

MEN'S LONG-TERM MATING STRATEGIES

CHAPTER 5



For selection to have produced psychological mechanisms in men that incline them to seek marriage and commit years and decades of investment to a woman, it is reasonable to assume that there were adaptive advantages to long-term mating under some circumstances. This chapter examines the logic and evidence of men's long-term mating strategies. We start with the theoretical background for the evolution of men's mate preferences. Then we examine the content of men's mate preferences. The final section explores the effects of context on men's long-term mating strategies.

■ THEORETICAL BACKGROUND FOR THE EVOLUTION OF MEN'S MATE PREFERENCES

This section covers the theoretical background for two topics. The first is why men would marry at all—what are the potential adaptive benefits that ancestral men could have gained from marriage? The second topic deals with complexities surrounding the content of men's desires, and how selection might have fashioned specific mate preferences in men.

Why Men Might Benefit from Commitment and Marriage

One solution to the puzzle of why men would seek marriage comes from the ground rules set by women. Because it is clear that many ancestral women required reliable signs of male commitment before consenting to sex, men who failed

*Why does a particular maiden turn
our wits so upside-down?*

— William James (1890)

to commit would have suffered selectively on the mating market. Men who failed to show interest in commitment might have failed to attract any women at all.

Another benefit of marriage is an increase in the quality of the woman a man would be able to attract. Men who are willing to promise long-term resources, protection, and investment in children are appealing to women, as we saw in Chapter 4, so men who are willing to commit to the long term have a wider range of women from which to choose. Such men attract desirable women because women typically desire lasting commitment, and highly desirable women are in the best position to get what they want.

A third potential benefit would be an increase in the odds that the man is the father of the children a woman bears. Through marriage a man gains repeated sexual access—in the majority of cases, exclusive sexual access. Without this repeated or exclusive access, his certainty in paternity would be jeopardized. Thus men who marry gain the reproductive benefit of an increase in paternity certainty.

A fourth potential benefit of marriage would have been an increase in the survival of the man's children. In human ancestral environments it is likely that infants and young children more frequently died without the prolonged investment from two parents or related kin (Hill & Hurtado, 1996). Even today among the Ache Indians of Paraguay, children without an investing father suffer a death rate more than 10 percent higher than children whose fathers remain alive. The key point is that an increase in the survival rates of a man's children may have been one adaptive benefit that ancestral men reaped as a result of investing in a long-term marital relationship.

Over human evolutionary history, even children who did survive without their father's investment might have suffered from the absence of his teaching and political alliances, because both of these assets help to solve mating problems later in life. Fathers in many cultures past and present have had a strong hand in arranging beneficial marriages for their sons and daughters.

Men also benefit from marriage by an increase in status. In many cultures, males are not considered to have achieved true manhood until they have married. Increased status, in turn, can bring a bounty of benefits, including better resources for his children and additional mates (see Chapter 12). By marrying, men also gain access to coalitional allies through his wife's family which provide additional reproductively relevant benefits.

In summary, there are seven potentially powerful adaptive benefits that would have accrued to men willing to make the commitment of marriage: (1) increased odds of succeeding in attracting a mate, (2) increased ability to attract a more desirable mate, (3) increased paternity certainty, (4) increased survival of his children, (5) increased reproductive success of children accrued through paternal investment, (6) increased social status, and (7) added coalitional allies.

Given that there would have been powerful adaptive advantages to men willing to commit, the next question is: What qualities should they seek in women?

The Problem of Assessing a Woman's Fertility or Reproductive Value

To be reproductively successful, ancestral men had to marry women with the capacity to bear children. A woman with the capacity to bear many children obviously would have been more beneficial in reproductive currencies than a woman capable of bearing few or none. Men cannot observe a woman's reproductive value directly, and so selection could only have fashioned preferences in men for qualities that are correlated with reproductive value.

When we compare humans with their closest primate relative, the chimpanzee, we see a startling discontinuity in the female advertisement of reproductive status. When the female chimpanzee is capable of conceiving, she goes into a phase called *estrus*—the time during which she releases her eggs and shows maximal sexual receptivity. The receptivity of estrus is usually advertised by bright red swollen genitals and scents that are highly attractive to chimpanzee males. Most, although not all, of the sexual activity among the chimpanzees takes place during the estrus phase, when the female is most likely to conceive.

