

Using Evolutionary Psychology to Account for Sex Differences and Similarities in Psychological Tendencies

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Abstract

Shared evolutionary selection pressures have created many similar cognitive processes and interaction strategies in both sexes. However, evolutionary psychologists focus less on sex similarities than sex differences. In a study on mate preferences, participants rated the importance of nine items for either a long-term or a short-term relationship. Sex differences consistent with evolutionary theory were found for family background and body shape. Other findings supported the notion of sex similarities—participants rated ambition, meeting parents, and faithfulness as significantly more important in the long-term situation than in the short-term situation. Discussion focuses on the need of evolutionary psychological theories to account for both similarities and differences between the sexes.

A great deal of attention has recently been given to an evolutionary psychological perspective on human mating. A main focus of this approach has been to identify sex differences in the “mating game.” Several models are relevant. Trivers’s (1972) model of parental investment used evolutionary theory to predict sex differences in mating strategies. The theory proposed that parental investment in reproduction differed widely between males and females.

The consequences of a sexual encounter for a male could be reduced to a pleasurable experience; whereas, a female faced years of parenting and lost mating opportunities. Given these circumstances, it was hypothesized that females would be more selective in all sexual encounters, using short-term strategies to evaluate a mate for long-term potential. Males, on the other hand, should have evolved promiscuous behaviors in order to maximize their mating opportunities and ultimately their genetic legacy.

Buss and Schmitt (1993) identified differences in the problems faced by human males and females relevant to the evolutionary context. In long-term situations for males, these problems included paternity uncertainty and selection of highly reproductive partners. For females, the main long-term problem was the search for an investing mate. Problems faced in short-term situations for males were partner number, sexual accessibility, identifying fertile females, and avoiding commitment and investment. For females, problems faced in

short-term situations were immediate resource extraction, assessment of long-term mates, and the need for protection due to physical dimorphism. Behaviors that increased reproductive success were valuable, and thus subject to sexual selection. Some proposed adaptive behaviors included male promiscuity, male jealousy, and the value placed on resources by females.

Although the focus on sex differences in numerous studies has led to many important discoveries, one negative consequence of this approach is that some people find it intuitively distasteful and end up dismissing evolutionary theory altogether. There is some strong opposition to the evolutionary approach. For example, radical alternatives that emphasize the social and cultural accounts of sex differences, such as Social Structural Theory (Eagly & Wood, 1999) and Biosocial Theory (Wood & Eagly, 2002), have been proposed. S. S. Hendrick and C. Hendrick (1992) suggested that neither the evolutionary nor the social/cultural models completely explain human mating. Evolutionary allies from other disciplines are critical of the traditional application of evolutionary theory to psychology (e.g., Gould, 1991). In a more moderate approach, de Waal (2002) explained that although the theory of evolution is frequently misapplied in psychology, it is still a necessary approach for the field because of its potential as a conceptual framework that can integrate the disconnected theories of human behavior.

Evolutionary psychology’s theories reflect an examination of more sex differences than similarities. For example, traditional evolutionary mate preference studies give passing mention to sex similarities in mate preferences (Buss, 1985), referred to as species-typicality (Buss et al., 1990). Although evolutionary psychologists initially pursued the goals of identifying both sex similarities and differences in

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mate preferences (Buss, 1990), current researchers rarely hypothesize about sex similarities, despite the fact that 99.9% of all DNA is identical across humans (Plomin et al., 2003; Plomin & Walker, 2003). Yet, the similarities in mate preferences appear to be robust. In two studies, Buss and Angleitner (1989) found that the top three mate characteristics from a list of 13 were kind-understanding, intelligent, and exciting personality for both German males and females, as well as for both American males and females. Cunningham and Barbee (2000) reported that all groups in their study of social support in romantic relationships rated caring qualities as most important in a long-term relationship. Idealization (e.g., makes you feel special) was rated the most important, followed by emotional support and friendship. Similar selection pressures on humans as a species should have made such positive cognitive processes and strategies present to some degree in both sexes. Sex similarities thus reflect the shared evolutionary environment of males and females.

Much of evolutionary psychology has dealt with uncomfortable issues such as jealousy (e.g., Buss, 2000; Drigotas & Barta, 2001), infidelity (e.g., Baker, 1996), and rape (e.g., Thornhill & Palmer, 2000). The evolutionary psychology approach has been described as “less than popular with many feminist theorists” (S. S. Hendrick, 2004, p. 213) for its perspective on some of the aforementioned issues. It has also been noted that evolutionary psychology is controversial due to its early reliance on the nebulous construct of the psychological mechanism (C. Hendrick, 1995). In addition to these factors, the discomfort people feel regarding many evolutionary psychological findings may stem from the field’s focus on sex differences, uncomfortable topics, and negative emotions.

