

# ASCAP

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*"[Human lives] are composed like music. Guided by his sense of beauty, an individual transforms a fortuitous occurrence (Beethoven's music, death under a train) into a motif, which then assumes a permanent place in the composition of the individual's life."*

Milan Kundera<sup>1</sup>

## Across Species Comparison and Psychopathology (ASCAP) Newsletter Aims

- ◆ A free exchange of letters, notes, articles, essays or ideas in brief format.
- ◆ Elaboration of others' ideas.
- ◆ Keeping up with productions, events, and other news. ◆ Proposals for new initiatives, joint research endeavors, etc.

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## ASCAP Society Mission Statement

The society represents a group of people who view forms of psychopathology in the context of evolutionary biology and who wish to mobilize the resources of various disciplines and individuals potentially involved so as to enhance the further investigation and study of the conceptual and research questions involved. This scientific society is concerned with the basic plans of behavior that have evolved over millions of years and that have resulted in psychopathologically related states. We are interested in the integration of various methods of study ranging from cellular processes to individuals in groups. The ASCAP Newsletter is a function of the ASCAP society.

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Concerning paleobiology, sociophysiology, interpersonal and group relations, and psychopathology

# ADDRESSED TO & FROM ...

## VIOLENCE

I am a clinical psychologist at Atascadero State Hospital, and I'm particularly interested with respect to evolutionary psychology's perspective on the understanding of violence.

William Knowlton  
Atascadero CA, USA.

## RECENT NOBEL SYMPOSIUM IN STOCKHOLM

I just read my first ASCAP Society newsletter (Feb. issue) and now plan to become a member (the check really is in the mail!). In the meantime I am interested in finding out how to acquire the abstracts from the recent Nobel Symposium in Stockholm on "Genetic vs. environmental determination of human behavior and health," held Jan 22-24. Did any society members go? Any plans to discuss in upcoming newsletter? Any suggestion as to how I could obtain a copy of the abstracts?

Thank you for acquainting me with ASCAP — it looks like a wonderful forum to exchange ideas about the most fascinating and complex species to have developed on this "third rock from the sun."

Thomas A Barringer  
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## RESPONSE TO JOHN BIRTCHNELL

Is this not a quibble?, but perhaps a few points may be made in response to John Birtchnell's "Response to Koenraad

Kortmulder" (*The ASCAP Newsletter* 1996;9(3):8-9).

(1) I heartily agree with Birtchnell's final statement: "...important...to make translations from one theory to another." This is exactly what I tried to contribute to in the final part of my paper. (Koenraad Kortmulder: The hedonic and agonistic modes: A comparative perspective. *The ASCAP Newsletter* 1996;9(1):7-10.)

(2) Birtchnell has some pretty primitive notions on the taxonomic position of humans among other species. Rating animal species according to their similarity to humans is such a notion. Another one is to believe that evolution goes from hostility to friendliness. I have attempted to point out in my paper that togetherness and equality are by no means exclusively, nor typically, human. Rather, they may be found in all main vertebrate groups and thus seem to go back to the very roots of the vertebrate subphylum. By the way, what are "early animals"?

(3) One of my concerns is to recognise patterns with a certain degree of universality across individuals, groups or species. To me, the hedonic-agonistic bimodality of possible structures of social attention is such a pattern with an almost archetypic quality, reaching perhaps beyond behaviour or even life. Birtchnell's patterns: upper-lower, close-distant, relating-nonrelating, may qualify too, but I claim that my dimension: symme-

try-asymmetry is far more universal than any of these.

Koenraad Kortmulder  
Leiden, THE NETHERLANDS

## LETTER TO RUSS GARDNER

I am now at the end of the third week of my five week stay with you, and I am having the unusual pleasure of writing to you from the next door office.

The first thing I should tell ASCAP readers is that you have a heavy clinical schedule, quite apart from teaching, research and administration, and, of course, your editorial duties. You head one of the two "consultation and liaison" teams at UTMB (which are responsible for all psychiatric referrals from the medical and surgical wards, including attempted suicides), and this means meeting every morning at 8.30 with your two residents and about five students to hear about new referrals and to check on the progress of continuing cases - this takes about 1.5 hours, and is followed by a procession around the wards to see those referrals who need seeing.

There have been several deliria of various aetiology, some chronic brain syndromes and, of course, cases of depression associated with serious physical disease; one morning we heard about two heart- and one liver-transplant patients who were undergoing their routine pre-op psychiatric screening. After this, there is not much left of your

morning, and much of the afternoon is taken up with seeing out-patients and supervising residents.

We spent one day in Houston at your Prader-Willi clinic and another in Beaumont, some two hours away across the ferry, where you consult at a day centre on cases of Prader-Willi syndrome, autism and suchlike, and where you battle with the problem of inordinate hunger which is such a marked feature of Prader-Willi, but also affects other people, patients and staff alike.

Back here, I heard you present a paper to the psychiatric research group on the designer drug butabindide, which inhibits the peptidase which breaks down cytokine CCK8, which reduces food intake in mice. Cytokines are a major focus of interest here.

Two revelations make me want to eat the words of my contribution to the April *ASCAP*, in which I lamented the lack of any normative studies of human agonistic behaviour or reconciliation.

First of all, I have been monopolising a fascinating book<sup>1</sup> that you are supposed to be reviewing for *Ethology and Sociobiology*, entitled *Emotions in Command* by an Australian called Frank Salter who is currently at the Max Planck Institute for Human Ethology in Andechs (with Eibl-Eibesfeldt), which contains an account of his work on agonistic relations in various type of organisation, and also an excellent review of the literature which was quite an eye-opener to me. This

book certainly deserves a review in *ASCAP* too.

Then, browsing in UTMB's luxurious medical library, I came across, in a journal hitherto unknown to me, an article about feuds and reconciliation in Iran.<sup>2</sup> It seems that the Persians are well aware that relationships tend to switch into the agonistic mode, and usually, with the help of mediation, switch back into the hedonic mode through a process of reconciliation. These processes have been subsumed under two cultural devices called *qahr and ashti*, so that if you feel your relationship with someone becoming agonistic you can say to them, "I am now going into a state of qahr with you" and everyone then knows their social roles, including those whose job it is to act as mediators and, after a cooling off period, reestablish the state of ashti. Qahr is also used for disciplining disobedient and disrespectful children, and its use throws light on the relationship between the agonistic behaviour of adults and the punishment of children. Only 50% of the states of qahr studied by the author had been reconciled by the time the paper was written — between adults, especially between males, qahr can last for many years. This paper confirmed my view that the idea of agonistic and hedonic modes is very useful when applied to dyadic relationships,<sup>3</sup> but that when applied to groups the situation is much more complex - but that the concepts are still useful.

One objection to the two modes idea is that there are too many

intermediate states to justify the use of categories - but it appears that in Iranian relationships, everyone knows whether they are in a state of qahr or ashti. (Can anyone help with the pronunciation of these two words?)

All in all, this is proving to be a most enjoyable and instructive attachment for me, and it seems a shame that one has to wait for retirement before such a thing becomes possible.

John Price  
Presently Galveston TX, USA

Please E-mail any contributions to [ascap@beach.utmb.edu](mailto:ascap@beach.utmb.edu), or mail hard copy and 3.5" HD diskette to Russell Gardner, Jr., c/o Frank Carrel, Dept of Psychiatry & Behavioral Sciences, University of Texas Medical Branch, Galveston TX 775550428, USA. WordPerfect, Microsoft Word or ASCII format preferred. Diskettes will be returned to you. Thank you.

## AARON T. BECK AWARD WINNING PAPER

### *Mate preferences: Implications for the gender difference in unipolar depression*

#### Acknowledgements:

I would like to thank Susan Mineka, J. Michael Bailey, and William Revelle for their invaluable help in conceptualizing, designing, and improving the study. I would also like to express my gratitude to Margaret Scimeca, Erin Gleason, Heather Jorna, Jody Woodward, Dan Baratka, and Rana Haghighat for their generous help in conducting this study.

Abstract: We combine two models to investigate the gender difference in depression and dysphoria. The first is the reformulated learned helplessness theory which outlines the mechanisms by which experience of uncontrollability can lead to dysphoria.<sup>1</sup> The second model is the evolutionary theory of gender differences in human mate preferences which we use to show that women may experience more uncontrollable stressors than men.<sup>2</sup> Specifically, the characteristics that increase women's desirability as mates (those that men desire in their partners, such as youth, facial and physical attractiveness) are more immutable than those traits that increase men's mate value (those that women desire in their partners, such as social status, industriousness, and commitment). The lower degree of control that women have over desirable attributes may increase their risk for helplessness, dysphoria, and low self-esteem. We conducted two studies to test this hypothesis. In the first study, 74 male and 76 female undergraduates completed two self-report questionnaires. In the second study, 301 subjects ranging in age from 17 to 80 were recruited from a train station to complete abbreviated versions of the questionnaires. On the first questionnaire, subjects rated the importance that they attribute to various traits when selecting a partner. On the second questionnaire, subjects rated the degree of personal control that they perceived themselves as having over the same traits. The items (64 in the original and 22 in the

abbreviated version) involved physical, intellectual, socio-economic, and personality characteristics. We considered the controllability ratings for those traits on which we found significant gender difference in preference. Men's controllability ratings were significantly higher for traits that women rated as being more important in selecting a partner, compared to women's controllability ratings for traits that men rated as being more important in selecting a partner (e.s. for the college sample = 1.75; e.s. for the older sample = 1.03). Thus, traits on which women are selected as partners appear to be more uncontrollable than those on which men are selected. Furthermore, a generalized gender difference in perceptions of controllability could not account for these findings. In both studies, out of many personality items, only agreeableness items were valued more highly by women than men in a potential partner. Choosiness did not vary with age or other demographic variables such as education and marital status. However, there may be some cohort effects on specific traits relevant to mate selection. These findings support our hypothesis that women experience greater uncontrollability than men regarding traits on which they are selected as romantic partners. This uncontrollability can help explain why women are more likely than men to experience higher rates of dysphoria, low self-esteem, body dissatisfaction, and eating disorders.

Paper: As early as 1871, Darwin recognized that natural selection could not be the sole process involved in shaping the traits and behaviors of animals. He proposed sexual selection to account for those traits in sexually reproducing animals that did not seem to confer advantages associated with survival.<sup>3</sup> Traits that attract or maintain a mate - or a mate of higher quality - provide a greater probability of successful reproduction and will, therefore, be maintained

in the population. This is so even if such traits have no direct bearing on adaptation to the environment (i.e., increased probability of survival).