Humans show a markedly different form of mating. First, women's ovulation is relatively concealed or cryptic. Unlike chimpanzee females, when women release their eggs for potential fertilization, the event is not accompanied by a pronounced genital swelling. Second, sexual activity among most humans occurs throughout the woman's ovulation cycle. Unlike the chimpanzee, sexual activity is not generally concentrated during the phase in which the female is most likely to conceive.

The transition from advertised estrus to concealed ovulation posed a poignant adaptive problem for human ancestral males. When ovulation is not advertised, how could males discern a female's reproductive status? The concealment of ovulation, in short, shifted the problem from one of detecting when a woman was ovulating to one of determining which women were likely to be *capable* of conceiving children—the problem of determining a woman's reproductive value or fertility.

Reproductive value refers to the number of children a person of a given age and sex is likely to have in the future. A woman who is fifteen years old, for example, has a higher reproductive value than a woman who is thirty because, on average, the younger woman is likely to bear more children in the future than is the older woman. Individual women may, of course, defy these averages. The fifteen-year-old might decide never to have children, and the thirty-year-old could have six. The key is that reproductive value refers to the average *expected* future reproduction of a person of a given age and sex. A typical reproductive

value curve for women is shown in Figure 5.1.

Reproductive value differs from *fertility*, which is defined as actual reproductive performance, measured by the number of viable offspring produced. In human populations, women in their mid-twenties tend to produce the most viable children, and so fertility among humans reaches a peak in the mid-twenties.

The differences between fertility and reproductive value can be illustrated by contrasting two females, ages fifteen and twenty-five. The younger female has a higher reproductive value because her *future* reproduction is expected to be higher. The twenty-five-year-old female, in contrast, would be more fertile because women in their mid-twenties produce more children, on average, than do women in their teens.



FIGURE 5.1 Typical Reproductive Value Curve for Women. The figure shows the number of children a woman of a given age is likely to have, on average, in the future.

The solution to this problem of detecting fertility or reproductive value, however, is more difficult than it might at first appear. The number of children a woman is likely to bear in her lifetime is not stamped on her forehead. It is not imbued in her social reputation. Even women themselves lack direct knowledge of their reproductive value.

Ancestral men, however, could have evolved mechanisms sensitive to observable qualities of a woman that might be *correlated* with underlying reproductive value. Two potentially observable cues would have been a woman's youth and her health (Symons, 1979; Williams, 1975). Old or unhealthy women clearly could not reproduce as much as young, healthy women. But precisely which observable qualities of a woman might signal youth and health? And do men's desires in a marriage partner focus heavily on her reproductive capacity?

■ THE CONTENT OF MEN'S MATE PREFERENCES

On some ways men's mate preferences are similar to those of women. Like women, men express a desire for partners who are intelligent, kind, understanding, and healthy (Buss, 2003). Also, like women, men look for partners who share their values and are similar to them in attitudes, personality, and religious beliefs. But because ancestral men confronted a different set of adaptive mating problems than did ancestral women, as their descendants modern men are predicted to hold a somewhat different set of mate preferences as adaptive solutions. These preferences start with one of the most powerful cues to a woman's reproductive status—her age.

Preference for Youth

Youth is a critical cue because a woman's reproductive value declines steadily as she moves past age twenty. By the age of forty a woman's reproductive capacity is low, and by fifty it is essentially zero.

Men's preferences capitalize on this. Within the United States men uniformly express a desire for mates who are younger than they are. Men's preference for youthful partners is not limited to Western cultures. When anthropologist Napoleon Chagnon was asked which females are most sexually attractive to Yanomamö Indian men of the Amazon he replied without hesitation, "Females who are *moko dude*" (Symons, 1989, pp. 34–35). The word *moko*, when used with respect to fruit, means that the fruit is harvestable, and when used with respect to a woman, it means that the woman is fertile. Thus, *moko dude*, when referring to fruit means that the fruit is perfectly ripe and when referring to a woman means that she is postpubescent but has not yet borne her first child. Comparable information on other tribal peoples suggests that the Yanomamö men are not atypical.

Nigerian, Indonesian, Iranian, and Indian men express similar preferences. Without exception, in every one of the thirty-seven societies examined in an international study on mate selection, men preferred younger wives. Nigerian men who were twenty-three years old, for example, expressed a preference for wives who were six and a half years younger, or just under seventeen years old (Buss, 1989a). Yugoslavian men who were twenty-one and a half years old expressed a desire for wives who were approximately nineteen years old. Chinese, Canadian, and Colombian men shared with their Nigerian and Yugoslavian brethren a powerful desire for young women. On average, men from the thirty-seven cultures expressed a desire for wives approximately two and a half years younger than themselves (refer back to Figure 4.5, page 117).