To remedy this weakness, researchers need to be more cognizant of sex similarities, positive emotions, and human universals. Indeed, other researchers have noted that findings support similarities between males and females more than differences (Harris, 2000, 2003; Kenrick & Trost, 1989). In close relationships research, S. S. Hendrick and C. Hendrick (1995) advocated the examination of both sex similarities and differences for attitudes toward love and sexuality. Positive emotions and human universals, such as long-term pair-bonding, should be examined.

For example, DeSteno and Salovey (1996) proposed the “double-shot hypothesis” to explain forced-choice sex differences in distress to emotional infidelity and sexual infidelity. They reasoned that females selected emotional infidelity as being more distressing because it represented both types of infidelity: emotional and sexual. The authors also claimed that evolutionary theory failed to account for large within-sex differences in distress to type of infidelity. Harris and Christenfeld (1996) found that both male and female subjects believed emotional infidelity implied sexual infidelity more than vice versa. The authors interpreted these results to imply that responses to infidelity are the result of the different ways that men and women interpret evidence of infidelity.

There are many methods through which to examine mate preferences. For example, stimuli such as androstenol (Carlson, 2001), drawings and photos (Singh, 1993; Tovee, Maisey, Emery, & Cornelissen, 1999), potential mates (Marcus & Miller, 2003; Roney, 2003), and self-reports (Korchmaros & Kenny, 2001; Schmitt & Shackelford, 2003) have been used, as well as variables such as facial attractiveness (Halberstadt & Rhodes, 2000; Kalick, Zebrowitz, Langlois, & Johnson, 1998)

and menstrual cycle (Macrae, Alnwick, Milne, & Schloerscheidt, 2002). The current study examines attitudes toward mates in hypothetical short-term and long-term relationships. Eagly and Chaiken (1993, p. 1) define an attitude as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor.” The merit of this technique is that it hypothesizes evolutionary origins for the psychological tendency, which is embedded within a tension system between the individual and the situation (Ross & Nisbett, 1991). Such a psychological tendency may be the result of preconscious control (Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Moskowitz, Skurnik, & Galinsky, 1999) based on strategies with evolutionary origins. Basic attitudinal research is essential, and lays the groundwork for more solid links between attitude and behavior (e.g., Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997).

Research seeking to broaden evolutionary psychology’s application to include sex similarities contributes heavily to an objective discipline. Ross and Nisbett (1991, p. 14) stated that “an analysis of restraining factors can be as important to understanding and anticipating the effects of a newly introduced stimulus as an analysis of the stimulus itself.” Continuing in this direction, the current study examines both the similarities and differences of the sexes in mate preferences. Dual sexual strategies (long- and short-term) should be present in both sexes. Also, as a pair-bonding species, both sexes should desire faithfulness and honesty more strongly than other characteristics, regardless of proposed relationship condition. The current experiment was designed to examine these issues.

Method

Participants

Ninety-one undergraduates (28 males; 63 females) at Texas Tech University participated in this experiment. All participants received credit toward their introductory psychology course.

Procedure and Design

The design was a 2 (Sex: female, male) x 2 (Strategy: long-term, short-term) between-subjects factorial. After securing consent forms from the participants, each person was taken into a room individually and instructed to follow the directions on the computer. The computer used MediaLab software (Jarvis, 2000) to administer a mate preference questionnaire. Self-reports are intuitive behavioral aggregates, as they have the “advantage of reflecting a summary judgment based on a diverse set of actions performed in a variety of contexts” (Ajzen, 1987, p. 13). Participants read a brief screen that instructed them to rate items based on what they sought in either (a) a long-term relationship situation or (b) a short-term relationship situation. All participants were randomly assigned to one of the two hypothetical relationship conditions. Participants in the long-term relationship situation were asked to “Rate each item based on preferences you would have in a *long-term* relationship situation.” Participants in the short-term relationship situation were asked to “Rate each item based on preferences you would have in a *short-term* relationship situation.”

