then warmth, then social status in long-term partners, and strongly favoring physical attractiveness in affair partners. A small minority were in the other cluster ($n = 9$), favoring warmth, then physical attractiveness, then social status in long-term mates, and showing the same pattern, but even more pronounced, for affair partners. Again, the ANOVA on mate acceptability produced a significant Cluster \times Duration interaction, $F(1, 202) = 4.52, p < .05$. Those in the cluster favoring physical attractiveness were somewhat more likely than those in the warmth cluster to accept their affair partners, whereas those favoring warmth were much more likely to accept their long-term mates.

Discussion

Study 2 used two types of short-term mates and applied a budget allocation method to the factor-analyzed dimensions from Fletcher et al. (1999, 2004). Although both sexes were equally likely to accept a long-term mate with characteristics they had designed, men were more likely than women to accept a one-night stand and an affair partner of any overall quality. Under binding constraints, both sexes prioritized physical attractiveness in both short-term mates. The sexes were less alike in their preferences for long-term mates, in which both equally valued warmth, but men prioritized physical attractiveness and women preferred more resources and status. When given the chance, neither sex tended to prefer a high level on any one dimension while having low levels of the other dimensions. Both sexes sought more well-rounded marriage partners, one-night stands, and affair partners, such that preferences for each mate flattened out as budgets grew. For long-term mates, men's and women's preferences also became more similar as budgets grew.

Warmth and trustworthiness in Study 2 was valued similarly to how kindness was valued in Study 1—mostly as a luxury for

short-term mates and as a close second choice for men considering long-term mates. However, women considering long-term mates valued warmth and trustworthiness even more than they previously valued kindness. This is in line with the possibility that warmth and trustworthiness covers a broader range of qualities than kindness does.

There also was evidence that a small minority of women and men tended to prefer long-term traits in their short-term mates and were more eager for long-term relationships and less willing to engage in short-term mating than the majority.

Study 3

To be sure that priorities for short-term mates found in the first two studies were not an artifact of a particular methodology, we designed Study 3 to reflect more closely how people actually screen potential mates. If necessities are characteristics with relatively fixed minimum thresholds that must be met in a potential mate, then when given the opportunity to inquire about potential mates, people should seek information on these characteristics first. If a potential mate meets or exceeds the threshold on a necessary characteristic, then he or she may receive scrutiny on other characteristics. If not, the person can be removed from further consideration. This screening process may be likened to Murstein's stimulus-value-role theory (1970), in which people are thought to evaluate potential marriage partners through ordered stages before arriving at a favorable decision.

Study 3 was a two-factor, mixed-model design. The between-subjects variable was participant sex (male, female), and the within-subjects variable was characteristic (the same five used in Study 1). Because participants judged multiple targets on multiple characteristics, we used three broad classifications of quality, as described below. Participants sought out information regarding the different characteristics about alleged potential one-night stand partners, with the goal of reaching a decision about the acceptability of each potential mate.

Method

Participants

Participants were 57 Arizona State University undergraduates enrolled in introductory psychology. There were 22 women, aged 18 to 22 ($M = 19.2$), and 35 men, aged 18 to 22 ($M = 19.6$).

Materials and Procedure

The experiment was run on a computer. For each of 30 consecutive screens, an opposite sex name appeared at the top. Five buttons appeared on the left side of the screen, each containing the name of a characteristic. Characteristic presentation order was balanced.

We designed a cover story to remove any implicit mate screening our participants might normally perform on their own. Participants were told that 100 randomly chosen people in their early 20s were interviewed in a local area well known for diversity, ranging from working professionals and college students to slackers. On the basis of the interviews and observations, targets were ranked within their sex and placed into one of three levels for physical attractiveness, creativity, kindness, liveliness, and social level. Targets in the bottom third for their sex were considered as Level 1, those in the middle third as Level 2, and top third as Level 3. Participants were told they would be presented with a random subset of 30

opposite-sex targets and asked to determine whether each would be desirable to them as a one-night stand. They could click on any characteristic to find out which level (1, 2, or 3) a target person belonged to on that characteristic. Participants were told to click on as many characteristics as they wished but on as few as needed to arrive at a reasonable decision. In effect, participants were asked to prioritize their preferences.

Results and Discussion

The dependent measure for the first part of the analyses was the number of times out of 30 trials a characteristic was chosen first. We analyzed the data with a mixed-model ANOVA, including planned comparisons to test our prediction of the necessity of physical attractiveness.

The First Thing People Want to Know

The mean number of times (out of 30 trials) each characteristic was chosen first is shown in Table 4. An interaction of Characteristic \times Sex, $F(4, 220) = 4.32, p < .01$, indicated that the sexes differed in their priorities. Women most often checked target physical attractiveness first, and the contrast of this versus the other four traits for women was significant, $F(1, 55) = 12.46, p = .01$. Men also most often checked physical attractiveness, $F(1, 55) = 77.30, p < .001$. As shown in Table 4 (top), the only significant sex difference was on physical attractiveness: Although both sexes tended to check physical attractiveness first, men did this more often.

Which Characteristics Influence the Decision to Accept or Reject Potential Mates?

We used hierarchical regression to analyze the decision to accept or reject potential mates. For each participant's 30 trials, we

first performed a quadratic regression using the accept/reject decision as the dependent variable. Independent variables were the level on each of the five characteristics and the square of each level. Using an ANOVA, we examined regression weights for each participant. We predicted that people should require acceptable mates to be at least average (Level 2) on necessities but should not require them to be clearly above average (Level 3) on these traits. That is, being at Level 2 versus Level 1 on a necessity should greatly improve a target's acceptability but being at Level 3 versus Level 2 should have less positive impact. Thus, we expected a necessity to have both a significantly positive linear coefficient and a significantly negative quadratic one. For both sexes, every trait except creativity (when women screened) had a positive linear regression coefficient significant at the .05 level. After an alpha correction ($\alpha = .05/20 = .0025$), each remained significant except for social level for men. Thus, higher levels on nearly every characteristic made a target more likely to be accepted. However, only one of these also had a significantly negative quadratic coefficient: physical attractiveness for both sexes.