Although men universally prefer younger women as wives, the strength of this preference varies somewhat from culture to culture. Among Scandinavian countries such as Finland, Sweden, and Norway men prefer their brides to be only one or two years younger. Men in Nigeria and Zambia prefer their brides to be six-and-a-half and seven-and-a-half years younger, respectively. In Nigeria and Zambia, which practice polygyny like many cultures worldwide, men who can afford it are legally permitted to marry more than one woman. Because men in polygynous mating systems are typically older than men in monogamous systems by the time they have acquired sufficient resources to attract wives, the larger age difference preferred by Nigerian and Zambian men may reflect their advanced age when they acquire wives.

A comparison of the statistics offered in personal ads in newspapers reveals that a man's age has a strong effect on what he desires. As men get older, they prefer as mates women who are increasingly younger. Men in their thirties prefer women who are roughly five years younger, whereas men in their fifties prefer women who are ten to twenty years younger (Kenrick & Keefe, 1992) (see Figure 5.2).

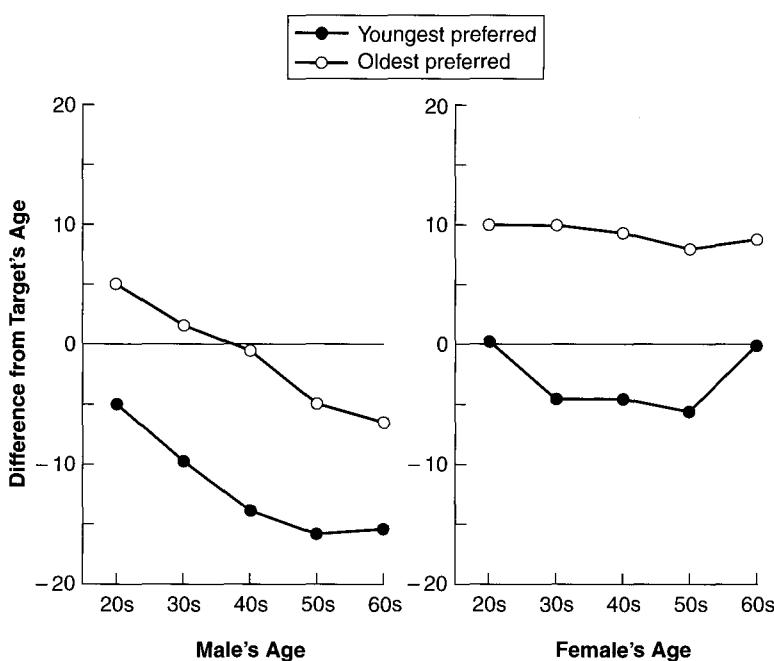


FIGURE 5.2 Men's and Women's Age Preferences as They Get Older. As men get older, they prefer women as mates who are increasingly younger than they are (left). Women's age preferences do not show this pattern (right).

Source: Kenrick, D. T., & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in reproductive strategies. *Behavioral and Brain Sciences*, 15, 75–133. Reprinted with permission.

One evolutionary model predicts that what men desire is not youth per se but rather features of women that are associated with reproductive value or fertility. This perspective leads to a counterintuitive prediction when it comes to the age preferences of adolescent males: teenage males should prefer women who are *slightly older* than they are, contrary to the typically observed pattern of men desiring younger partners, because slightly older women have higher fertility than women their own age or women who are younger (Kenrick, Keefe, Gabrielidis, & Cornelius, 1996).

To test this prediction, one study (Kenrick et al., 1996) surveyed 103 teenage males and 106 females ranging in age from twelve to nineteen. The participants received the following instructions: “I’d like you to think for a second about what type of person you would find attractive. Imagine you were going on a date with someone” (Kenrick et al., 1996, p. 1505).

Each participant was then asked about his or her age limits. The experimenter began by asking, “Would you date someone who was [the subject’s age],” followed by “How about someone who was [subject’s age minus one].” If affirmative answers were given, the experimenter then continued until the participant stated that a particular age was too young. The experimenter then asked about the maximum acceptable age of a dating partner. Finally, participants were asked about the ideal age of a dating partner, “the most attractive person you could possibly imagine” (p. 1505). The results yielded three variables: ideal age, minimum age, and maximum age of dating partner desired. The results are shown in Figure 5.3.