Darwin distinguished between two forms of sexual selection: intrasexual selection (competition among the members of the same sex for access to members of the opposite sex) and intersexual selection (preferential mating of members of one sex with members of the other sex based on certain desirable characteristics). In this study, we are primarily concerned with human intersexual selection. Through his extensive cross-cultural studies, Buss and his colleagues have shown that men and women have distinct preferences for certain traits in their romantic partners.<sup>2,4,5,6,7</sup> These preferences can be very elegantly and succinctly explained by the theory of natural and sexual selection and several hypotheses that derive from it<sup>8,9,10</sup> An important finding in Buss's studies is that women tend to value financial security, high status, and commitment in their mates much more than men. These traits are indices that their partners are likely to provide nourishment and protection for them and their offspring over prolonged periods of time. The second important finding is that men tend to value attractiveness and youth in their mates much more than women. These cues are likely to have been associated with higher fertility, reproductive potential, and health (see Buss for a review of this literature<sup>5</sup>). Although one could criticize the ecological validity of Buss's self-report studies (see peer commentaries in Buss<sup>2</sup>), there is correlational evidence to suggest that these mate preferences translate into actual mate choices.<sup>2,11</sup> Furthermore, similar selection patterns are often seen in other sexually reproducing animals, thus minimizing the value of purely sociological theories to account for gender differences in mate preferences.<sup>10,12</sup> These extensive studies provide support for the possibility that sexual selection pressures are still active in human beings today.

Darwin thought that women were responsible for most of the intersexual selection pressures.<sup>3</sup> We know now, however, that both sexes exert such selection forces and experience their consequences.<sup>6</sup> Although it appears that women are more discriminant on almost all criteria except attractiveness and youth,<sup>2</sup>

men are also highly selective, particularly when they are selecting a long term partner.<sup>56</sup> In fact, what seems to drive one's choosiness is not inherently one's gender but, rather, the degree to which one is investing or expecting to invest either biologically or economically in the other partner and in potential common offspring.<sup>10,12</sup>

In this paper, we would like to go beyond the mere description of mate preferences. Rather, we would like to explore the differential *effects* of mate preferences on men and women. Specifically, our focus is on the emotional impact on men and women who are motivated to increase their mate value i.e., the likelihood that they would be chosen by a desirable mate. We hypothesize that the efforts to augment one's mate value may, on average, lead to significantly different emotional experiences for men and women. In particular, the efforts to increase one's mate value are likely to result in repeated failure, helplessness, low self-esteem, and depression more often for women than for men.

### **Sexual selection pressures and depression**

If the preferences and actual choices of one sex affect the reproductive future of individuals of the opposite sex, we would expect that mechanisms have evolved to sensitize individuals to such crucial pressures. A good candidate for such mechanism is one that already seems to serve a number of other adaptive functions: the emotional system. It is likely that the experiences of acceptance and rejection by members of the opposite sex have become, over evolutionary time, associated with positive and negative emotions, respectively. Thus, mating relationships have come to gain, over thousands of generations, great 'emotional importance' for the vast majority of people. Individuals who have not been sufficiently motivated to enter and maintain an adequate reproductive relationship have not left any or as many progeny as those who have. Given the affective significance of romantic relationships, one could consider sexual selection and its consequences not only as an evolutionary "pressure" but also as an individually experienced emotional "stressor".

We also conjecture that the positive and negative

emotional experiences that seem contingent on the status of one's "romantic life"<sup>a</sup> can and do motivate individuals to attempt to match the preferences of the opposite sex. Preferences of members of the opposite sex who are perceived as having high mate value are particularly important. In other words, we expect individuals to try to compete for the most desirable partners they could obtain. "Selection can be expected to favor humans who prefer to copulate with and to marry the fittest members of the opposite sex".<sup>13,P.177</sup> But to increase their chances of mating with highly desirable partners, many individuals will have to increase their own mate value. It follows that people will not always accept their mate value or the degree to which they perceive themselves to be desirable to the opposite sex. Rather, we expect individuals to attempt to increase their own mate value, particularly following adverse experiences of rejection by members of the opposite sex. The motivation to increase one's mate value is adaptive if there is even a slight chance that one's efforts will be fruitful. "[A] major [problem] that humans (like many species before them) have to solve for successful reproduction [is] successful intrasexual competition: besting members of one's own sex to gain access to desirable members of the opposite sex..."<sup>4,p.465</sup> Even a small increment in the extent to which desirable members of the opposite sex desire to mate with an individual will augment that individual's chances of successfully transmitting his or her genes to future generations. This, in turn, will increase the population frequency of the genes that stir individuals to boost their mate value. Perhaps traits such as narcissism, conscientiousness, self-consciousness, and even self-esteem are related to the motivation to augment one's mate value.

Common sense inferences, commercial advertisement themes, and the billion-dollar cosmetic, body-building, and apparel industries all point to the fact that people do indeed attempt to upgrade the traits related to their mate value. Museums filled with relics of ancient peoples' silver mirrors and beauty potions are proof

that this is not a new enterprise. Women of all epochs seem to be much more inclined than men to be actively preoccupied with their attractiveness, youthful and healthful appearance, and enhancement of their looks. This fact is not new, of course. However, what is not always understood is *why* this is so. We would like to point out that women's preoccupations with their appearance is in accordance with the finding that men have a greater tendency than women to select mates on the basis of their physical attractiveness and youth.<sup>92</sup> On the other hand, more men than women seem to end up in higher paying and higher status jobs and in professions that require numerous years of training or education, both presently and historically. This is so despite the consistent finding that there is no significant gender difference in intelligence and other intellectual abilities that are commonly thought to be associated with success.<sup>14</sup> Many favored social-constructionist explanations point to inequalities in the system and in upbringing to explain why men are more concerned with and why they obtain more power and status than women. An evolutionary analysis, however, explains this finding parsimoniously; women prefer to mate with men who have high socioeconomic status, education level, and financial security.<sup>9</sup> These female preferences constitute a potent motivator for men's status seeking. Men, on the other hand, do not have such a strong preference for social status in their potential female partners. It seems that the differential preoccupations and behaviors of men and women are directly or indirectly aimed at improving the specific characteristics that are desired by their potential mates.

However, as Buss and others have extensively documented, men and women desire different qualities in their partners. Bettering one's mate value is a different process for men than it is for women. Specifically, we note that men's attempt to boost their mate value is a much more controllable processes that is more likely to end in success than it is for women. For instance, investing more time and effort in one's profession, a highly voluntary process, is likely to make men more

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\* Of course, over the course of evolutionary time, reliable, accessible contraception was not available. Therefore, it was sufficient that individuals had a programmed interest in entering and maybe maintaining a mating relationship for their genes to have been transmitted to future generations. In other words, people do not have to have an interest in having children *per se*; an interest in having a relationship with a member of the opposite sex was usually sufficient to result in reproduction.

competitive on the mating market. This remains the case even if the process of obtaining higher status requires many long years of education, training, or waiting; a man's age and aged appearance does not deter women.<sup>2,15</sup>

Investing more time in work, on the other hand, will not benefit a woman's mate value to the same extent. Indeed, it may actually work against her mate value if she decides to invest her most fertile years -- when she is at the exact age of her peak mate value - educating herself or otherwise improving her career. If a woman wishes to boost her mate value, she may well have to consider enhancing her attractiveness, her health, maybe attempting to appear younger, short of reducing her chronological age. Obviously, altering one's biological characteristics is not an easy endeavor, if it is at all possible.

We hypothesize that the mostly biological and physical changes that are needed to enhance a woman's mate value are perceived and experienced as much more uncontrollable than the status changes needed to increase a man's desirability. Men's efforts to elevate their mate value to conform to women's mate preferences is not an easy undertaking, but on average, it seems to us to be a far more voluntary process. In other words, a man's motivation to increase his mate value is more likely to result in success than a woman's corresponding effort. At the very least, men's mate-value enhancing efforts are *perceived* as having a greater probability of success owing to their more voluntary nature.

The efforts that women exert to augment their mate value are often likely to result in repeated failures and a sense that their challenges are beyond their control. Although the experience of failure can be distressing in its own right, the feeling of lack or loss of control over important events in one's life can have serious emotional consequences.<sup>16,17,18,19,20</sup> Furthermore, the attributions that one makes about the causes of the experienced uncontrollability can be highly maladaptive, particularly if one perceives the stressor as being stable, global, and internal.<sup>1</sup> For instance, a woman whose face and body begin to show signs of aging might attempt to restore her youthful appearance if

she is motivated to increase her mate value. But it is likely that, with the passage of time, she will start to perceive her efforts as futile in changing a process that is to a large extent beyond her control. Moreover, she will very likely come to perceive the cause of such uncontrollable process as stable (it is here to stay), global (it affects many bodily processes as well as various aspects of her life and will probably deter not one but most potential partners), and internal (it is part of her sense of self). Interestingly, Abramson and colleagues used similar attributions in their example of a woman rejected by a man she loves to illustrate how their reformulated learned helplessness theory can predict whether she makes causal attributions that lead to dysphoric affect.<sup>1p57-58</sup> Of course, aging and many aspects of physical appearance (weight, facial attractiveness, waist-to-hip ratio, etc.) are as uncontrollable for men as they are for women. However, the point here is that these attributes are of much greater import to women's mate value than they are to men's. As Buss's previously mentioned data show, women give relatively little importance to physical attractiveness in selecting a mate. If they give age any importance at all, they tend to prefer older rather than younger partners, sometimes much older than themselves.<sup>152</sup>

We know from the now vast learned helplessness and explanatory style literature (see Petersen, Maier, & Seligman for a review<sup>17</sup>) that a chronic expectation of uncontrollability and maladaptive attributions about its causes can eventually lead to a state of despair, lack of motivation, and emotional distress that is very similar to depression. We believe that the higher incidence of depression and depressive disorders in women - more than twice the prevalence in men<sup>21,22,23,24,25</sup> - can be in part explained by the greater uncontrollability experienced by women who are motivated to increase their mate value. Such mate-value enhancement necessitates the amelioration of primarily physical characteristics (attractiveness, youth, healthful appearance, weight, etc.) that are difficult, and sometimes impossible, to alter. Furthermore, the dependence of women's self-esteem on these more physical traits makes their gradual decline with time and life events a stressor in and of itself.

In the current self-report study, we undertook to test our hypothesis that those traits on which women are selected by the opposite sex are perceived to be, on average, less controllable than those traits on which men are selected. We also wished to replicate and expand on Buss's work on mate preferences, with particular focus on preferences in personality traits. His previous work has shown that a potential partner's positive personality traits are given very high preference ratings by both men and women.<sup>2</sup> Given this degree of importance attributed to personality, we believe that preferences for the many and varied personality traits have not been sufficiently explored.

## Study 1

### Method

*Participants:* One hundred and fifty undergraduates (74 men and 76 women) enrolled in introductory psychology were randomly assigned to participate in the study for class credit.