Although most traits influenced targets' acceptability as short-term mates, only physical attractiveness was prioritized as a necessity. Men and women evaluating mates most often inquired first about physical attractiveness. The impact of this trait on the acceptability of mates displayed a curvilinear pattern. Going from below average to average on physical attractiveness increased a potential mate's acceptability more than going from average to above average.

Long- Versus Short-Term Mating

The three-way ANOVA produced significant two-way interactions of Sex \times Characteristic, $F(4, 444) = 7.88, p < .001$, and Duration \times Characteristic, $F(4, 444) = 11.40, p < .001$. Although

Table 4
Mean Number of Times Out of 30 a Characteristic Was Chosen First When People Screened Potential Mates

Characteristic	Short-term mates				Long-term mates				Difference between long-term and short-term mates			
	Women	Men	Diff.	<i>d</i>	Women	Men	Diff.	<i>d</i>	Women	<i>d</i>	Men	<i>d</i>
Phys. attr.	14.4 _a	22.5 _a	-8.2**	0.75	4.8 _{a,b,c}	12.8 _a	-8.0*	0.75	9.6***	0.99	9.7***	0.83
Social level	4.8 _b	1.9 _b	2.9	0.43	10.4 _a	4.8 _{a,b}	5.6**	0.61	-5.6**	0.59	-2.9	0.44
Creativity	3.0 _b	0.7 _b	2.3	0.55	2.3 _c	1.2 _b	1.1	0.31	0.7	0.14	-0.4	0.18
Kindness	4.8 _b	2.0 _b	2.7	0.43	9.2 _{a,b}	6.8 _{a,b}	2.3	0.23	-4.4*	0.48	-4.8*	0.59
Liveliness	3.1 _b	2.8 _b	0.3	0.04	3.3 _{b,c}	5.1 _{a,b}	-1.7	0.25	-0.3	0.05	-2.3	0.29
	Women (Short-term)				Men (Short-term)							
Characteristic	Cluster 1	Cluster 2	Diff.	<i>d</i>	Cluster 1	Cluster 2	Diff.	<i>d</i>				
Phys. attr.	18.1 _a	1.8 _a	-16.3**	1.62	6.4 _a	28.1 _a	21.6***	6.19				
Social level	5.8 _{a,b}	1.2 _a	-4.6	0.54	5.8 _{a,b}	0.6 _b	-5.2**	1.24				
Creativity	1.1 _b	9.4 _a	8.3**	1.57	1.4 _b	0.5 _b	-0.9	0.59				
Kindness	1.6 _b	15.4 _a	13.8***	2.26	7.0 _a	0.3 _b	-6.7***	1.76				
Liveliness	3.4 _b	2.2 _a	-1.2	0.18	9.3 _a	0.5 _b	-8.8***	1.67				

Note. Subscripts denote comparisons within a column. Means with different subscripts are significantly different from one another ($p < .05$, Bonferroni adjusted). To obtain sex differences, we subtracted men's numbers from women's numbers (positive numbers indicate greater number of times chosen first by women). To obtain long- vs. short-term differences, we subtracted long-term numbers from short-term numbers (positive numbers indicate more often chosen first in short term). To obtain cluster differences, we subtracted Cluster 1's numbers from Cluster 2's numbers (positive numbers indicate greater number of times chosen by Cluster 2). Diff. = difference; Phys. attr. = physical attractiveness.

* $p < .05$. ** $p < .01$. *** $p < .001$.

physical attractiveness was prioritized by both sexes for short-term mates, men prioritized it more strongly than women did for both durations. Table 4 compares the short-term first choices for each sex to the long-term first choices from Li et al. (2002, Study 3). For short- versus long-term mates, women tended to first select physical attractiveness more often and social level and kindness less often. Men tended to first select physical attractiveness more often and kindness less often, for short- as opposed to long-term mates. After a Bonferroni correction ($\alpha = .05/10 = .005$), only the increased priority of physical attractiveness remained significant for both sexes. Thus, both sexes prioritized physical attractiveness more for short- than for long-term mates. Indeed, for men, an interaction contrast of physical attractiveness versus the other four traits by duration was significant, $F(1, 122) = 13.39, p < .001$, indicating that the prioritizing of physical attractiveness was even more pronounced for short- than for long-term mates. The same contrast for women, $F(1, 112) = 12.14, p = .001$, reflected that they favored physical attractiveness only for short-term mates.

To investigate the possibility of different strategies for pursuing short-term mates, we performed *k*-cluster analyses on women's and men's first selections for one-night stands. The two-cluster short-term solutions for each sex are shown in Table 4 (bottom). Women in Cluster 1 ($n = 17$) tended to check physical attractiveness first, whereas women in Cluster 2 ($n = 5$) tended to check kindness first (although none of the Cluster 2 selections significantly differed). Men in Cluster 2 ($n = 26$) checked physical attractiveness first, whereas Cluster 1 men ($n = 9$) tended to first check liveliness, kindness, physical attractiveness, and social level equally. Because duration was a between-subjects variable, between-cluster comparisons for short- versus long-term selections were not possible.

When given the opportunity to consider potential one-night stands, both sexes considered most characteristics to be influential in the decision to accept or reject such a mate. However, the traits were not prioritized equally. Two lines of evidence from a different methodology point to the necessity of physical attractiveness for short-term mates. First, both sexes tended to prioritize finding out about physical attractiveness. Second, avoiding a mate who is below average on physical attractiveness was more important than obtaining someone who is above average on this trait. Compared with long-term mates, both sexes were more interested in finding out about their potential short-term partners' physical attractiveness first. Finally, results from a cluster analysis suggested that a small subset of women and men did not prioritize physical attractiveness in their screening of short-term mates.

Study 4

Thus far, we have confirmed previous findings on *whether* and extensively addressed *what* in terms of uncovering priorities. On average, both sexes prioritized physical attractiveness in short-term mates, which is consistent with the possibility that men may be implicitly seeking to verify fertility and women may be seeking to verify sufficient genetic quality. However, these results alone do not preclude the possibility that physical attractiveness may be prioritized for different underlying reasons. Also, some of our participants did not appear to be prioritizing physical attractiveness, suggesting that other underlying motives may be operating that are not directly related to physical qualities.

The next study was conducted to further explore the *why* question of casual sex. In Study 4, we asked people directly why they would have casual sex. We included reproductive and genetic reasons, as well as more proximate and social reasons.