Although these teenage males were willing to accept dates with females who were slightly younger, they were far more willing to accept dates with older women. The “most attractive” age mirrors these findings, with adolescent males expressing a desire for dates who were several years older on average. Interestingly, this finding occurs despite the fact that these older women expressed little interest in dating younger men (second graph in Figure 5.3).

To get an overview of the pattern of men’s preferences for the age of women as a function of their own age, the data from all age groups were combined into a single graph, shown in Figure 5.4. This graph shows clearly that at the youngest ages, teenage males prefer females a few years older than themselves. But with advancing age, men prefer women who are increasingly younger than they are.

These data concerning teenagers are important in rendering several alternative explanations less plausible. One explanation for men’s desire for young women, for example, is that young women are easier to control and are less dominant than older women, and men seek to mate with women they can control. If this were the *sole* reason for men’s preference for young women, however, then we would expect that teenage males would also prefer younger women, but they don’t. The only way the “control” explanation could work is if teenage boys think that older women are easier to dominate.

Another explanation for men’s desire for young women is based on learning theory. Because women tend to prefer men who are somewhat older, men may have received more reward or reinforcement for seeking dates with younger women. This reinforcement explanation, however, fails to account for the preferences of the teenage males, who prefer older women despite the fact that the interest is rarely mutual.

Taken together with the cross-cultural data, these findings lend strong support to an evolutionary psychological explanation: men desire young women because over evolutionary time youth has consistently been linked with fertility. This explanation accounts for two facts that all other theories have difficulty explaining: First, that men desire women who are increasingly younger than they are as the men themselves get older; second, that teenage

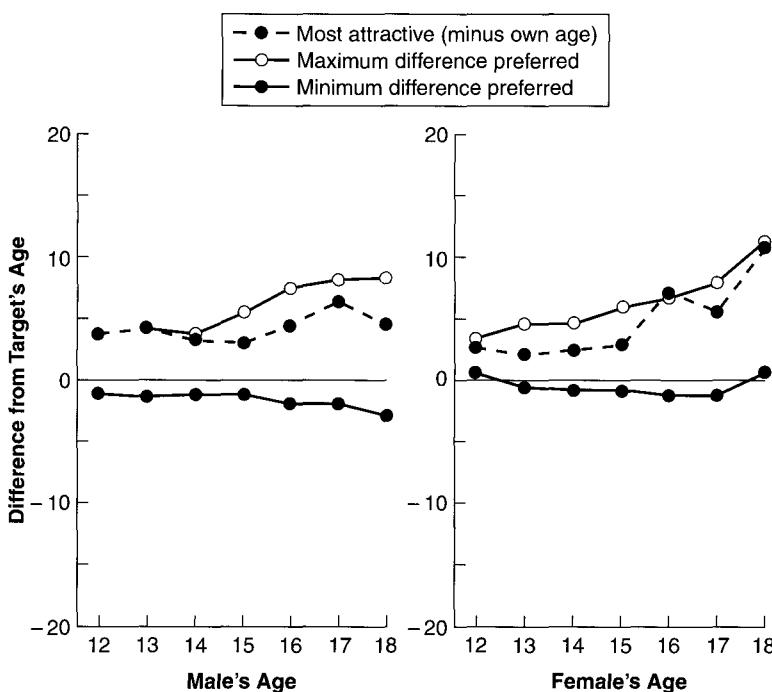


FIGURE 5.3 Age Preferences for Mates Expressed by Teenagers. Note that male teenagers, unlike older males, prefer women as mates who are somewhat older than they are (left).

Source: Kenrick, D. T., Keefe, R. C., Gabrielidis, C., & Cornelius, J. S. (1996). Adolescents' age preferences for dating partners: Support for an evolutionary model of life-history strategies. *Child Development*, 67, 1499–1511. Reprinted with permission.

males prefer women a few years older than they are despite the fact that such women rarely reward them for such interest.

Nonetheless, an important anomaly remains unexplained by the evolutionary hypothesis. Although men prefer women who are increasingly younger than they are as long-term mates as they get older, the actual age preferences of older men is beyond maximum fertility. Men who are fifty, for example, prefer women who are in their mid-thirties (in sharp contrast to men's age preferences for a short-term mate, which remain at the age of peak fertility—see Buunk, Dijkstra, Kenrick, & Warntjes, 2001). There are a few possible explanations. First, older men may have difficulty in actually attracting dramatically younger women, and their preferences may reflect a compromise between their ideal and what they can get (Buunk et al., 2001). Second, large age discrepancies may create less compatibility, greater marital conflict, and more marital instability. Indeed, the mate homicide rate rises as a function of the magnitude of the age