*Materials: Questionnaires* Two self-report questionnaires were constructed. Each questionnaire inquired about the same 64 neutral and positive traits and behaviors. The first questionnaire asked subjects to rate the importance that they attribute to these characteristics in a long-term partner of the opposite sex. Long-term partners were specified to avoid ambiguity and because we were interested in more invested relationships. On the second questionnaire, the 64 items were re-worded and subjects were asked to rate their perceived degree of personal control over these traits. Controllability was defined in the instructions as "the degree to which a trait or characteristic can be intentionally made to change for the better, usually with some realistic effort and some realistic exertion of will power. By realistic effort and will power, it is implied that you have the capacity to exert such effort and exercise such will power right now." For both questionnaires the rating system consisted of a 7-point Likert scale that was explained in detail on the first sheet of each questionnaire. Both questionnaires appear in Appendix 1. *[Editor's note: Not included, due to limited space, with author's agreement]*

**Item selection:** The questionnaire items were se-

lected from three sources. The first source was Buss's cross-cultural study on mate preferences.<sup>27</sup> We included all of the items that were part of his scales.<sup>7,p</sup> However, we modified some of these items slightly to achieve greater clarity and specificity. For example, whereas Buss had a single item, "ambitious and industrious", we separated these two constructs into two items, based on comments regarding his method (see peer commentaries, Buss<sup>2</sup>). The second source involved our own construction of items, inspired mostly from Buss's discussion of evolutionary significant mate characteristics.<sup>5</sup> Items in this category include such traits as "narrow waist" or "strong shoulders" based on Buss's contention that waist to hip ratio and upper body strength are relevant physical cues in women and men, respectively.<sup>5</sup> The final source of our items was the Big Five personality dimensions.<sup>26</sup> We include personality variables because although they have been shown to benefit from very high importance ratings in mate selection,<sup>27</sup> more subtle and varied personality traits have not been thoroughly represented in such questionnaires. From each of the major personality factors, we have included at least five representative items. Note that some items represent more than one source (e.g. originate from Buss's scales but are also representative of one of the Big Five categories).

### Pilot study

A preliminary pilot study employing 75 undergraduates from an introductory psychology class (36 men, 39 women) was conducted to determine whether the Likert scales were adequate in obtaining sufficiently variable responses. We suspected response variability to be a problem owing to the mostly positive mate characteristics utilized in the questionnaire. In other words, we feared that subjects would rank the majority of positive traits as being "extremely important" in a potential long-term partner. Although we expected people to desire all positive qualities possible in a partner, we also anticipated that there would be some traits that are more important than others. Low variability in responses would be deleterious to our desire to decipher the relative importance that we expect in these traits.

Both Likert scales utilized for the pilot questionnaires



were symmetrical; 7-point scales with a neutral mid-point and three positive and three negative gradations in either importance of these traits or their controllability. Results from this preliminary study, which we will not display due to space limitations, showed that there was inadequate variability. For instance, expected gender differences were statistically significant but the means were highly similar and leaning toward the positive extreme points, particularly in the preference questionnaire. These results inspired us to reconstruct the Lickert scales. We made them asymmetrical, with more points reflecting positive attitudes. We also modified the scales to make them more detailed and specific; where possible, specific behaviors or attitudes were added in the descriptions of the meaning of the Lickert points (i.e., 1=somewhat undesirable (You would prefer that your partner not have this attribute); 2=irrelevant; 3=not very important (Though desirable, it is not very important that your partner have this attribute); 4=somewhat important (You would prefer that your partner have this attribute, but there is a good chance you would marry someone without it); 5=important (You greatly value this attribute but could imagine marrying someone who does not have it); 6=very important (You very strongly prefer that your partner have this attribute and could not imagine marrying someone who does not have it); 7=absolutely indispensable (You would never consider a partner who does not have this attribute). We also added the following instructions on the first questionnaire, "Use the following rating scale but please note that most of these traits are positive and desirable. However, we would like you to try to distinguish among them by making use of the whole range of the numbers on the scale, if possible". A similar modified version of these instructions was also added to the controllability questionnaire.

### Procedure

Subjects were scheduled over the telephone and invited to a group experimental session attended by 10 to 30 students. Each subject completed the questionnaires individually during one 30-minute session. The first sheet consisted of a consent form. The second sheet instructed subjects to answer the questionnaires according to their own true opinions and not to societal or social expectations. They were also asked

to read the instructions and rating scales on each questionnaire because they differed. Subjects' names did not appear anywhere on the questionnaires. Numbers were assigned to subjects and only the primary experimenter had access to the files matching subjects' names with their subject numbers. Thus, the responses were completely confidential. All participants completed the two questionnaires in the same order. The questionnaires were worded such that male and female subjects could use the same form (e.g., the informal "they" was used). Following the second questionnaire, a sheet instructed subjects to turn the page only if they had finished filling out all three questionnaires. The final sheet in the packet consisted of a short debriefing explaining the nature of the study. Names and phone numbers were also listed on this sheet should the subject have comments, concerns, or questions regarding the study. Subjects completed the questionnaires and left the room according to their own individual pace.

### Results

**Personal mate preferences:** Our findings replicate and extend Buss's cross-cultural study of mate preferences.<sup>2</sup> Overall, gender differences on the personal mate preference questionnaire occurred in the expected items and directions. An alpha level of .05 was used for all statistical tests. On a scale from 1 (somewhat undesirable) to 7 (absolutely indispensable), men rated traits that concerned physical attractiveness and youth as more important in their choice of partners than women did (see Table 2). Indeed, women rated a partner's youthfulness (i.e., younger than they are) between "somewhat undesirable" to "irrelevant". Conversely, women rated traits associated with social status, ambition, good job prospects, and physical strength as more important than men did (see Table 1). Furthermore, in accordance with our and Buss's predictions, women gave higher importance ratings to personality traits and behaviors associated with commitment than men did (e.g., appears in love, expresses love, generous) (see Table 1). Of the 34 personality items, only the agreeableness items showed a consistent gender difference, with women attributing greater importance than men to such traits as sincerity, dependability, kindness, considerateness, cooperativeness, sensitivity,

generosity, sympathy, and pleasing disposition (see Table 1). As evident from a comparison of Tables 1 and 2, items on which women showed significantly higher

them than women (mean = 3.73) (those items in Table 2). In short, women seemed to give more importance to more numerous and more varied traits than men when selecting a partner. A total of 31 items showed no significant gender differences.

**Table 1.** Male and female preference ratings of those traits to which women attributed greater importance than men in selecting a long-term partner

Trait	Female Preference Rating <sup>a</sup>		Male Preference Rating <sup>b</sup>		t
	Mean	SD	Mean	SD	
appears in love	6.51	0.79	6.12	1.11	2.49*
sincere	6.04	1.03	5.54	1.02	2.90**
desires home & children	5.74	1.52	4.97	1.61	2.99**
dependable	5.68	1.22	5.31	1.20	1.88ns
kind	5.57	1.00	5.01	1.07	3.28**
considerate	5.55	1.09	5.11	1.05	2.54*
expresses love	5.47	1.18	4.81	1.50	3.02**
pleasing disposition	5.40	1.06	4.97	1.29	2.29*
hard-working	5.33	0.92	4.35	1.23	5.53***
cooperative	5.28	1.17	4.89	1.09	2.08*
sympathetic	5.15	1.04	4.77	1.18	2.07*
intelligent	5.13	1.04	4.58	1.41	2.74**
sensitive	5.09	1.37	4.39	1.61	2.87**
educated	5.08	1.07	4.49	1.31	3.05**
similar education	5.05	1.18	4.42	1.24	3.21**
generous	4.93	1.15	4.43	1.12	2.71**
disciplined re:career	4.90	1.10	3.92	1.31	4.94***
ambitious	4.70	1.38	4.00	1.39	3.09**
respected by others	4.63	1.19	3.96	1.33	3.27***
earning potential	4.16	1.21	3.28	1.12	4.59***
similar religion	4.09	1.66	3.35	1.68	2.72**
good job prospect	4.08	1.16	3.05	1.15	5.44***
tall	3.43	1.30	2.39	1.30	4.86***
physical strength	3.30	0.99	2.54	1.02	4.63***
strong shoulders	3.12	0.91	2.28	0.97	5.43***
pays for entertainment	3.01	1.08	2.46	0.88	3.45***
older age	2.62	0.95	1.93	0.73	4.95***

Total = 27 items  
Female preference mean on above items = 4.70

ns=near significant, p=.06  
\*p<0.05 \*\*p<.01 \*\*\*p<.001

a N=76 females. The scale is from 1 (somewhat undesirable) to 7 (absolutely indispensable). These traits showed a significant gender difference in this sample, with women rating them as more important than men in selecting a partner.

b N=74 males

c Mean includes only 26 significant items.

preference ratings than men were more numerous (total of 26 items) than those on which men showed higher ratings than women (total of five items). Women also showed higher average preference ratings (mean = 4.74) on those items that they rated as more important than men (those items in Table 1) compared to the average preference ratings that men gave on those items that they rated as being more important to

men rated as being more important to them in selecting a partner (i.e., her controllability ratings for the items in

These items and the mean preference rating for each gender, as well as their combined average ratings are listed in Table 3. Note that some of these items, particularly those involving positive personality traits, were given very high preference ratings by both sexes.

### Controllability

To test our hypothesis that those traits that are uniquely important to men in selecting a mate tend to be more uncontrollable than those that are uniquely important to women in choosing a partner, we employed the following procedure. From the responses to the second questionnaire, we calculated an average rating regarding the degree of personal control that subjects perceived themselves as having over those traits on which there

was a gender difference in preference. The scale was from 1 (entirely uncontrollable) to 7 (absolutely controllable). Thus, for each woman, we calculated an average of her controllability responses on the five items that

Table 2). Similarly, for each man we calculated the mean of his controllability responses on the 26 traits that women in this sample rated as being more important to them than men in selecting a partner (i.e., his controllability ratings for the 26 significant characteristics listed in Table 1). For both sexes, this average can be conceptualized as an index of personal perceived controllability over traits desired by the opposite sex.

We chose to use only the controllability ratings of the sex that is being selected by the sex that is voicing a preference for a given trait, rather than the merged means of both sexes on that trait. The reason for this is that we believe that it is more accurate to do so. For example, men and women may have different attitudes toward the controllability of "physical strength". Because physical strength is a selection criterion used by women more than by men, it is men, therefore, who are being selected on that trait more than women. For this reason, we think it is more appropriate to assess men's opinion of the controllability of that trait, rather than that of both sexes. The reverse applies for traits on which women are selected by men, such as facial attractiveness. In this case, the women's controllability ratings were used. We were also concerned that one of the traits (mutual love and affection) that women rated as being more important to them than men involved a certain degree of mutuality not inherent in the other items. This item had been included in the questionnaire due to its relevance in the mate preference literature (e.g., Buss<sup>2</sup>). We therefore excluded this item *a priori* from the personal control index.