Method

Participants

Participants were 78 University of Texas psychology undergraduates. There were 56 women, aged 18 to 27 ($M = 20.3$), and 26 men, aged 19 to 25 ($M = 20.1$).

Materials and Procedure

Participants were asked to consider the last time that they had or were considering having casual sex and to rate the extent to which various factors played a role: (a) I was physically attracted to the person, and I thought it would feel good; (b) I wanted to have children with this person; (c) I thought that this person had desirable characteristics that would show up in any children I had if a pregnancy followed; (d) I actually wanted a long-term relationship with this person and thought the casual sex might lead to something more long-lasting; (e) I wanted to protect that person; (f) I wanted to be protected by that person; (g) I thought having sex with this person would bring social approval (e.g., from friends); (h) I thought having sex with this person would enhance my social reputation; (i) I thought that it would allow me to get a sense of my value in the mate market. Ratings were made on a Likert-type scale (1 = *extremely unlikely*, 9 = *extremely likely*). Participants were also asked to select the most likely reason from this list.

Results and Discussion

Of the men, 14 (64%) reported never having actually had casual sex, 2 (9%) reported having had it on one occasion, and 6 (27%) reported having had it more than once. Of the women, 36 (64%) reported never having had casual sex, 11 (20%) reported having had it on one occasion, and 9 (16%) reported having had it more than once. Thus, the responses of the majority of participants were based on a time when they were considering having casual sex. However, there were no significant differences between the responses of those who had actually had casual sex and those who were recollecting a time when they had considered doing so; therefore, we did not include experience as a variable in subsequent analyses.

"I was physically attracted to the person, and I thought it would feel good" was rated the highest by both men ($M = 7.73, SD = 1.16$) and women ($M = 6.62, SD = 2.10$) and was the only factor with ratings above a neutral 5 (*neither likely nor unlikely*). As shown in Table 5, for both men and women the rating on this factor was significantly higher than for each of the other factors. A Sex \times Reason interaction, $F(8, 592) = 7.67, p < .001$, indicated that men and women tended to differ in their ratings. Specifically, men rated physical attractiveness, social approval, and social reputation higher than women did, and women rated protection from other higher than men did. For women, desiring a long-term relationship was the second most common reason chosen and was more likely to be chosen than each of the remaining seven reasons. For the forced-choice responses, 67% of men and 64% of women selected physical attractiveness as the most likely reason for them to

Table 5
Mean Ratings of Various Reasons for Having Casual Sex

Reason	Women	Men	Sex diff.	<i>d</i>
1. I was physically attracted to the person and thought it would feel good.	6.62 _a	7.73 _a	-1.10*	0.59
2. I wanted to have children with this person.	1.70 _d	1.91 _d	-0.21	0.13
3. I thought that this person had desirable characteristics that would show up in any children I had if a pregnancy followed.	2.02 _d	2.00 _d	0.02	0.01
4. I actually wanted a long-term relationship with this person and thought the casual sex might lead to something more long-lasting.	4.98 _b	4.18 _b	0.80	0.32
5. I wanted to protect that person.	2.02 _d	2.77 _{b,c,d}	-0.75	0.42
6. I wanted to be protected by that person.	3.62 _c	1.86 _{c,d}	1.76**	0.77
7. I thought having sex with this person would bring social approval (e.g., from friends).	2.20 _d	3.32 _{b,c,d}	-1.12**	0.64
8. I thought having sex with this person would enhance my social reputation.	2.11 _d	3.59 _{b,c}	-1.48***	0.80
9. I thought that it would allow me to get a sense of my value in the mate market.	2.50 _{c,d}	4.41 _b	-1.91***	1.02

Note. Subscripts denote comparisons within a column. Means with different subscripts are significantly different from one another ($p < .05$, Bonferroni adjusted). To obtain sex differences, we subtracted men's numbers from women's numbers (positive numbers indicate higher ratings by women). diff. = difference.
* $p < .05$. ** $p < .01$. *** $p < .001$.

consider casual sex, and chi-squares were significant for both men, $\chi^2(2) = 28.90, p < .001$, and women, $\chi^2(5) = 100.85, p < .001$.

To explore the possibility of different within-sex strategies, we performed *k*-cluster analyses on men's and women's ratings. The two-cluster solutions are shown in Table 6. For women, both the larger Cluster 1 ($n = 33$) and the smaller Cluster 2 ($n = 21$) favored physical attraction. However, Cluster 2 participants also indicated an equally strong likelihood of having or desiring sex for a long-term relationship and receiving protection. For men, there were two equally sized clusters ($ns = 11$). Although both clusters clearly favored physical attraction, men in Cluster 1 had higher ratings on the other items, although they were still distant second choices.

In summary, when offered nine different choices separately and simultaneously, participants indicated that being physically at-

tracted was the most likely factor under consideration when having or desiring casual sex. Long-term mating goals (for both sexes) and mate value information (for men) tended to be distant second choices. Neither sex reported being likely to consider reproductive factors such as desiring children or good genes as reasons. There was also some indication that for a minority of women, protection and a long-term relationship may be primary factors.

Study 5

Although results of Studies 1–4 suggested that other goals may be operating for a subset of individuals, we found that both sexes generally prioritize physical attractiveness in short-term mates and that physical attraction itself is the most likely reason women and men cite for having or desiring casual sex. We are left with the

Table 6
Cluster Analysis of Ratings of Various Reasons for Having Casual Sex

Reason	Women				Men			
	Cluster 1	Cluster 2	Diff.	<i>d</i>	Cluster 1	Cluster 2	Diff.	<i>d</i>
Physical attraction	6.42 _a	6.81 _a	0.39	0.18	7.82 _a	7.64 _a	-0.18	0.16
Desire for children	1.12 _c	2.38 _b	1.26**	0.95	2.64 _{cd}	1.18 _{b,c}	-1.45*	0.98
Heritable traits	1.39 _c	2.81 _b	1.42**	0.90	2.82 _{cd}	1.18 _{bc}	-1.64*	1.12
Long-term relationship	3.58 _b	7.14 _a	3.57***	1.75	4.82 _{bcd}	3.55 _b	-1.27	0.73
To protect	1.33 _c	2.90 _b	1.57***	1.24	3.82 _{bcd}	1.73 _{bc}	-2.09*	1.05
To be protected	1.73 _c	6.33 _a	4.61***	3.80	2.64 _d	1.09 _c	-1.55**	1.44
Social approval	1.64 _c	2.81 _b	1.17**	0.86	5.09 _{bc}	1.55 _{bc}	-3.55***	2.96
Social reputation	1.58 _c	2.67 _b	1.09**	0.77	5.64 _b	1.55 _{bc}	-4.09***	3.33
Mate value information	1.85 _c	3.52 _b	1.68***	1.13	5.82 _b	3.00 _{bc}	-2.82**	1.58