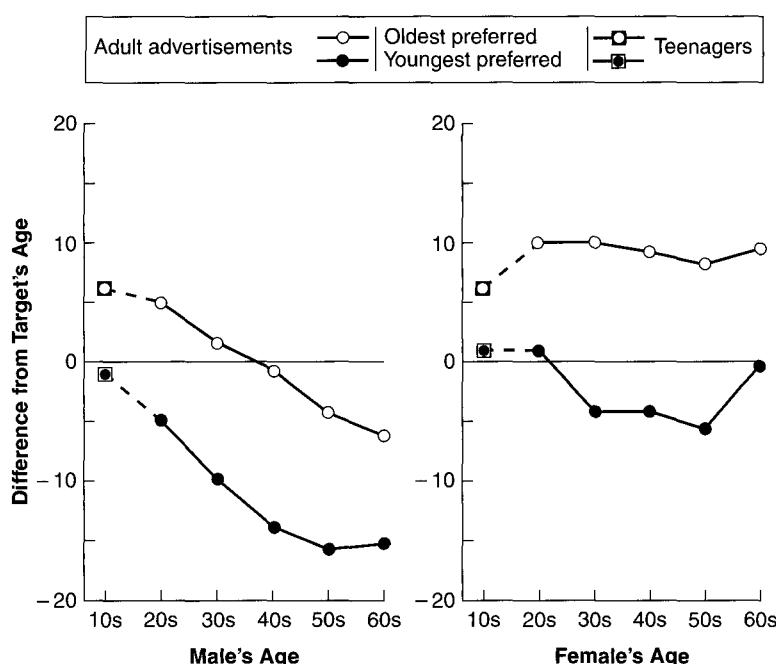


FIGURE 5.4 Comparison of Teenage Preferences with Those Expressed in Adult Advertisements. The figure shows that teenagers tend to prefer mates close to themselves in age. As they age, males increasingly prefer mates younger than themselves, whereas females prefer mates consistently a few years older.

Source: Kenrick, D. T., Keefe, R. C., Gabrieliidis, C., & Cornelius, J. S. (1996). Adolescents' age preferences for dating partners: Support for an evolutionary model of life-history strategies. *Child Development*, 67, 1499–1511. Reprinted with permission.

discrepancy between partners (Daly & Wilson, 1988). Third, modern marriage likely differs from ancestral marriage. In modern marriages, couples spend a great deal of time together, socialize as a couple, and act as companions. Judging from hunter-gatherer groups, ancestral marriages were more likely to involve sharp division of labor, with women spending the bulk of their time with children and other women and men hunting and socializing with other men. Thus, the importance of similarity and compatibility for functioning in modern marriages may have created a shift in men's age preferences above the point of maximum female fertility. Which of these explanations, or which combination, turns out to be correct must await future research.

Evolved Standards of Physical Beauty

A preference for youth is the most obvious of men's preferences linked to a woman's reproductive capacity. Evolutionary logic leads to an even more powerful set of expectations

for universal standards of beauty. Just as our standards for attractive landscapes embody cues such as water, game, and refuge, mimicking our ancestors' savanna habitats (Orians & Heerwagen, 1992), our standards for female beauty should embody cues to women's reproductive value. Conventional wisdom dictates that beauty is in the eyes of the beholder, but those eyes and the minds behind the eyes have been shaped by millions of years of human evolution. Beauty is in the *adaptations* of the beholder (Symons, 1995).

Our ancestors had access to two types of observable evidence of a woman's reproductive value: (1) features of *physical appearance*, such as full lips, clear skin, smooth skin, clear eyes, lustrous hair, good muscle tone and body fat distribution, and (2) features of *behavior*, such as a bouncy youthful gait, an animated facial expression, and a high energy level. These physical cues to youth and health, and hence to fertility and reproductive value, have been hypothesized to be some of the key components of male standards of female beauty (Symons, 1979, 1995) (see Figure 5.5).

Psychologists Clelland Ford and Frank Beach discovered several universal cues that correspond precisely with the evolutionary theory of beauty (1951). Signs of youth, such as clear, smooth skin, and signs of health, such as an absence of sores and lesions, are universally regarded as attractive. Any cues to ill health or older age are seen as less attractive. Poor complexion is always considered sexually unattractive. Ringworm, facial disfigurement, and filthiness are universally undesirable. Cleanliness and freedom from disease are universally attractive.