We then conducted a t-test to see whether men and

**Table 2.** Male and female preference ratings of those traits to which men attributed greater importance than women in selecting a long-term partner

Trait	Female Preference Rating <sup>a</sup>		Male Preference Rating <sup>b</sup>		
	Mean	SD	Mean	SD	t
facial attractiveness	4.32	0.93	4.91	1.06	3.63***
not envious	3.74	1.47	4.22	1.27	2.14*
narrow waist/femininity	2.45	0.90	3.46	1.20	5.87***
thinness	2.53	1.28	3.19	1.30	3.15**
youthfulness	1.76	0.68	2.81	1.25	6.41***
Total = 5 items Male preference mean on above items = 3.73					
*p<05 **p<.01 ***p<.001					
a N=74 females. The scale is from 1 (somewhat undesirable) to 7 (absolutely indispensable). All listed traits showed a significant gender difference in this sample, with men rating them as more important than women in selecting a partner, b N=76 females					

women differed on the personal perceived controllability over traits desired by the opposite sex index described above. Men's personal perceived controllability over traits desired by women (mean = 4.61, SD = 0.67) was significantly higher than women's personal perceived controllability over traits desired by men (mean = 3.26, SD = 0.86;  $t = 10.65$ ,  $p = 0.00$ ,  $e.s. = 1.75$ ). This finding lends support to our hypothesis; women gave significantly lower controllability ratings on those traits to which men attribute greater importance in selecting a partner, compared to men's controllability ratings on those traits to which women attribute greater importance when choosing a mate.

However, we needed to rule out the possibility that our findings may have been caused by a general tendency that women might have of rating all traits as less controllable than men do. We decided to conduct the same procedure to obtain a personal perceived controllability index for each subject, but this time on those 31 traits that did not show a significant gender difference in preference (see Table 3). Because there were no gender differences in preferences for these traits, men's and women's personal control index was calculated from their controllability ratings on the same 31 items. We reasoned that if a significant gender difference in this personal controllability index were found, then our hypothesis would be falsified.

**Table 3.** Male and female preference ratings of those traits to which men and women attributed equal importance in selecting a long-term partner

Trait	Preference Average of Both Sexes		Female Preference Rating <sup>a</sup>		Male Preference Rating <sup>b</sup>		t
	Avg.	Mean	SD	Mean	SD		
mutual phys. attraction	6.40	6.42	0.72	6.38	0.96	0.33	
warm	5.62	5.71	1.12	5.53	1.09	1.02	
sexual fidelity	5.38	5.61	1.73	5.15	1.74	1.61	
exciting personality	5.32	5.36	1.17	5.28	1.09	0.39	
emotionally stable	5.27	5.32	1.19	5.23	1.26	0.43	
physical health	4.82	4.72	0.97	4.92	1.08	1.16	
sociable	4.69	4.76	1.32	4.61	1.23	0.75	
energetic	4.58	4.65	1.31	4.51	1.15	0.65	
relaxed, non-anxious	4.33	4.42	1.19	4.24	1.29	0.88	
conscientious	4.25	4.26	1.41	4.24	1.36	0.09	
intellectual	4.24	4.43	1.42	4.05	1.31	1.70	
creative	4.23	4.14	1.24	4.32	1.14	0.97	
talkative	4.12	4.08	1.39	4.15	1.36	0.32	
assertive	4.04	4.15	1.20	3.93	1.33	1.03	
not insecure	4.03	3.85	1.48	4.20	1.31	1.53	
bold	3.83	3.74	1.27	3.93	1.25	0.95	
profound	3.72	3.83	1.41	3.60	1.22	1.05	
not moody	3.70	3.71	1.41	3.69	1.40	0.09	
organized	3.61	3.58	1.21	3.65	1.30	0.34	
careful	3.55	3.61	1.37	3.61	1.16	0.51	
good cook/housekeeper	3.53	3.51	1.02	3.55	1.17	0.26	
introspective	3.52	3.53	1.57	3.51	1.56	0.08	
neat	3.48	3.45	1.23	3.51	1.30	0.32	
refined	3.37	3.45	1.35	3.29	1.33	0.73	
artistic	3.31	3.26	1.25	3.35	1.14	0.45	
sim. political background	3.15	3.29	1.28	3.01	1.32	1.30	
no sexual experience	3.08	2.90	1.69	3.27	1.55	1.42	
Platonic fidelity	3.04	2.92	1.97	3.15	1.76	0.75	
some sexual experience	2.77	2.83	1.44	2.70	1.35	0.55	
wealthy parents	2.36	2.29	0.75	2.43	0.81	1.12	
much sexual experience	2.16	2.01	1.23	2.30	1.18	1.45	
Total = 31 items							
Grand mean for women & men:		3.99		3.97			

Note: Probability indicators are not included as all the above comparisons are nonsignificant.

Moreover, a gender difference in controllability on these items that both sexes find equally important would lend support to the possibility that women simply have a generalized tendency to perceive themselves as having less personal control than men.

A t-test on men's and women's personal perceived controllability index showed no significant gender difference in controllability on these 31 traits on which there was no significant gender difference in mate preference (male mean = 4.29, SD = 0.72; female mean = 4.24, SD = 0.77;  $t = 0.35$ ,  $p = 0.72$ ). Thus, the difference in controllability cannot be accounted for by any general tendency of women to rate all traits as

less controllable than men.

Furthermore, upon closer observation (see Table 3), one can see that these 31 traits are by no means "unimportant" given that they benefit from high average preference ratings by both men (grand mean = 3.97) and women (grand mean = 3.99). In other words, they are not irrelevant traits, but rather traits that are equally important to both sexes.

There were unanticipated gender differences in controllability ratings. Table 4 shows those traits, a total of 12, which men perceived as being more controllable than women did. The traits which women rated as being more controllable than men are listed in Table 5. Although there are four such items, three of them relate to the same construct, "degree of sexual experience".

### Discussion

Our data provide support for and elaboration on the findings on human mate preferences (e.g., Buss<sup>2</sup>). We

have also shown an important gender difference in preferences for one of the Big Five personality dimensions, agreeableness. The preliminary test of our hypothesis regarding differences in perceived controllability of traits on which men and women are selected by the opposite sex has also been promising.

### Personal mate preferences

#### Physical traits

Our data replicated and extended Buss's findings on mate preferences.<sup>2,7</sup> Men and women seem to differ on some of the traits that they value in a potential long-term partner. Women exhibited more choosiness, as predicted by Trivers's parental investment theory.<sup>10</sup>

**Table 4.** Traits over which men perceived greater personal control than women.

Trait	Female Controllability Rating <sup>a</sup>		Male Controllability Rating <sup>b</sup>		t
	Mean	SD	Mean	SD	
physical strength	4.43	1.11	4.78	1.20	1.85ns
boldness	4.00	1.37	4.61	1.27	2.82 <sup>ns</sup>
strong shoulders	3.92	1.38	4.53	1.34	2.73 <sup>ns</sup>
relaxed, non-anxious	3.86	1.45	4.38	1.47	2.20 <sup>*</sup>
mutual sex. attraction	3.59	1.84	4.35	2.00	2.42 <sup>*</sup>
desires home & children	3.38	1.86	4.23	1.93	2.74 <sup>ns</sup>
creativity	3.31	1.61	3.85	1.54	2.11 <sup>*</sup>
not moddy	3.28	1.57	3.73	1.48	1.80 <sup>*</sup>
not envious	3.20	1.56	3.66	1.36	1.92ns
not insecure	3.11	1.54	3.60	1.42	2.02 <sup>*</sup>
wealthy parents	1.11	0.31	1.46	0.91	3.21 <sup>ns</sup>
tallness	1.09	0.37	1.35	0.88	2.36 <sup>*</sup>

ns=near significant, p=.06  
<sup>\*</sup>p=.07   <sup>\*</sup>p<.05   <sup>\*\*</sup>p<.01   <sup>\*\*\*</sup>p<.001

Women rated more numerous and more varied traits as being more important to them in selecting a partner, compared to men. Men seemed to give greater importance than women to such physical traits as facial attractiveness, thinness, a low waist-to-hip ratio (narrow waist), and youth in their potential partner. These four physical traits, and one other personality trait, were the only characteristics on which men exceeded women in their importance ratings. It is clear that physical characteristics are an important consideration in men's choice of partners. This finding corroborates and complements data that point to men's more visually-dependent sexual excitation and their greater interest in visual sexual stimuli.<sup>27</sup> The importance that men attribute to the physical attractiveness and youthfulness of their partners can also be explained by evolutionary theory. These external traits are cues to a woman's fertility and health status, two crucial determinants of successful reproduction that, in women more so than in men, decline rapidly with age.

The importance that men attributed to youthfulness may have been underestimated in this sample, given that subjects were already young first year

college students.

Women also seem to select their partners in part on physical traits. Women gave greater importance than men to such traits as tallness, physical strength, strong shoulders, and older age of partner. Darwin had already hypothesized that men's greater average upper body strength springs not only from intra-sexual competition (combat among men) but also from women's preferences for stronger men who would be more likely to be successful at

defending them, their offspring, and their common resources. Women's preferences for older men may reflect the positive relationship of age to social status, as well as to more knowledge and psychological maturity.<sup>5</sup> Although the nature of the traits differs, the number of physical traits that are more important to women is the same as the number of traits that are more valued by men. The aggregate preference mean for men on the four physical traits that they value most (3.59) is higher than the equivalent mean for the four physical traits that women value most (3.12), but it is still fairly similar on the 1 (somewhat undesirable) to 7 (absolutely indispensable) scale. Facial attractiveness, however, seemed to be particularly important to men, with its rating of 4.91 (important) exceeding that of any other physical characteristic. Our finding that

**Table 5.** Traits over which women perceived greater personal control than men.

Trait	Female Controllability Rating <sup>a</sup>		Male Controllability Rating <sup>b</sup>		t
	Mean	SD	Mean	SD	
some sexual experience	5.39	1.64	4.68	1.79	2.53 <sup>**</sup>
much sexual experience	4.97	2.05	4.30	1.83	2.12 <sup>*</sup>
no sexual experience	4.93	2.28	4.03	2.36	2.40 <sup>*</sup>
facial attractiveness	2.92	1.19	2.43	1.17	2.54 <sup>*</sup>

<sup>\*</sup>p<.05   <sup>\*\*</sup>p<.01   <sup>\*\*\*</sup>p<.001

women also give importance to physical characteristics in their partner has been predicted (e.g., Buss<sup>5</sup>) but not thoroughly studied. For instance, the physical trait items used in Buss *et al.*'s 1990 cross-cultural study are not very specific. For example, "good looks" and "physically attractive"<sup>2p 14-15</sup> may be interpreted differently by subjects depending on which gender they have in mind. For women selecting men, physical attractiveness may not mean a narrow waist. Similarly, for men selecting women, attractiveness may not mean strong shoulders. Therefore, we think that the more precise definition of these traits in our study bring more specificity to our hypotheses about the importance of physical attributes to men and women. Finally, as predicted, there was no difference in physical health; both men and women rated this item as somewhat important to important.