Note. Subscripts denote comparisons within a column. Means with different subscripts are significantly different from one another ($p < .05$, Bonferroni adjusted). To obtain cluster differences, we subtracted Cluster 1's numbers from Cluster 2's numbers (positive numbers indicate greater number of times chosen by Cluster 2). Diff. = difference.
* $p < .05$. ** $p < .01$. *** $p < .001$.

questions of why physical attractiveness is so highly prioritized and why physical attraction is so important for short-term mating. If both sexes are similar in these regards, how might it be the case that the underlying reasons may be different? We ran Study 5 as an open-ended survey to explore more carefully the specific features people consider physically attractive for casual sex and why they think they do. We were interested in gathering additional information relevant to how these responses map onto the features that theories and studies on attractiveness in short-term mating have focused on (e.g., Johnston et al., 2001; Penton-Voak et al., 1999; Scheib et al., 1999; Thornhill & Gangestad, 1994; Shackelford & Larsen, 1997; Singh, 1994; Symons, 1979).

Method

Participants

Participants were 78 University of Texas psychology undergraduates. There were 54 women, aged 18 to 27 ($M = 20.3$), and 20 men, aged 18 to 24 ($M = 20.2$).

Materials and Procedure

Participants were asked to consider a casual sex encounter and to list, as specifically as possible, up to four things that they would find physically attractive about such a partner and why each item would be important to them. They were also asked to do the same for a long-term relationship

partner. The presentation order of short- and long-term mates was balanced.

Results

We categorized the responses for physically attractive features by specific face or body part. These specific categories were then organized into broader categories of body/build, mouth/smile, face, hair, skin, and height. A relatively small percentage of responses were more general and were placed into an “other” category (e.g., handsome, cute). The top half of Table 7 shows summaries of what men and women found physically attractive for both types of relationships. Although the survey asked for specific items that are physically attractive, some participants of both sexes specified some nonphysical qualities (e.g., personality, intelligence). The sexes did not differ in their distribution of responses for long-term mates, $\chi^2(8) = 11.88, p = .16$, nor for short-term mates, $\chi^2(8) = 10.73, p = .22$. Women tended to differ in what they specified for the two types of mates, $\chi^2(8) = 17.35, p < .05$, and so did men, $\chi^2(8) = 16.12, p < .05$. For short- versus long-term mates, both sexes specified more features related to body and build and less nonphysical qualities. Thus, at first glance, the sexes still seem very similar across the broad categories for both types of mates. However, a closer examination revealed important differences.

Table 7
Distribution (in Percentages) of Features That Men and Women Find Physically Attractive in a Long- and Short-Term Partner and Reasons Why They Are Important

Feature	Women		Men	
	Long term	Short term	Long term	Short term
Body, build	23.6	33.5	23.4	48.1
Mouth, smile	14.8	13.7	6.5	6.5
Height	12.2	7.3	5.2	6.5
Hair	7.4	8.6	9.1	9.1
Face	7.0	9.0	13.0	13.0
Eyes	7.0	7.3	11.7	5.2
Skin	3.1	1.3	2.6	0.0
Other features, general appearance	3.9	7.3	7.8	2.6
Nonphysical characteristics	21.0	12.0	20.8	9.1
Total	100.0	100.0	100.0	100.0

Reasons why physical features are important	Women		Men	
	Long term	Short term	Long term	Short term
Infer positive characteristics	21.5	16.0	17.4	0.0
Physical/sexual attraction, tactile	19.8	57.3	30.4	81.0
Security, protection	13.6	4.0	0.0	0.0
Healthy, hygiene	13.0	4.7	8.7	9.5
Genetics, pass on to children	11.9	1.3	6.5	0.0
Masculine, dominant (feminine)	7.3	10.0	4.3	0.0
Raises self-esteem, mood	5.6	2.0	4.3	0.0
Emotionality, expressiveness	3.4	1.3	17.4	0.0
Older (younger, sexually mature)	1.1	1.3	4.3	2.4
Communication	0.0	0.0	4.3	0.0
Other	2.8	2.0	6.5	7.1
Total	100.0	100.0	100.0	100.0

For women, most of their body/build items referred to muscularity, upper body strength, and physical fitness (e.g., muscular arms, wide shoulders, athletic; 66.7% for long term, 71.8% for short term), whereas for men, this was not the case (0.0% for long term, 21.6% for short term). Instead, men focused more on specifying the shape and size of breasts and buttocks (38.9% for long term, 40.5% for short term). For mouth features, a smile was mentioned by both sexes, but only women specified good teeth (29.4% for long-term, 34.4% for short-term). Women also mentioned masculine items such as a good jaw and strong jaw line. Facial features varied quite widely for both sexes, but a notable difference was that women mentioned good and strong structure, whereas men emphasized softness and femininity.

For height, 100% of women's specifications pertained to being tall or taller than themselves, whereas all of men's specifications were for partners who were shorter than they were. There was also a tendency for women to specify dark features (e.g., hair, skin) and men to specify light features.

Two raters independently categorized the responses for why the physical features are important, compared their categories and categorizations, and reconciled any differences. The summaries are shown in the bottom half of Table 7. Both women, $\chi^2(9) = 64.31, p < .001$, and men, $\chi^2(8) = 31.55, p < .001$, differed in what they specified for short- versus long-term mates. Some form of "because it is physically attractive" tended to be the most highly cited reason for both sexes, especially for short-term mates.