In the current study, the variables of physical attractiveness, body shape, honesty, faithfulness, meeting the

potential mate's parents, religion, family background, ambition, and knowing if the potential mate has children were used. These items revealed significant differences for either sex or strategy in Mather's (2000) study, and were originally adapted from Buss and Schmitt (1993). All variables were rated on a 7-point Likert scale with anchors of (1) "not important at all" to (7) "very important." Each item was presented individually, and the order of presentation was randomized to control for sequencing effects (Keppel, 1991; Toothaker & Miller, 1996).

Results

All analyses were performed using SPSS 10.07. Sums of squares were calculated using the Type III method to account for unequal cell sizes (Tabachnick & Fidell, 1996). Analysis indicated that the assumption of homogeneity of variance was met. Tests of skewness and kurtosis indicated a negatively skewed, leptokurtic distribution for ratings on children (skew = -2.21; kurtosis = 4.94), faithfulness (skew = -2.71; kurtosis = 6.73), and honesty (skew = -3.59; kurtosis = 14.38), which indicate that most participants rated these aspects as highly important. In fact, the same three characteristics of honesty ($M = 6.77$), faithfulness ($M = 6.51$), and knowing if the potential mate has children ($M = 6.32$) were the items rated as most important regardless of strategy or sex.

A 2 x 2 MANOVA revealed significant main effects for sex and strategy. Wilks' Lambda showed a significant effect of sex, $F(9, 79) = 2.65, p = .01$, with an observed power of .93 (see Table 1). Univariate F -tests revealed significant sex differences in ratings of importance for family background $F(1, 87) = 5.71, p = .02$, and body shape $F(1, 87) = 9.93, p = .002$. Females rated family background as more important ($M = 4.79$) than did males ($M = 3.71$), and males rated body shape as more important ($M = 5.32$) than did females ($M = 4.38$). Effect size measures yielded partial eta-squared values of .06 for family background and .10 for body shape.

Table 1
Table of Means and Standard Deviations for Sex Differences

Items:	Female		Male	
	M	SD	M	Sd
Honesty	6.86	.54	6.57	.88
Faithfulness	6.56	1.01	6.39	1.37
Has Children	6.32	1.29	6.32	1.25
Ambition	5.92	1.10	5.39	1.26
Physical Attractiveness	5.00	1.21	5.43	1.07
Meet Parents	5.10	1.74	4.25	2.05
Body Shape	4.38*	1.33	5.32	1.25
Family Background	4.79*	1.82	3.71	1.84
Religion	4.56	1.60	4.11	2.18

* $p, .05$, two-tailed

Wilks' Lambda showed a significant effect of strategy, $F(9, 79) = 2.30, p = .02$, with an observed power of .88 (see Table 2). Importantly, Wilks' Lambda indicated no interaction

between sex and strategy, $F(9, 79) = .83, p = .59$, with an observed power of .38. This indicates that these strategy effects held for both males and females. Univariate F -tests resulted in significant strategy differences in ratings of importance for ambition, meeting parents, and faithfulness at $F(1, 87) = 9.19, p = .003, F(1, 87) = 16.52, p = .001$, and $F(1, 87) = 5.34, p = .02$, respectively. Analysis indicated that a) ambition was rated as more important in the long-term situation ($M = 6.13$) than in the short-term situation ($M = 5.39$), b) meeting parents was rated as more important in the long-term situation ($M = 5.60$) than in the short-term situation ($M = 4.09$), and c) faithfulness was rated as more important in the long-term situation ($M = 6.84$) than in the short-term situation ($M = 6.17$). Effect size measures yielded partial eta-squared values of .10 for ambition, .16 for meet parents, and .06 for faithfulness.

Table 2
Table of Means and Standard Deviations for Strategy Differences

Items:	Long-Term		Short-Term		Overall Mean
	M	SD	M	SD	
Honesty	6.91	.36	6.63	.85	6.77
Faithfulness	6.84*	.56	6.17*	1.51	6.51
Has Children	6.42	1.18	6.22	1.37	6.32
Ambition	6.13*	.89	5.39*	1.29	5.76
Physical Attractiveness	5.11	1.25	5.15	1.12	5.13
Meet Parents	5.60*	1.68	4.09*	1.75	4.84
Body Shape	4.76	1.35	4.59	1.39	4.67
Family Background	4.71	2.01	4.22	1.74	4.46
Religion	4.60	1.76	4.24	1.84	4.42