#### **Traits related to investment and commitment**

As predicted, traits that signal a mate's capacity for investing resources in the relationship and in potential offspring are valued more highly by women than men. Women rated such traits as hard-working, intelligent, educated, disciplined about career, ambitious, respected by others, high earning potential, good job prospects, and pays for entertainment as more important, in order of decreasing importance, than men did when considering a long-term partner. These traits all have in common their capacity to serve as cues for the partner's actual or potential access to resources, motivation to access resources, problem-solving abilities, and social status. The particularly high ratings given by women to such items as hardworking, intelligent, and educated may also reflect the values of this college sample. It should be noted that although men gave less importance to intelligence and education in their partners than women did, men did rate these traits as more important than three of the four physical traits mentioned previously. It is unclear whether this is a true reflection of men's preferences, an artifact of this highly select college-educated sample, or a tendency to respond according to the expectations of a more "politically correct" society.

Women also rated certain traits that indicate emotional and material commitment in a partner as more crucial than men did. This prediction is also based on

evolutionary thinking given that women, in general, desire more long-term partnerships in which their male partners cooperate in parenting efforts. Commitment traits include appearing in love, being dependable, expressing love, and being generous. Men's ratings of these traits were also quite high, though significantly lower than women's. It is possible that the importance of these traits to both men and women may have been amplified by the instructions to consider only a long-term or marital partner. In other words, the importance of the commitment traits may have been rated lower had subjects been instructed to consider short-term partners as instead.

#### **Personality traits**

Of the 34 personality traits included in the questionnaires, the eight traits included in the agreeableness factor showed a consistent gender difference, with women attributing greater importance to them than men when selecting a partner. These traits are sincerity, kindness, considerateness, pleasing disposition, cooperativeness, sympathy, sensitivity, and generosity, in decreasing order of importance. The value of these traits to women is most likely related to their effect on the emotional and material commitment of their partner. Like the above-mentioned commitment attributes, these personality traits possibly reflect the partner's willingness, not just his capacity, to be a cooperative mate and partner who will share resources with his female partner and her offspring. A look at the means shows that although men rate the value of these traits lower than women, they still rate them rather highly.

The only other significant gender difference in the personality dimensions occurs in the item "not envious" which is part of the reversed neuroticism or emotional stability factor. Here, it is men who value the attribute of being unenvious in their mate more than women do. The reason for this difference is unclear, particularly given the fact that the other four emotional stability items (relaxed/nonanxious; not moody; not insecure; emotionally stable) showed no such difference.

All other personality variables exhibited no gender difference. These include those in the conscientious-

ness, the extraversion, the neuroticism, and the openness factors. We expected, but did not find, that women would value conscientiousness and extraversion in their partners more so than men, owing to the possible enhancing effect of these traits on resource acquisition and maintenance, and social status, respectively. If we look at the mean ratings more closely however, we see that despite the lack of gender difference on the majority of the personality items, the importance ratings given to these generally positive attributes are quite high. This is in accordance with Buss who found that characterological variables were ranked highly by both sexes. We hope that these more detailed findings on the gender differences and similarities regarding preferences of personality traits in mates will encourage more research on this topic and possibly shed more light on the evolutionary significance of personality traits.

We would like to note that the gender in preferences discussed in the section above are specific to long-term relationships given that we specified this in our instructions. These gender differences are, therefore, smaller than those found with short-term relationships (e.g., Buss<sup>5</sup>). In short-term relationships, in general, men's standards are reduced, particularly for non-physical traits. In women, however, the criteria of importance remain similar to those that they exhibit in long-term relationships.

### **Controllability**

Unexpected gender differences in perceived controllability were found. Women perceived themselves as having more control than men over their degree of sexual experience. This occurred in all three items representing this trait (some experience, much experience, and no experience). This finding is probably a reflection of the evolutionary observation that men are more inclined, in general, to be more lax regarding their engagement in sexual activity than women due to their lower minimal investment in reproduction.<sup>10,9,27</sup> Women also perceived themselves as having greater control over their facial attractiveness than men. This can be most parsimoniously attributed to the almost exclusive use of make-up by women to alter their facial appearance.

The traits over which men perceived greater control than women were more numerous and varied. They include three traits that are important to women's selection of a partner: physical strength, strong shoulders, and tallness. Four of the traits over which men perceive greater control pertain to the reversed neuroticism factor: relaxed/nonanxious, not moody, not envious, and not insecure. We could only speculate that this may reflect men's greater control or perception of control over these negative emotions compared to women. Other traits that men perceive to be more controllable include boldness, mutuality of sexual attraction, desiring home and children, creativity, and wealth of parents. The reasons for these differences are unclear.

### **Study 2**

Because our subject pool in the first study was young and relatively inexperienced in romantic relationships, we decided to test our hypothesis using an older, more experienced, as well as a more representative sample that does not belong to a single age cohort. In addition, we wanted to explore whether mate preferences change with age, marital status, and education. We chose to recruit subjects from waiting rooms at the City of Chicago Amtrak station. However, because of the obvious time limit and the fact that these subjects would not be offered any remuneration for their participation, we were obliged to shorten our original 64-item questionnaires.

### **Method**

*Participants:* One hundred and forty-seven men and 154 women were randomly recruited to participate in the present study. These participants were waiting for their trains at the downtown Chicago Amtrak station.

### *Materials: Questionnaires*

The two questionnaires used in this study were derived from those used in Study 1 (both versions of the questionnaires can be found in Appendix 1). Due to time constraints, an abridged version of the three questionnaires was developed. The procedure by which this was done is described below. The first questionnaire asked subjects to rate the importance that they gave to 22 characteristics when choosing a long-term partner. The second questionnaire asked

subjects to rate the degree of personal control that they perceived themselves as having over these same traits. Controllability was defined as the ability to change a trait significantly and for the better with a reasonable amount of effort and volition. A consent and instructions form preceded the questionnaires, and a demographic information sheet followed it.

**Development of the abridged questionnaires**

To develop reliable, shorter versions of our original questionnaires, we used data from the pilot study described above in Study 1. We chose to depend on the personal mate preferences questionnaire to develop an abridged version of both questionnaires. This is because we are primarily concerned with mate preferences and also because the two questionnaires represent identical traits.

We used the computer program alpha-iclust-vss to analyze the scale construction, scoring, and reliability of the scales in our preferences questionnaire.<sup>28,29</sup>

Table 6 illustrates a subset of the 64 items that belong to each of 16 scales. Table 7 depicts the scales scores, as well as the reliabilities of each of the scales. [Editor's note: Tables 6 & 7 are not shown, due to limited space, with the author's agreement] The range of reliability coefficients is from .35 to .90. However, all except one scale had alpha levels above .62. We then proceeded to choose the item or couple of items that most reliably represented each given scale. In most cases, we used the item that had the highest correlation with the scale of which it was part.

In a few cases, the second most highly reliable item was chosen if the first item did not seem to be a good conceptual representative of the scale from which it originates. For instance, although intellectuality had the highest correlation with the openness scale, we selected the second most highly correlated item, introspection to represent this scale because we were afraid that intellectuality would correlate too highly with

the intellect scale as well, and would, thus, be a less specific representative of openness. In addition, when a scale contains only two items, we cannot ascertain which of the two items is better correlated with the scale. In such cases, therefore, we either used our a priori judgement about which of the two would be more relevant, or we chose the item that had the greater variance of the two as that indicates that the item achieves greater discrimination among subjects. In addition, some items do not belong to a scale. If such items are theoretically crucial, we included them in the shorter questionnaire. An example of such item would be a partner's relative youthfulness. If such items were not theoretically substantive, they were excluded from the abbreviated questionnaire.

**Procedure**

Two female experimenters recruited subjects while these were waiting at the Amtrak station in downtown Chicago. Recruitment times varied equally between weekdays and weekends. One experimenter recruited approximately 200 of the subjects; the other recruited the remaining 100. Experimenters were told to obtain a representative sample of people who seemed to be older than college age, given that the purpose of the study was to replicate the findings in a non-college sample. Experimenters were also asked to approach an equal number of men and women, insofar as this was possible. They were also told not to think about who they were approaching but to go about their

**Table 8.** Male and female preference ratings of those traits to which men attributed greater importance than women in selecting a long-term partner.

Trait	Female Preference Rating <sup>a</sup>		Male Preference Rating <sup>b</sup>		
	Mean	SD	Mean	SD	t
facial attractiveness	4.25	1.03	4.59	1.19	2.59**
narrow waist/feminine	2.87	1.20	3.36	1.20	3.54**
youthfulness	2.50	1.31	2.95	1.26	3.04**

Total = 3 items  
Male preference grand mean on these 3 items = 3.63

\*p<.05    \*\*p<.01

a N=154 females. The scale is from 1 (somewhat undesirable) to 7 (absolutely indispensable). All listed traits showed a significant gender difference in this sample, with men rating them as more important than women in selecting a partner.

bN=147 males.



recruiting systematically (e.g., asking each person in a given waiting room, if they fit the above-mentioned guidelines).

The experimenters approached subjects individually and indicated that they were conducting research based at Northwestern University. Experimenters explained that the study was on "what people look for in their romantic partners" and indicated that the study involves filling out a questionnaire that would take 5 to 10 minutes. Subjects who assented were given a questionnaire packet on a clipboard and a pen.

When the experimenter came back to pick up the questionnaire after its completion, she gave the subject a debriefing sheet which explains the study and provides a telephone number to call for further questions or comments.

## Results

### Personal mate preferences

Our findings replicate those of our first study. Overall, gender differences on the personal mate preference questionnaire occurred in the expected items and directions. An alpha level of .05 was used for all statistical tests. On a scale from 1 (somewhat undesirable) to 7 (absolutely indispensable), men rated traits that concerned facial attractiveness, feminine figure, and youth as more important in their choice of partners than women did (see Table 8). Conversely, women rated traits associated with social status, good job prospects, intelligence, and physical strength as more important than men did (see Table 9). Furthermore, in accordance to our predictions, women gave higher importance ratings to personality traits and behaviors associated with commitment than men did (e.g., expresses love, generous, desires home and children) (see Table 9). Of the five personality items

Table 9. Male and female preference ratings of those traits to which women attributed greater importance than men in selecting a long-term partner.

Trait	Female Preference Rating <sup>a</sup>		Male Preference Rating <sup>b</sup>		t
	Mean	SD	Mean	SD	
mutual love	6.6	0.83	6.25	1.24	2.92**
mutual sexual attraction	6.32	0.94	6.08	1.16	2.05*
desires home & children	5.56	1.58	4.68	1.73	4.61**
hard-working	5.52	1.03	4.72	1.28	5.93**
expresses love	5.29	1.37	4.45	1.42	5.17**
intelligent	5.16	1.17	4.59	1.35	3.89**
generous	4.98	1.19	4.24	1.37	4.95**
earning potential	4.50	1.38	3.47	1.28	7.18**
Platonic fidelity	4.55	2.19	4.04	1.93	2.11*
introspective	4.23	1.38	3.56	1.47	4.06**
physical strength	3.56	1.22	2.73	1.16	5.98**
older age	3.07	1.43	2.50	1.15	3.83**

Total = 12 items

Female preference grand mean on these 12 items = 4.57

\*p<.05 \*\*p<.01

a N=154 females. The scale is from 1 (somewhat undesirable) to 7 (absolutely indispensable). These traits showed a significant gender difference in this sample, with women rating them as more important than men in selecting a partner. bN=147 males.

that were shown in our first study to be most reliably representative of the five factors, only the agreeableness item (generous) and the openness item (introspective) showed a consistent gender difference, with women attributing greater importance than men to these two traits (see Table 9).