However, the sexes also differed in their distribution of responses for long-term mates, $\chi^2(9) = 25.45, p < .01$, and for short-term mates, $\chi^2(9) = 21.85, p < .01$. A key difference is that men more often specified physical/sexual attraction as a reason why a physical feature was important to them. Another difference is that women specified security and protection (mostly for long-term mates), whereas men did not. For short-term mates, only women tended to infer other positive qualities (e.g., fun, memorable, charming, mysterious). Also, men tended to cite emotionality and expressiveness as reasons for physically attractive features of long-term mates, whereas women did not. Furthermore, women specified masculinity and dominance more than men specified femininity, especially for short-term mates.

Discussion

Consistent with Study 4, women cited protection as a reason why they found certain features to be physically attractive in long-term mates. Consistent with research on women's attraction toward masculinity (e.g., Johnston et al., 2001; Penton-Voak et al., 1999) and dominance (Sadalla, Kenrick, & Vershure, 1987), women also tended to cite these reasons for the attractiveness of various features, especially for short-term mates. Most strongly, results were consistent with Study 4's ratings of reasons for having casual sex: Physical/sexual attraction (with no additional explanation) was the most cited reason why features were physically attractive.

Going beyond the proximate claims of physical attraction, we looked to the physically attractive items themselves. Here, both sexes specified a greater proportion of physical features for short-term than for long-term mates. Items pertaining to body and build were most common. Especially for short-term mates, women specified features related to muscularity, strength, fitness, and masculin-

ity. According to good genes theory, women find symmetrical men to be attractive, and this is especially true around the time of ovulation (e.g., Gangestad & Thornhill, 1998). However, women apparently are not aware of symmetry (Scheib et al., 1999). Thus, it is not surprising that symmetry was not mentioned in the present study. Nevertheless, symmetry is correlated with other testosterone-mediated secondary sexual characteristics such as muscularity and masculinity (Gangestad & Thornhill, 1997b; Scheib et al., 1999; Watson & Thornhill, 1994). Because testosterone is also an immunosuppressant, the size and symmetry of secondary sexual characteristics are hypothesized to be honest indicators of immunocompetence and, thus, good underlying genes (Thornhill & Gangestad, 1993). Indeed, women prefer greater than average muscularity, and male muscularity is correlated with male short-term mating success (Frederick & Haselton, 2005). Women also prefer masculine features, especially around the time of ovulation (e.g., Johnston et al., 2001; Penton-Voak et al., 1999). Thus, women's specifications of masculine and muscular features in the present study are consistent with the good-genes account of strategic pluralism theory that women may be seeking genetic fitness in short-term partners (Gangestad & Simpson, 2000).

On the other hand, men's specification of breasts and buttocks for both types of mates is consistent with previous research suggesting that estrogen-influenced secondary sexual characteristics are attractive for purposes of identifying reproductively viable partners (e.g., Manning et al., 1997; Singh & Young, 1995). We discuss this further in the General Discussion.

Women's specifications that men be taller (especially for long-term mates) and men's desire for shorter women fit with well-established norms (Gillis & Avis, 1980). Of course, because something is "normative" does not indicate that it is the result of social pressures unconstrained by biological considerations. Male height has been linked to status and protective capabilities and may be attractive to women for these reasons (e.g., Buss, 2004). Although height is less a factor in attractiveness to men than to women, men seem to be most attracted to women of average height (Hensley, 1994; Nettle, 2002; Shepard & Strathman, 1989). There is evidence that women who are shorter than average and men who are taller than average have greater reproductive success, as measured by number of children (e.g., Mueller & Mazur, 2001; Nettle, 2002).

Women's specifications of dark features and men's specifications of light features are consistent with cross-cultural data on skin color preferences (Van den Berghe & Frost, 1986) and the possibility that men are seeking cues to youth, as skin and hair color tends to darken with age. Although many women specified good teeth, a review of the mating literature revealed no studies involving teeth. However, dental quality is largely heritable (e.g., Townsend, Aldred, & Bartold, 1998), so at least to some extent, this preference is compatible with the good-genes account. Reasons supplied by participants were attraction, health, hygiene, and better kissing. Further investigation along these lines may be warranted.

General Discussion

Are men and women similar or different in their preferences for short-term as opposed to long-term relationships? Findings obtained from two methodologies and five studies suggest that

the answer is somewhat different depending on how one asks the question. When the present findings are viewed in light of other available literature, the similarities and differences make theoretical sense and contribute to a more articulated and less simplistic understanding of gender and mating that has been emerging in recent years.

Whether, What, and Why

Considering first the question of whether to enter a given type of relationship, results here corroborate a general finding from other studies: The sexes are similarly selective for long-term relationships, whereas women are more selective regarding short-term relationships. Even when given a high budget to design an ideal short-term partner, women were significantly less willing than men to accept that partner. One possible reason is that in long-term relationships, both partners typically make a large investment to maintain the relationship and to raise offspring. However, in short-term relationships, men typically invest very little, whereas women would be obligated to make a big investment by themselves if offspring are produced (Buss & Schmitt, 1993; Kenrick et al., 1990).

On the other hand, if it is given that a particular relationship will occur and the question shifts to what is important in a mate, a different picture emerges. There, the sexes tend to be similar for short-term and different for long-term relationships. For long-term mates, women prioritize status and resources, whereas men tend to prioritize physical attractiveness (Li et al., 2002). However, there is a limit to which of these characteristics are pursued—with enough freedom of choice, both sexes tend to go for well-rounded mates at some point. These findings are consistent with the possibility that a variety of personal qualities can benefit a long-term relationship, but women may be motivated to first verify sufficiency in resources and men may be motivated to first verify sufficiency in reproductive capacity (Li et al., 2002). The findings are also consistent with the perspective that women's prioritizing of status and resources reflect the economic constraints they encounter in modern society (Eagly & Wood, 1999). Of course, human societies are constructed by human beings, and it is to be expected that in many cases normative behaviors will reflect fundamental human preferences (Kenrick, Trost, & Sundie, 2004; Norenzayan, Schaller, & Heine, in press).

For short-term relationships, both sexes tended to value all traits but to prioritize physical attractiveness. Both sexes also indicated that, by far, the most likely reason why they have had or considered casual sex was being physically attracted. When asked what features are physically attractive, both sexes favored the body. This again indicates a sex similarity, but a closer examination reveals that the meaning of a physically attractive body is very different for women and men. For instance, the key features of an "attractive" man's body are that it is muscular and tall. Men's specifications for an attractive woman's body focused instead on breasts and buttocks, and men also desired a shorter mate.