* $p, .05$, two-tailed

Discussion

Results of this study are congruent with previous research, which has focused largely on sex differences. The presence of a sex effect indicates that females placed greater emphasis on family background than males. This fits with the evolutionary model in that family background might be a good indicator of a male's social network and thus his accessibility to resources. The finding that males rated body shape as more important than females supports the idea that men value signs of reproductive capability. The underlying issue is whether genetic fitness or reproductive capability is sought by men through their evaluation of physical attractiveness and body shape. Why were there no significant differences on physical attractiveness? It may be that body shape is more specific than physical attractiveness, thus being easier to visualize. A plausible interpretation of the current result is that body shape indicates specific information regarding reproductive capability such as waist-to-hip ratio (Singh, 1993) or body mass index (Tovee, Maisey, Emery, & Cornelissen, 1999). Future studies should examine this distinction between physical attractiveness and body shape. The current findings also add important insights into sex

similarities. The effect of strategy indicates that dual sexual strategies do exist in humans, consisting of both a long-term and a short-term mating strategy. A strategy effect, without a corresponding interaction between sex and strategy, also supports the idea of human universals in mate preferences. The fact that participants in the long-term situation rated ambition as more important than did participants in the short-term situation makes sense only if the short-term relationship is conceptualized as being too short for resource extraction outside of any exchange occurring within the encounter. Such a notion opposes some evolutionary ideas that mating is a strategy for resource extraction, with relationships serving as a primary means to that end. The sex effect for ambition approached significance, and may have manifested with a larger sample size.

The finding that participants rated meeting parents as more important in the long-term situation than did participants in the short-term situation indicates that both males and females are less interested in meeting a potential short-term mate's parents. This result also opposes the notion of short-term mating as an exclusive means of resource extraction, as parental resources would presumably indicate the potential mate's social status and available resources. The resources of a partner's family would not likely be available to a short-term mate.

Faithfulness was rated as more important in the long-term than in the short-term situation. This supports the evolutionary notion that both males and females relax their standards when choosing mates for a short-term situation. However, it should be noted that faithfulness was highly rated in both the short-term and long-term situations.

Mate preference similarities were also found in the negatively skewed, leptokurtic distributions for the variables of faithfulness, honesty, and knowing if the potential mate had children. Such distributions indicate that these features are universally important to both sexes. An evolutionary model predicts these universals when the assumption of humans as a pair-bonding species is made.

Conclusions from early theories focused on differences, but consistent findings of similarities should be incorporated into evolutionary theories. We can learn a great deal by examining differences, but such knowledge should always be scrutinized in the context of similarities. The shared selection pressures of *Homo sapiens* made certain cognitive processes and strategies important for both sexes. These

similarities reflect the shared evolutionary environment of males and females, thus offering a clearer view of human evolution.

Evolutionary psychologists should develop theories that hypothesize about traits that would be valued equally by both sexes. Universal similarities in decision processes have the potential to tell us just as much about human cognition as sex differences tell us. Cognitive psychology has examined human decision making for years from this perspective. The key is not to look at them as sex similarities, but as human universals.

Evolutionary predictions can account for both sex similarities and differences. If evolutionary theories make predictions about sex differences, they are, by definition, making a prediction about similarities (H_0 : No sex differences exist on the examined variable). While logically we can never prove the null hypothesis, when predicting from a dichotomy such as sex differences and similarities, what we do not predict is just as informative as what we do predict. The questions that

are not being examined are: 1) What led to the state of affairs in which the null hypothesis exists? and 2) If men and women are different, as shown by mate preference researchers, then the null hypothesis of sex similarities is not a given. Research in evolutionary psychology should move toward making hypotheses from evolutionary theory that explain: 1) Why the null hypothesis of sex similarities came to be and 2) How the decision-making processes of humans share universal strategies. Models should also control for shared variance due to the evolved human condition, while examining differences due to culture and environment. Once information has been gathered about the individual, research should progress to understanding how the situation affects psychological tendencies.

Perhaps evolutionary psychologists would do well to set the current forms of parental investment and sexual selection theories aside and to develop newer, innovative theories of mate selection that explain why traits such as honesty and faithfulness are routinely rated so highly in mate preference studies in addition to explaining why isolated differences exist.

The use of evolutionary theory in psychological research is important and has the potential to become a "preferred theoretical explanation" (S. S. Hendrick & C. Hendrick, 2000). However, human universals should not be neglected in the rush to uncover sex differences. By showing that mate differences do not exist on certain traits, evolutionary mate preference researchers are in fact contributing to the body of psychological research that serves to uncover both details of our evolutionary heritage as well as providing a base for future cognitive research.

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