As evident from a comparison of Tables 8 and 9, items on which women showed significantly higher preference ratings than men were more numerous (12 out of a total of 22 items) than those on which men showed higher ratings than women (three out of a total of 22 items). Women also showed higher average preference ratings (mean = 4.57) on those items that they rated as more important than men (the 12 items in Table 9) compared to the average preference ratings that men gave on those items that they rated as being more important to them than women (mean = 3.63) (the three items in Table 8). As in Study 1, women seemed to give more importance to more numerous and more varied traits than men when selecting a partner. A total of seven items showed no significant gender differences\*. These items and the mean preference rating for each sex, as well as their combined

Table 10. Male and female preference ratings of those traits to which men and women attributed equal importance in selecting a long-term partner

Trait	Preference Average of Both Sexes		Female Preference Rating <sup>a</sup>		Male Preference Rating <sup>b</sup>		t
	Avg.	Mean	SD	Mean	SD		
physical health sexual	4.90	4.92	1.14	4.87	1.19	0.39	
fidelity organized not	4.84	5.02	2.15	4.65	1.99	1.55	
moody sim. religious bold	4.11	4.17	1.24	4.06	1.28	0.78	
much sexual experience	4.05	4.06	1.46	4.03	1.54	0.14	
	3.97	4.14	1.68	3.79	1.85	1.68	
	3.52	3.57	1.57	3.46	1.42	0.62	
	3.28	3.35	1.6	3.2	1.57	0.79	
Total = 7 items Grand mean for women & men:		3.60		4.0			

Note: Probability indicators are not included as all the above comparisons are non-significant.

We then conducted a t-test to see whether men and women differed on the personal perceived controllability over traits desired by the opposite sex index described above. Men's personal perceived controllability over traits desired by women (mean = 4.72, SD = 0.82) was significantly higher than women's personal perceived controllability over traits desired by men (mean = 3.64, SD = 1.17;  $t = 8.65$ ,  $p = 0.00$ , e.s. = 1.04). We were concerned that two of the traits (mutual love and affection, and mutual sexual and physical attraction) that women

average ratings are listed in Table 10. Once again, the absence of gender differences on these items does not preclude them from receiving high average preferences ratings.

### Controllability

To test our hypothesis that those traits that are more important to men in selecting a mate tend to be more uncontrollable than those that women use to select a mate, we employed the same procedure as in Study 1. From the responses to the second questionnaire, we calculated an average rating regarding the degree of personal control that subjects perceived themselves as having over those traits on which there was a gender difference in preference. The scale was from 1 (entirely uncontrollable) to 7 (absolutely controllable). Thus, for each woman, we calculated an average of her controllability responses on the three items that men rated as being more important to them in selecting a partner (i.e., her controllability ratings for the items in Table 8 or facial attractiveness, feminine figure, and youthfulness). Similarly, for each man we calculated the mean of his controllability responses on the 12 traits that women in this sample rated as being more important to them than men in selecting a partner (i.e., his controllability ratings for the 12 characteristics listed in Table 9). This average can be conceptualized as an index of personal perceived controllability over traits desired by opposite sex.

rated as being more important to them than men involve a certain degree of mutuality not inherent in the other items. These two items had been included in the questionnaire due to their relevance in the mate preference literature (e.g., Buss<sup>2</sup>). We therefore repeated the same analyses without these two traits to ascertain that our effect was not dependent on their addition. The results remained stable; men's controllability index (mean = 4.68, SD = 0.80) was significantly higher than women's (mean = 3.64, SD = 1.17;  $t = 8.41$ ,  $p = 0.00$ , e.s. = 1.03). This corroborated our hypothesis; women gave significantly lower controllability ratings on those traits to which men attribute greater importance in selecting a partner, compared to men's controllability ratings on those traits to which women attribute greater importance when choosing a mate.

Once more, we needed to rule out the possibility that our findings may have been caused by a general tendency that women might have of rating all traits as less controllable than men do. We conducted the same procedure to obtain a personal perceived controllability index for each subject, but this time on those seven traits that did not show a significant gender difference in preference (see Table 10). Because there were no gender differences in preferences for these traits, men's and women's personal control averages were calculated from their controllability ratings on the same seven items. If a significant

gender difference in this personal controllability index were found, then our hypothesis would be falsified. In addition, a gender difference in controllability on these items that both sexes find equally important would lend support to the possibility that women simply have a generalized tendency to perceive themselves as having less personal control than men.

A t-test on men's and women's personal perceived controllability index showed no significant gender difference in controllability on these seven traits on which there was no significant gender difference in mate preference (male mean = 4.44, SD = 0.92; female mean = 4.62, SD = 0.92;  $t = 1.65$ ,  $p = 0.10$ ). Thus, the difference in controllability cannot be accounted for by any general tendency of women to rate all traits as less controllable than men. Furthermore, upon closer observation (see Table 10), one can see that these seven traits are by no means "unimportant" given that they are given very high average preference ratings by both men (grand mean = 4.0) and women (grand mean = 3.6). In other words, they are not irrelevant traits, but rather traits that are equally important to both sexes.

As in Study 1, there were unanticipated gender differences in controllability ratings. Men perceived themselves as having more control (mean = 4.64, SD = 1.25) over physical strength than women did (mean = 4.3, SD = 1.51;  $t = 2.00$ ,  $p = 0.05$ ). The traits which women rated as more controllable than men are facial attractiveness (male mean = 2.92, SD = 1.50; female mean = 3.63, SD = 1.40;  $t = 4.01$ ,  $p = 0.00$ ), mutual love and affection (male mean = 5.53, SD = 1.34; female mean = 5.91, SD = 1.09;  $t = 2.60$ ,  $p = 0.01$ ), mutual sexual and physical attraction (male mean = 4.30, SD = 1.85; female mean = 4.79, SD = 1.73;  $t = 2.24$ ,  $p = 0.03$ ), having much experience in sexual intercourse (male mean = 4.67, SD = 1.74; female mean = 5.20, SD = 1.86;  $t = 2.40$ ,  $p = 0.02$ ), and "platonic" fidelity (male mean = 4.78, SD = 1.86; female mean = 5.39, SD = 1.81;  $t = 2.71$ ,  $p = 0.01$ ). As in the first study, women perceived greater personal control over characteristics relevant to degree of sexual experience, as well as over facial appearance, the enhancement of which has been traditionally a female pursuit.

We wished to determine whether perceptions of personal control over traits preferred by the opposite sex changed with age. We conducted regression analyses to see whether the perceived controllability index would vary with subject age. Men's controllability index did not vary significantly with age. However, women's controllability index showed a non-significant trend, with older women perceiving less control over the traits that men value to a greater extent than women ( $F = 2.91$  (1,130),  $p = 0.09$ ). An exploration of the three traits which make up the controllability index for women showed that control over feminine figure was the main contributor to this trend, with older women perceiving that they had less control over their feminine figure (best represented by the item narrow waist) than younger women ( $F = 6.72$  (1,130),  $p = 0.01$ ). A similar break-down of the controllability index for men showed that perceived control over physical strength was the only item out of the 10 from this index on which younger men exceeded older men ( $F = 7.65$  (1, 126),  $p = 0.01$ ).

#### **Mate preferences and demographics**

Age in this sample ranged from 17 to 80 years, (mean = 37, SD = 13.5), with most people lying in the 20-40 year range. We added the education item (subject's highest level of education) only later in the study; for this reason these data are not available for all subjects. Of the 131 subjects who responded to this item, 77 were college-educated, 28 had a high school degree, 25 had a graduate degree, and one did not have a high school degree. Two-hundred and ten subjects reported that they were currently in a steady relationship. Of these, 138 also indicated that they were married. One-hundred and seven of the remaining subjects were never married, 23 were divorced, and 6 were widowed. There were no significant differences in age, marital status, relationship status, or education between men and women in this sample.

We were interested in whether the number or nature of the traits that men and women considered important in a partner varied with certain demographic variables. We also wished to determine whether absolute importance ratings changed with demographic variables. We developed two variables that reflect "choosiness" or the degree to which individuals rate

these 22 mostly positive traits as important to them in a potential partner. "General choosiness" is a general variable composed of the mean of a given individual's importance ratings on the traits in the preference questionnaire. However, a few items were excluded in this mean. For all subjects, the item "much sexual experience" was excluded *a priori* as it is likely to be perceived by some as positive and by others as negative. For men's choosiness averages, we excluded the "older" and "physically strong" items *a priori* as men are likely to perceive these as negative qualities in their female partners. Likewise, for women, we excluded the "younger" and "narrow waist" items as these also are likely to be treated as less desirable qualities in male partners. A second choosiness variable, preference-specific choosiness, was created on the basis of the gender differences in mate preferences found in these data. For men, this variable was a personal mean of the three items (facial attractiveness, narrow waist, and youthfulness) that men rated as being more important than women in this sample. For women, this variable was a personal mean 10 out of 12 items that women rated as being more crucial than men in this sample (excluding the two mutuality traits, as explained above).

As expected, choosiness (regardless of whether the general or the preference-specific variable was used) was higher for women than men (general choosiness: male mean = 4.45, SD = 0.67; female mean = 4.89, SD = 0.59;  $t = 5.67$ ,  $p = 0.00$ ; preference-specific choosiness: male mean = 3.63, SD = 0.84; female mean = 4.65, SD = 0.63;  $t = 11.82$ ,  $p = 0.00$ ). Using either choosiness variable for men and women together and separately, we conducted regression analyses and analyses of variance to explore the demographic factors that may correlate with choosiness. We found no relationship of subjects' age, marital status, relationship status, or education on either choosiness composite.