From a sociocultural perspective, when the time horizon is as brief as it is for short-term mating, the economic constraints that women face when considering long-term relationships should be less relevant. Thus, both sexes should be free to

prioritize physical attractiveness in short-term relationships as men do for long-term mates. However, this perspective does not address why physical attractiveness should be prioritized over other desirable traits.

To address why, we have considered two major evolutionary perspectives—sexual strategies theory (Buss & Schmitt, 1993) and strategic pluralism theory (Gangestad & Simpson, 2000). In line with strategic pluralism theory, researchers have found that men whom women consider physically attractive tend to exhibit masculinity and symmetry (e.g., Johnston et al., 2001; Scheib et al., 1999; Thornhill & Gangestad, 1994). Symmetrical and muscular men, but not women, have greater short-term mating success (e.g., Frederick & Haselton, 2005; Gangestad & Thornhill, 1997b; Thornhill & Gangestad, 1994). Also, women's visual and olfactory preferences for masculinity and symmetry, as well as desire for extrapair affairs, significantly increase at the time during the ovulatory cycle when conception is most likely (Gangestad & Thornhill, 1998; Gangestad, Thornhill, & Garver, 2002; Penton-Voak et al., 1999). Consistent with research across numerous species (e.g., Møller & Thornhill, 1998), women's preferences for symmetry have been attributed to genetic benefits of immunocompetence (e.g., Gangestad & Simpson, 2000; Thornhill & Gangestad, 1993). Although women may not be aware of symmetry, other cues such as muscularity and masculinity, both testosterone-dependent and correlated with symmetry, may serve as markers for good genes (e.g., Scheib et al., 1999; Singh, 1994). Results from our open-ended survey on physically attractive features indicated an increased attention to such traits by women considering short-term mates and, thus, are consistent with this possibility.

Also, given that women prioritized short-term physical attractiveness as a necessity and not as a luxury, our results are not only more consistent with the good-genes account of strategic pluralism theory than with the long-term mating account proposed by sexual strategies theory; they also suggest that women may be seeking to ensure sufficiency in gene quality for short-term mates.

In contrast, female symmetry does not seem to be as important as male symmetry in influencing mating preferences and behavior, and good-genes selection may be less of an underlying objective to men (e.g., Gangestad & Thornhill, 1997b; S. W. Gangestad, personal communication, May 2004). For instance, facial symmetry seems to be less important to men than to women in judgments of opposite sex attractiveness (Shackelford & Larsen, 1997). Men do factor breast symmetry into judgments of attractiveness, health, and desirability for long- and short-term relationships (e.g., Singh, 1994), but breast symmetry has been found to correlate with fertility (Manning et al., 1997; Møller, Soler, & Thornhill, 1995) rather than good genes. Men's general preferences for estrogen-related secondary sexual characteristics including breasts and buttocks have been theoretically and empirically linked to fertility and reproductive health (e.g., Cant, 1981; Johnston & Franklin, 1993; Manning et al., 1997; Singh & Young, 1995; Symons, 1979, 1995). Thus, in the context of this large network of research, our findings are consistent with the possibility that men may be motivated to seek markers of fertility and reproductive health (e.g., Symons, 1979). Furthermore, by prioritizing at least an average level of physical attractiveness up front, men may be implicitly verifying sufficient fertility before valuing other traits in both long- and short-term mates.

By applying cluster analyses, we also found some evidence that a subgroup of women and men may be particularly less inclined toward short-term mating and more inclined toward long-term mating. This subgroup also tended to prioritize more typically long-term traits such as warmth in short-term mates, and women in this subgroup tended to cite a long-term relationship and protection as reasons why they have had or considered casual sex. These findings are consistent with previous findings that women who are less open to casual sex value physical attractiveness less (Simpson & Gangestad, 1992), and they lend some partial support to sexual strategies theory, whereby some women, and perhaps some men, may engage in short-term mating for other reasons, including evaluating potential long-term partners and obtaining a long-term relationship. Our results are also consistent with findings from another recent study using cluster analyses (Vigil, Geary, & Byrd-Craven, in press).

For both types of relationships, Table 8 summarizes the main sex differences and similarities for whether to enter a relationship and what characteristics are valued and prioritized in the relationship. It also summarizes possible underlying reasons why the sexes might differ or be similar for decisions of entry and for what characteristics are important. For short-term mates, it has previously been found that men's ideal standards for various traits tend to be lower than women's (e.g., Kenrick et al., 1990). Such findings have commingled the what and whether dimensions. By teasing them apart, we clarify an important distinction: Men are more eager on the whether dimension, but the sexes are actually similar in what they desire and prioritize.

In contrast to the general conclusion of sex differences in short-term mating, men's and women's choices for long-term mates have been reported to look rather similar (Kenrick et al., 1990). Indeed, long-term partners place much more emphasis on obtaining a partner who is similar to themselves (e.g., Kenrick et al., 1993). However, a more thorough dissection of the whether

and what questions using our methodologies reveals key differences in how this comes about. In contrast to short-term partners, men and women start out with very different priorities for long-term mates. However, because of diminishing marginal returns on these traits, both sexes wind up with well-rounded mates when given more freedom of choice. Thus, these findings suggest that mate preferences may be more complex than parental-investment-inspired evolutionary theories (e.g., Buss, 1989) and social context theories (e.g., Eagly & Wood, 1999)—with their focus on sex differences—have thus far suggested. More generally, a separation of the issues of whether, what, and why should be helpful in a field in which some researchers consistently point out sex differences while others argue for the lack of differences (e.g., Buss & Schmitt, 1993; Hazan & Diamond, 2000; Miller & Fishkin, 1997).