We were particularly interested in how mate preferences vary with age. Although our choosiness indices did not vary with age for either sex, we expected preferences for some traits to vary with subject age. For instance, we predicted that two of the positive personality traits, emotional stability and agreeable-

ness, would be more important in choosing a mate for older compared to younger subjects due to a greater appreciation for these qualities with increased relational experience. This did not prove to be the case. Unexpectedly, the preference for boldness (the item representing extraversion) in a potential partner did vary with age; both younger men and women preferred this quality to a greater extent than older subjects (for women:  $F = 4.04$  (1, 141),  $p = 0.05$ ; for men:  $F = 22.26$  (1,138),  $p = 0.00$ ). A potential explanation of this finding is a cohort effect, with younger, more liberal subjects, particularly younger men, preferring more assertive partners. Corroborating this possibility is the greater importance that young men seemed to attribute to a partner's industriousness compared to older men ( $F = 7.75$  (1,137),  $p = 0.01$ ). Older men valued organization (representing conscientiousness) in their partners more than younger men ( $F = 3.83$  (1, 138),  $p = 0.05$ ). Younger subjects had a greater preference than older ones for a partner who expressed love regularly (for men:  $F = 4.48$  (1,136),  $p = 0.04$ ; for women:  $F = 9.57$  (1,142),  $p = 0.00$ ), possibly reflecting a generational effect also. Age had an effect on preference for facial attractiveness, with younger subjects valuing this trait more than older subjects (for men this is a non-significant trend: ( $F = 3.46$  (1, 139),  $p = 0.07$ ; for women:  $F = 12.94$  (1,142),  $p = 0.00$ ). Younger women also valued a partner's physical strength more than older women ( $F = 4.03$  (1,141),  $p = 0.05$ ). Younger age in women was associated with higher importance ratings given to mutual sexual and physical attraction ( $F = 6.43$  (1, 142),  $p = 0.01$ ). There was a near-significant trend for older men to value a partner's desire for home and children more than younger men ( $F = 3.64$  (1,139),  $p = 0.06$ ). Interestingly, for women this effect was reversed; younger women valued home and children to a greater extent than older women ( $F = 16.64$  (1, 142),  $p = 0.00$ ). Age also increased men's desire for a partner with a similar religious background ( $F = 10.78$ (1,138),  $p = 0.00$ ).

## Discussion

Our results have replicated those in study 1 and have corroborated our hypothesis that women perceive less personal control over traits that men value more than women in selecting a partner, compared to the personal control that men perceive over traits that women

value more than men in choosing a partner. This having been said, there are some traits that both sexes value equally highly. There were no gender differences in perceived personal control on these traits in both studies, ruling out any general bias that women may have of perceiving less control than men (or any generalized male bias of perceiving more control than women). As in study 1, women are more selective than men, rating more numerous and varied traits as more important in their choice of a partner. In this more representative and older sample, men's preference ratings for feminine figure and youthfulness were predictably higher than those given by men in the college-age sample. In the present sample, women gave greater importance ratings than college women to introspectiveness, platonic fidelity, and older age in their potential partners, possibly reflecting the greater appreciation for a partner's emotional maturity with increasing age. The higher importance given to introspectiveness by women compared to men may not be a reflection of the personality dimension, openness, which it was intended to represent. Unfortunately, introspection correlates with the intellect scale as well, creating a confound as to whether women truly value the openness or the intellectuality it represents. Given that none of the five traits representing openness were valued more highly by women than men in Study 1, it is highly likely that women in the older sample are associating introspection with intellectuality.

Although the findings on preference changes with age are interesting, it is not clear whether they reflect cohort effects or true changes in preferences that occur over a lifetime. We believe that it is more likely to be the former explanation. Younger people have probably internalized contemporary values of mutuality, expressiveness, and equality in romantic relationships, as well as an appreciation of more active and professional female roles. Younger people may also be more heavily influenced by the increased importance given to physical attractiveness by the media. Finally, young individuals growing up in what is now a more secular and heterogeneous society may be less likely to attribute great importance to religion as a common ground for relationships and parenting. At this point, however, these are mere speculations. Choosiness, or

degree to which subjects rated positive traits as being important in their choice of a partner, did not seem to vary with subject age, marital status, relationship status, or education. In other words, according to this sample, choosiness seems to be a stable factor that changes little with age and that does not vary with relational variables or education in a systematic way. It may well be that mate preferences are characterized by far more idiosyncrasy and individual variability for such a general choosiness factor, analyzed cross-sectionally (vs. longitudinally) to show an effect of age, social status, or relational status.

### **General discussion Theoretical considerations**

Our findings demonstrate that inter-sexual selection is not only alive and well in contemporary human society but that it may also have psychological and emotional consequences. We take these data, in conjunction with the learned helplessness theory, to consist of preliminary, indirect support for our hypothesis that the lower controllability of female desirability traits may place women at increased risk for dysphoria, low self-esteem, and low body-satisfaction. Although, generally, the validity of self-report measures should be questioned, we would like to note that the *perception* of uncontrollability - not necessarily actual uncontrollability - may be sufficient to elicit its dysphoric effects.<sup>30</sup> The perception of uncontrollability may be particularly damaging when women wish to increase their desirability as potential mates. The traits that men seem to value more than women are few and primarily concerned with physical attractiveness and youthfulness. Not only are these traits difficult to alter, but they are also difficult to maintain over the course of a lifetime. Furthermore, if women learn from an early age that these physical traits determine their attractiveness to the opposite sex, their self-esteem and identity may become heavily dependent on such attributes. Changes in physical characteristics and youthfulness are then bound to cause fluctuations in women's self-esteem and self-concept. Thus, changes such as gaining weight following child-birth, developing wrinkles, losing muscle tone with age and the like may create emotional stressors in women that are disproportionately greater than those that men experience following

similar changes. At best, negative physical changes could lead to mild dissatisfaction if they are not complemented by other positive life changes. At worst, negative physical changes, or the repeated inability to bring about desired positive changes, may make women vulnerable to a sense of helplessness, decreased self-esteem, body-dissatisfaction and, given other stressors such as social rejection, maybe even depression.

The link between dysphoria and perception of one's physical attractiveness is not a new one; poor body image was a strong predictor of adolescent depression in a prospective longitudinal study after controlling for initial depression.<sup>31</sup> Many other studies have demonstrated a correlational relationship between a negative body image and dysphoric affect.<sup>32,33,34,35,36</sup> Although the link between negative body image and dysphoria seems to hold for both men and women,<sup>35</sup> women are much more concerned with their attractiveness than men beginning at a young age<sup>37</sup> and much more likely to be dissatisfied with their body than men.<sup>38,39</sup> Moreover, the importance of body image to the development of self-concept in adolescence is great.<sup>40,41,42</sup> It is conceivable that poor body image earlier on in life can make women more vulnerable to carrying a negative self-concept throughout life. Negative perceptions of the self, part of Beck's cognitive triad, are characteristic of depressed persons<sup>43,44</sup> and can also contribute to maintaining negative affect by facilitating faulty processing of novel information.

Of course, perceived uncontrollability in augmenting one's mate value cannot be the sole cause of depression. The causes of depression are multiple. Although here we rely on the reformulated learned helplessness theory to describe one proximate trigger of depression, it would be overly simplistic to say that all depression can be traced to repetitive uncontrollability of important life events. But we do think that the greater uncontrollability that women face compared to men in this evolutionary important domain can potentially explain part of the variance in the higher rate of female depression. In her thorough review of the theories that attempt to account for the skewed gender ratio in depression, Nolen-Hoeksema wrote, "The learned helplessness explanation of sex differences in depres-

sion would be supported if it were shown that a greater degree of uncontrollability and a more maladaptive explanatory style in women account for any sex differences observed in depression in the sample".<sup>23,27,24</sup> Although there are certainly many domains in which such gender difference in controllability can exist, few studies have shown consistent differences in perceived controllability in such obvious domains as the work place, marital life, and child care.

The revised learned helplessness theory in association with the human mate preferences literature<sup>265</sup> can not only help explain the gender difference in depression, but that in other psychological disorders as well, particularly those that are characterized by uncontrollability over traits prized by the opposite sex. For instance, it is highly likely that women's characteristic preoccupation with physical appearance, interacting with the contemporary "fashionability" of lower body weight, may be an important culprit in the much higher female incidence of eating disorders of recent (e.g., Garner & Garfinkel,<sup>45</sup> Rodin, Silberstein, & Stiegel-Moore<sup>46</sup>), as well as greater self-consciousness and concern about weight.<sup>38</sup> But what previous authors have failed to explain convincingly is *why* women are more preoccupied with their appearance. Perhaps the reason that cultural expectations have been more influential on women is that they are motivated to match the mate preferences of men, who tend to select mates based on physical attributes.

The interaction between pressure to appeal to male mate preferences and unrealistic cultural norms, and its consequent effect on the prevalence of high body dissatisfaction and eating disorders, highlights only a small fraction of the potential emotional impact of sexual selection on women. Even in cultures and epoches in which ideal body weight is more generous, we would expect the higher pressure on women to be physically attractive and youthful to have a detrimental psychological impact that includes, but is not limited to, depression, anxiety, and low self-esteem. The following psychological phenomena have been shown to be more common in women than men, possibly because of the tendency of women's self-concept to be more closely tied to their physical, less controllable, attributes: anxiety as a personality trait (i.e.,

emotional instability, neuroticism<sup>47</sup>), lower self-esteem,<sup>47</sup> appearance anxiety<sup>48</sup> and worry about appearance,<sup>49</sup> histrionic personality disorder (DSM-IV), high body dissatisfaction and preoccupation with appearance as early as puberty (e.g., Rierdan *etal.*<sup>35</sup>; Rosen & Aneshensel<sup>49</sup>; Simmons & Blyth<sup>38</sup>), that increases with age<sup>50</sup> and lasts into adulthood.<sup>51</sup> Furthermore, the relationship between body satisfaction and self-esteem is more pronounced for girls than it is for boys.<sup>52</sup> Body image has also been implicated as a vulnerability factor for depression in adolescent girls but not boys.<sup>53,35,31</sup>

It is also possible that the learned helplessness-mate preferences hypothesis can elucidate the greater body dissatisfaction and higher eating disorder prevalence in gay men compared to heterosexual men.<sup>54,55</sup> Studies on homosexual mate preferences have shown that, except for the sex of their partner, homosexual men have similar mate preferences to heterosexual men; they too place great value on young, physically attractive mates.<sup>27,5,56,57</sup> Because homosexual men, like heterosexual women, attempt to appeal to the preferences of men, there is great pressure on gay men to enhance their physical attractiveness and reduce signs of aging. Likewise, homosexual women have mate preferences that are similar to those of heterosexual women; they prefer more mature and committed mates, and give less importance to looks.<sup>55,56,7</sup> The lower value given to physical attractiveness in the lesbian community might be related to the higher self-acceptance and body-satisfaction, and the lower dieting behavior and eating disorder rates in homosexual compared to heterosexual women.<sup>58,59,60,55</sup>

It would not be surprising, according to the model presented here, that homosexual men experience a rate of depressive disorders more similar to that of heterosexual women than to that of either heterosexual men or lesbians. Despite the need to caution that higher rates of depression in homosexual men could be heavily confounded by other factors including social stigma,<sup>61</sup> and threat of HIV,<sup>62</sup> there is evidence that gay men do indeed experience a greater rate of depression, regardless of their HIV status<sup>63,64</sup> or predating the AIDS epidemic.<sup>65,66,67</sup> Moreover, it appears that homosexual men who are high on scales

that measure gender nonconformity and feminine gender identity are more likely to exhibit depression than those who score low on such scales.<sup>68,64</sup> On average, homosexual men who sought therapy also seem to score higher on feminine gender identity than those who have not, suggesting that feminine identity is associated with emotional vulnerability in homosexual populations.<sup>69</sup> Although more data are needed to elucidate these complex interactions, it seems that homosexual men are more at risk for depression and other emotional disorders than heterosexual men, and that within the heterogeneous homosexual population, effeminate men are more at risk than less effeminate men. Furthermore, it appears that such vulnerability is not a product of HIV infection, AIDS anxiety, or the stressors of homosexuality *per se*. The reason for such increased risk might be that homosexual men, particularly those with a more feminine gender identity, are as concerned as heterosexual women with enhancing their physical, youthful, and healthy appearance in order to appeal to potential male partners.