Contributions of the Present Research on Priority

Although social psychologists have described attraction and relationships in terms of social exchange and equity (e.g., Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985; Homans, 1961; Walster, Walster, & Berscheid, 1978), economic concepts have not been fully incorporated into the design of actual studies. Our research here and elsewhere (Li et al., 2002) attempts to form a link between microeconomic concepts of budget allocation and empirical studies of mate selection. Along the what dimension, not only are our findings compatible with past research in mate selection, they also make a novel contribution by asking and answering a different question—priority. For example, Fletcher et al. (2004) examined tradeoffs and found that, for short-term mates, both sexes most often chose high levels of attractiveness/vitality, then high levels of warmth/trustworthiness, and finally, high levels of status/resources. Using the same three dimensions but applying a budget allocation methodology, we found in Study 2 that obtaining moderate physical attractiveness/vitality was of highest priority to

Table 8
Whether, What, and Why for Which (Marriage or One-Night Stand) Partner

Question	Marriage		One-night stand	
	Women	Men	Women	Men
<i>Whether to enter a relationship</i>	• Selective, high standards	• Selective, high standards	• Selective, high standards	• More eager
<i>Why</i>	• High investment	• High investment	• High potential investment	• Low minimum investment (high benefit-to-cost ratio)
<i>What is prioritized</i>	• Status/resources, kindness, intelligence	• Physical attractiveness, kindness, intelligence	• Societal norms of sexual restraint	• Societal norms of sexual autonomy
			• Physical attractiveness	• Physical attractiveness even more than women
<i>What matters</i>	• Well-rounded mate	• Well-rounded mate	• Muscularity and masculinity	• Breasts and buttocks
			• Well-rounded mate	• Well-rounded mate
			• Adaptively ensure resources for offspring, then find good overall partner	• Adaptively ensure fertility genes
			• Societal economic constraints	• Societal economic power
<i>Why</i>			• Good genes	
			• Free to prioritize what is desirable and highly valued in society or subculture	• Free to prioritize what is desirable and highly valued in society or subculture

both sexes when considering two types of short-term mates. However, we also found that the importance of physical attractiveness/vitality decreased and the importance of the other two factors increased with greater freedom of choice. In addition, social status/resources tended to be preferred over warmth/trustworthiness. For long-term mates, Fletcher et al. found that high levels of warmth/trustworthiness were strongly preferred over high levels of attractiveness/vitality. In contrast, we did not find a strong preference for warmth over attractiveness, especially for men at the low budget level and women at the high budget level. Whereas Fletcher et al. compared high levels of the three dimensions in their study, the participants in our study did not allow themselves to make tradeoffs between high trait levels when given the opportunity to do so. Rather, they showed evidence of preferring well-rounded mates.

More generally, the present studies support the usefulness of two methodologies introduced earlier for discriminating luxuries and necessities (Li et al., 2002). The methodologies are potentially important because they incorporate three features that were not altogether present in previous research. First, participants evaluate various traits simultaneously rather than separately. Second, overall choice is constrained from the ground up, so that choices begin at the lowest possible levels. Together, these two features effectively divide the mate selection process into levels of priority. Third, the levels of each trait are clearly specified to reflect the entire range inherent in the general population. This reduces participants' tendencies to make assumptions about the levels of the characteristics found in the people with whom they typically associate, who may be narrower in range on certain characteristics (e.g., college students' social circles may not include those in the lower percentiles on attractiveness or social class). By incorporating these features, it is possible to capture low-level distinctions between necessities and luxuries that may otherwise be missed.

Outside of mate selection, people are chosen for a wide variety of other relationships, and such methodologies can also reveal what characteristics are essential in these relationships (Cottrell, Neuberg, & Li, 2004). More broadly, these methods and the distinction between necessities and luxuries that they reveal should be useful in a number of different domains of social judgment (e.g., Lieberman, Tooby, & Cosmides, 2001).

Limitations and Directions for Future Research

In Studies 1 and 2, mates were designed using consciously articulated, rational processes that most people do not use in real life. Although Study 3 may more closely reflect actual mate choice procedures, our main goal was not to observe actual mate choice but to systematically tap into priorities that underlie the selection process. Nevertheless, there may be implications for actual relationships when viewing the results of the whether and what questions together. Because both sexes had relatively high thresholds for accepting long-term mates, the well-rounded profiles that both sexes with high budgets designed may reflect the mates that they likely accept for actual relationships. In contrast, different implications may exist for short-term partners because women are significantly less willing to enter such relationships than men are. For actual short-term mates, women may have a relatively large budget, but most men may be rather limited in their options. Thus, whereas women may be able to select a well-rounded casual sex

partner, most men's budget allocation toward actual short-term partners may effectively be capped at or below a minimally acceptable level of physical attractiveness.

Certainly, the study of mate choice would benefit from a more systematic investigation of possible links between the various mates designed in laboratories and the choices made in real life. One such candidate for study is a person's own mate value. If people regard certain traits as necessities that they prioritize but eventually shift away from, then one's own mate value may influence the set point at which the shift occurs. Thus, a physically attractive woman may require a higher level of resources (long-term) or physical attractiveness (short-term) before being concerned about other traits. Such findings would help connect the laboratory to the outside world, where data from actual marriages show that the best predictor of a husband's social status is the wife's physical attractiveness (Elder, 1969; Udry & Eckland, 1984).

Another benefit of the budget allocation methodology is that it would allow people to design themselves as potential mates, which could provide further insight into underlying cognitive processes. One possibility is that people would design themselves similar to the opposite-sex mates that they desire. Another possibility is more consistent with findings that cognitive functions may be adaptively domain specific (Buss, 1995; Gutierrez, Kenrick, & Partch, 1999). For instance, in forming judgments of their own mate value, people are affected by photos and descriptions of same-sex individuals who vary on criteria valued by the opposite sex (Gutierrez et al., 1999). That is, viewing physically attractive women causes a woman to lower her self-perceived mate value, whereas attending to socially dominant men lowers a man's self-perceived mate value. Similarly, we may expect men to prioritize physical attractiveness in themselves when considering short-term mating but to prioritize resources when considering long-term mates. In addition, one's own mate value may influence the degree to which these are prioritized. Such findings would be consistent with a domain-specific view of cognitive processes.

Future research may also benefit from a consideration of cultural influences, which could shed further light on modern day mating priorities as well as on how cultural and evolutionary forces might interact. If necessities are prioritized for important biological reasons, then we would expect cultural forces to influence one's choices of luxuries. For example, although an academic and a biker might prioritize similar necessities, one might value pensiveness as a luxury and the other might value adventurousness as a luxury. Culture may also influence necessities, although likely in ways that lead to the same underlying reproductive goals. For instance, an academically minded woman might prioritize the quality of one's research, whereas a biker female might value the quality and loudness of one's motorcycle; however, both may be seeking sufficient status in their respective long-term mates. Future studies that examine budget choices among different subcultures or cultures could test these ideas and contribute to a greater understanding of cultural similarities and differences and of how cultural and biological forces interact to shape people's mate preference priorities. Although the two theories have generally highlighted sex differences and have been presented as opposing viewpoints (e.g., Eagly & Wood, 1999; Buss & Schmitt, 1993), a more integrative approach may be in order, as culture and biology may best be conceptualized as forces that are mutually constrain-

ing and constructive. In this view, culture is not a phenomenon outside the stream of human evolution but an emergent dynamic that interacts with the adaptive proclivities of the individuals who make up societies (Kenrick, Li, & Butner, 2003).

Physical attractiveness is clearly an important characteristic in mate selection. We have found it to be prioritized by both sexes for short-term mates and by men for long-term mates. Although we asked our participants for specific features that they find physically attractive, our studies did not visually depict or experimentally manipulate any of these qualities. Researchers who have demonstrated links between preferences for masculinity and symmetry and women's ovulatory cycles have used various computer techniques to present visual stimuli (e.g., Johnston et al., 2001; Penton-Voak et al., 1999; Scheib et al., 1999). It would be informative to combine our economic methods with these techniques and the underlying theory. For instance, if women prioritize physical attractiveness to ensure underlying genetic benefits, then they should prioritize masculinity and symmetry in short-term mates and express a heightened prioritization of these features when they are ovulating. Research in our lab has begun looking into these possibilities (Haselton, Li, Pillsworth, Frederick, & Frank, 2005).

Although the good-genes account of strategic pluralism theory (Gangestad & Simpson, 2000) was supported, our participants did not actually indicate that having children and getting genetic benefits were likely reasons for having or considering sex. Is this a problem for the theory? Probably not. Evolved mechanisms do not require people to be aware of the ultimate objectives of their psychologies in order to work (e.g., Buss & Schmitt, 1993). Although people may be aware of their proximate feelings and behaviors (i.e., that they feel physically/sexually attracted to certain features), the more distal explanations may be less consciously accessible. As William James (1892, pp. 260–261) once wrote, "Not one man in a billion, when taking his dinner, ever thinks of utility. He eats because the food tastes good and makes him want more. If you ask him why he should want to eat more of what tastes like that, instead of revering you as a philosopher he will probably laugh at you for a fool." In addition, there should be no reason to expect people's cognitions of their motivations to map onto the underlying adaptive objectives, unless such cognitions are required to enact the behaviors that lead to fulfilling these objectives (e.g., Schaller, 2003). Thus, responses to surveys such as that used in Study 4 may in part reflect what feelings and motivations are consciously accessible. These consciously accessible motivations may provide clues to underlying adaptive purposes but should not be assumed to be identical. One possibility for future research is to create studies that require participants to make more subtle associations. For example, when primed for short-term relationships, do women have associative links to children and their heritable qualities? Evidence of such links would be informative for the relevant theories, although they also may be difficult to uncover. As mentioned earlier, although people report greater attraction to faces and bodies that are more symmetrical, they do not seem to be aware of differences in symmetry (Scheib et al., 1999; Singh, 1994). Inference of underlying motives from proximate conscious preferences requires not only a close examination of people's priorities and the particular qualities they find physically attractive but also a

deeper consideration of such findings in light of a larger body of theory as well as empirical research.

In Study 5, women and men specified physical traits that have been linked to different underlying processes. As described above, for women, results tended to support the good genes argument of strategic pluralism theory (Gangestad & Simpson, 2000). Results for men support the idea that female physical attractiveness may provide cues to fertility and reproductive health (e.g., Symons, 1979). A large body of theory and research supports the relative importance of gene quality to women and reproductive capacity to men. Nevertheless, we believe that further research may be needed to more carefully differentiate between a good-genes explanation and a fertility explanation for men's preferences of physical attractiveness. Our results indicate that men prioritize physical attractiveness even more for short-term than for long-term mates. Is this additional bias due to a relatively increased need to verify fertility in short-term mates or to an underlying desire for genetic benefits that may not be important in long-term mates? Breast symmetry has been shown to matter to men only if a woman has a low waist-to-hip ratio, thereby suggesting that symmetry and waist-to-hip ratio may be contributing to female mate value in different ways (Singh, 1994). Thus, it is plausible that genetic benefits may implicitly matter to men considering short-term mates but are secondary in priority to fertility. Certainly, further investigation of this issue is needed.

More generally, there should be further investigation among all the possible motives for having short-term relationships. Our cluster analyses suggest that there may be some women and men who prefer long-term characteristics in short-term mates and some women who consider protection and long-term relationships to be likely reasons for having or considering casual sex. These findings provide some limited support for sexual strategies theory, whereby women may use short-term mating to evaluate or obtain potential long-term relationships. However, in our studies, these women tended to desire long-term relationships more than other people did and short-term relationships less than others did. Thus, it is possible that these women do not view short-term relationships as ends in themselves but as occasional means to obtain more desirable long-term relationships. However, it is also possible that these women are simply opposed to short-term relationships and, when asked to imagine a sexual encounter, specified long-term characteristics. Further research is needed to more systematically identify specific personal characteristics and situations for which the long-term mating motive and other possible reasons for having casual sex are likely to occur.

Conclusion

By asking the question of priority and applying appropriate methods, we were able to reveal a less visible but fundamentally important aspect of the mate selection process that previous research may have missed. Not only do men and women value physical attractiveness in short-term mates, they prioritize it as a necessity. Other characteristics are also important and influential in the acceptability of a mate, but they are less critical. Beyond mate selection, meaningful prioritizing is likely to be found in any domain of human life. With the aid of these types of methods and

the distinction of necessities and luxuries they identify, greater insight hopefully can be attained in decision-making processes across a wide variety of areas.

The present findings add to a more articulated view of gender and mate choice. They illustrate that there are theoretically meaningful sex similarities as well as sex differences. Indeed, on careful examination, physical attractiveness in a mate is found to mean somewhat different things to a man and a woman. Understanding these similarities and differences depends significantly on carefully distinguishing the questions of what people are seeking in mates for different levels of involvement, whether they are willing to consider such involvements in the first place, and why those variations in criteria may exist.

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