### The ontogeny of depression

Any theory that attempts to account for the sex difference in depression must also explain the finding that the sex ratio is not stable across the life-span. Depression seems to have an equal prevalence among prepubertal boys and girls,<sup>70,24,71</sup> with some indication of higher depression in boys.<sup>72</sup> Between the ages of 13 and 15, however, there is a gradual increase in the rate of depression in women.<sup>73,74,75,76,77,78</sup>

Nolen-Hoeksema and Girgus have reviewed a number of theories to explain this sudden increase in the incidence of depression in women and suggest three different models for how gender differences in depression might develop in adolescence.<sup>79</sup> After reviewing the evidence for each model, they conclude that there is greatest support for the third model according to which "girls are more likely than boys to carry risk factors for depression even before early adolescence but these risk factors lead to depression only in the face of challenges that increase in prevalence in early adolescence".<sup>79,p.424</sup> This model fits somewhat with our own view of depression, if we assume that the pressures caused by male mate preferences as risk

factors can only affect women. These sexual selection stressors then become more important at the onset of puberty when girls become more likely to be interested in attracting romantic partners. Although this model fits nicely with the mate preference component of our hypothesis, it does not account very well for the proximate cause of depression inherent in our formulation: causal attributions about uncontrollable events.

The first model described by Nolen-Hoeksema and Girgus seems to match our hypothesis more accurately. This model posits that "the causes of depression are the same for girls and for boys, but these causes become more prevalent in girls than in boys in early adolescence".<sup>79, 424</sup> The reason we find this model more fitting is that the evidence that women have an inherently greater proclivity toward becoming depressed simply due to their sex or other biological concomitants such as hormones is modest, at best.<sup>80</sup> In contrast, we maintain that women become more depressed because of the greater number of uncontrollable challenges that they are likely to experience due to differential mate selection forces, over and above all the other documented and undocumented causes of depression common to both sexes. If men were to face a similar degree of failure that they interpret as stable, global, and internal when attempting to increase their likelihood of attracting a partner, they too would be expected to have a similar prevalence of depressive episodes and other problems characterized by excessive preoccupation with enhancing their mate value. As we discussed earlier, this is precisely what seems to happen in male homosexual populations; gay men wish to attract male mates who value physical appearance and youth.

Depression in women seems to follow a course that is roughly parallel to that of their reproductive life span; increasing at puberty, peaking in early adulthood,<sup>81, 82</sup> and beginning to decline as they pass through menopause,<sup>83, 82</sup> and continuing to decline until the gender ratio evens out at age 65.<sup>84, 85, 86</sup> This parallel ebb and flow of the rates of depression and reproductively-related processes suggests that they might be directly or indirectly related. Despite the active research on hormonal and other biological correlates of the reproductive cycle, it seems that the answer lies in more

complex interactions of the kind we propose here. Long after menopause, women may not be as concerned with enhancing their mate value. At such an advanced age, it may be more adaptive for them to invest their energies in their progeny who are still fertile.

### Depression and men

We have argued that the learned helplessness-mate preferences hypothesis can account for some of the variance in the higher rate of female depression. Nevertheless, the rate of depression in men can also be considered high relative to that of other psychological disorders.<sup>84</sup> As we have said above, genes that foster disinterest in reproductive relationships and their outcomes can but become extinct. It is highly unlikely, therefore, that one sex values mating relationships but the other does not. Thus, for men, like for women, being accepted by a mate or a mate of high value is a priority on the life agenda. However, the domains that are important to men's mate value are clearly different than those that are important to women's. Therefore, we expect men to be affected by different kinds of failures or frustrations.

Although sexual selection has acted on men and women differently, it still places heavy pressures on men. In fact, one could argue that the pressures on men are even more intense, given the higher reproductive variance in men compared to women.<sup>87</sup> More men than women are excluded from reproduction, creating much higher competition for mates among men than women.<sup>87</sup> This is so because women's minimal reproductive investment is significantly greater than men's, making them the more reproductively valued gender.<sup>10</sup> Following a single sexual encounter, ancestral women faced the potential of consummating their monthly ovum, embarking on a nine-month gestation, a life-threatening childbirth, and a number of years to breast-feed and care for their child if they wanted the child to have any chance of surviving. Men, on the other hand, always have the *option* of depositing their sperm and walking away. Such skewed investment also leads to the documented mating difference in interest in casual sex.<sup>2788</sup> Men, much more than women, are more likely to seek a short-term, low investment strategy with multiple partners than women



are<sup>27,6,89</sup> of course, greater desire for multiple partners among men contributes to increased competition for women (intrasexual competition).

But whatever the mating strategy they prefer, men will have to be selected by discriminant women, unless they choose to rape. Although the latter is thought to be a reproductive strategy by some,<sup>90,91,92</sup> it would have probably been ineffective in communities in which women were protected by their male kin. Men obtain women's favors predominantly by displaying resource potential, social status, and signs of commitment to a long-term relationship.<sup>9</sup> These indicate to a woman that the man has the resources necessary, or the means of obtaining them, to provide her and her eventual offspring with food, shelter, and protection on a regular, protracted basis. Thus, men must be highly motivated to obtain control over resources; low motivation to do so would have been heavily selected against. It is not surprising then that men are consistently found to be higher than women on traits related to achievement of status and resources such as aggression and dominance;<sup>93,94,95</sup> assertiveness;<sup>47</sup> achievement orientation and autonomy.<sup>96,97,98,99</sup> Given that resources are limited, there must be great pressure for men to compete for, obtain, and maintain these prerequisites for mating.<sup>b</sup>

More importantly for our discussion of depression, it is clear that not all men can attain control over abundant resources and not all men can be at the top of the dominance hierarchy. What does this mean about those who do not fare so well? The answer to that, in terms of emotional health, is not a simple one. It is tempting to say that those men who are least successful will be more likely to be depressed because of a pervasive sense of failure in an important domain of their life, at least compared to higher status men. However, there is evidence to show that people compare themselves with their immediate peers in

judging their achievements and successes.<sup>101</sup> Because one's peers are more likely to be of the same socioeconomic background, this would reduce any overwhelming sense of status deficiency or low mate value.

Although lower SES (socio-economic status) has been shown to be associated with higher rates of psychopathology in general,<sup>102</sup> both men and women experience depressive symptoms in response to financial difficulties and unemployment.<sup>103</sup> Nevertheless, men more than women seem to experience elevated depression levels when their personal earning potential is low<sup>104</sup> or when they are unemployed.<sup>105,106</sup> The greater power of economic hardship in predicting male compared to female depression may be related to the fact that resource potential bears more consequences on male than female mate value. Although some authors suggest that the gender difference in vulnerability to depression *given financial difficulties* is related to expectations of assigned gender roles, we would like to point out that these gender roles themselves may be a product of sexual selection.

Of course, we do not want to minimize the extensive emotional stress that women can experience from poverty,<sup>107</sup> particularly if they are single parents. Even if women are less likely to be depressed due to their own professional obstacles (such as salary discrimination), their economic dependency on lower SES men can lead to depression.<sup>108</sup> Furthermore, women are more likely to be depressed if they have unemployed husbands than if they themselves are unemployed.<sup>109</sup>

The learned helplessness-mate preferences hypothesis that we presented here can also explain some of the variance in male depression. We would predict that men become depressed when they perceive that their efforts to augment their mate value by sequester-

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<sup>b</sup> This leads us to the sad speculation that the cross-cultural and most probably historical tendency for men to hold greater power, status, resources, and property than women can be partially explained by mate selection. Because women give greater importance to these traits than men in selecting their mates, men will be more motivated to obtain and maintain dominance over resources than women. In a sense, it could be that by opting to mate only with providing males, individual women have, over evolutionary time, created their own economic and political disadvantage as a group. What is even more sad is that despite greater economic opportunities, successful women still seem to be demanding that their mates have higher economic security than they (e.g., Wiederman & Allgeier<sup>100</sup>). In our arguably pessimistic view, this indicates that the present imbalance of power will remain for as long as these mate preferences exist. And with it, will probably also remain women's lower motivation to obtain more power.

ing resources and attaining higher status are repeatedly failing. That is, we expect men to become depressed when they perceive an inability to acquire, maintain, or increase their resources and status that is beyond their control. Men who feel stigmatized, inferior, lacking in power and in resources will probably become depressed if they perceive that they cannot do anything to change their situation or that they cannot expect future success. But men of higher SES are not immune to depression; they too will become depressed if they perceive a threat to their attainment of even higher status and resources, or to the loss of their current control over resources. Indeed, there is some suggestive evidence that under certain circumstances the loss of control has greater emotional impact than the lack of control.<sup>20,110</sup>

This having been said, the experience of uncontrollability over important personal attributes remains higher for women. The criteria on which women select men are related to social status, achievement, and skills, or the resources that are usually a consequence of possessing such abilities. For the most part, these abilities could be strengthened with effort, persistence, and motivation, qualities that are generally perceived as being under one's voluntary control. Even when men fail in their attempt to control resources and acquire status, the attribution of their failure to lack of effort and hard work is sufficient to immunize against depression. As Nolen-Hoeksema wrote, "...and the one factor often said to contribute to men's depressions -job difficulties - is a relatively mutable one".<sup>24,p.214</sup>

There is evidence indicating that men have a stronger illusion of control as well as stronger self-enhancing biases than women.<sup>111,112</sup> Based on evidence that experience of mastery and lack of mastery in one domain generalize to other domains,<sup>113</sup> one could argue that the perception of control (not necessarily success) in the domain of increasing one's mate value can lead men to become more immune to stresses in other domains of their life. Once depressed, men are also more likely than women to respond in ways that abbreviate their depressed mood, thus aborting the spiraling into a more intense depressive episode.<sup>23</sup> It is conceivable that the ruminative response styles

typically found in women are a consequence of the experience of chronic uncontrollable stressors earlier on. If controllable events are associated with a tendency to cope by problem-solving,<sup>114</sup> it may be the case that uncontrollable stressors predispose to less active coping styles that increase dysphoric affect. Alternatively, it may be that the chronic and/or early experience of uncontrollable stressors may cause one's dysfunctional attitudes to be more easily activated when one is confronted with a novel stressor.<sup>79</sup>

We have argued that although sexual selection pressures faced by men can and probably do affect their emotional state, they do so to a lesser extent than analogous pressures confronted by women. Our results show that the unique criteria by which women select their partners are for the most part considered under greater voluntary control than are the unique criteria by which men select female partners. Furthermore, although women also value cues of health, physical strength, and attractiveness in their partners, they do not seem to place as great a priority on these less mutable attributes as men do. The studies we have described offer preliminary evidence for differential psychological consequences that mate preferences may have for men and for women.

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