Among the Trobriand Islanders in northwestern Melanesia, for example, anthropologist Bronislaw Malinowski reports that "sores, ulcers, and skin eruptions are naturally held to be specially repulsive from the viewpoint of erotic contact" (Malinowski, 1929, p. 244). The "essential conditions" for beauty, in contrast, are "health, strong growth of hair, sound

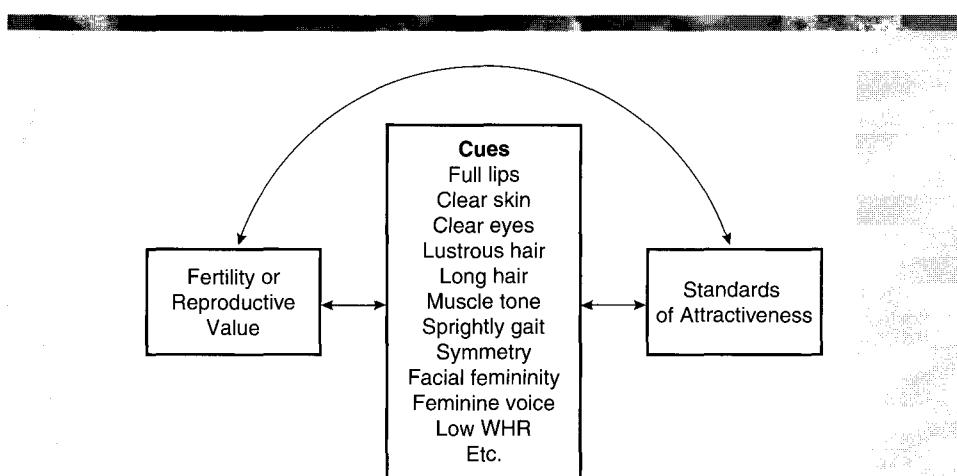


FIGURE 5.5 Logic of the Evolution of Standards of Attractiveness. Standards of female attractiveness are hypothesized to have evolved to embody reliably observable cues to fertility or reproductive value.

teeth, and smooth skin.” Specific features, such as bright, shining eyes and full, well-shaped lips rather than thin or pinched lips, are especially important to the islanders.

Other potential cues to youth and health might be the *length and quality of women’s hair*. One study interviewed 230 women at various public locations about their age, subjective health status, relationship status, and other variables, and obtained observer measures of hair length and hair quality (Hinsz, Matz, & Patience, 2001). They found that hair length and quality were strong cues to youth: Younger women had longer hair of higher-rated quality than did older women. Furthermore, observer’s judgments of women’s hair quality were positively correlated with women’s subjective judgments of their own health. Future research will undoubtedly continue to discover observable physical cues to youth and health and hence ultimately to women’s mate value.

Studies confirm that *skin quality* is especially important in judgments of attractiveness. It provides a cue to a woman’s age and a partial record of her lifetime health (Sugiyama, 2005). Clear unblemished skin signals an absence of parasites, absence of skin-damaging diseases during development, and possibly “good genes” to withstand disease and heal without infection (Singh & Bronstad, 1997). Studies find that skin quality is indeed linked with perceived facial attractiveness (Fink & Neave, 2005).

Facial femininity is another cue to attractiveness (Gangestad & Scheyd, 2005). Facial femininity includes cues such as full lips, relatively large eyes, thinner jaws, small chin, high cheekbones, and a relatively short distance between mouth and jaw. Female facial femininity is likely to be a marker of reproductive value for two reasons. First, as women age, their facial features become less feminine. Second, facial femininity is linked with higher levels of estrogen, the ovarian hormone that correlates with fertility (Schaefer, Fink, Grammer, Mitteroecker, Gunz, & Bookstein, 2006). Meta-analyses reveal that facial femininity is one of the most powerful correlates of judgments of women’s attractiveness (Rhodes, 2006). Feminine voices—relatively high-pitched—are also found to be more attractive in women (Collins & Missing, 2003; Feinberg, Jones, Little, Burt, & Perrett, 2005).

Facial symmetry is another correlate of female attractiveness (Gangestad & Scheyd, 2005; Rhodes, 2006). You may recall from Chapter 4 that symmetry is hypothesized to be a cue to developmental stability, a hypothesized sign of “good genes” and the capacity to withstand environmental insult. Symmetrical female faces are indeed judged to be more healthy than less symmetrical faces (Fink, Neave, Manning, & Grammer, 2006). Studies find that facial symmetry is positively correlated with judgments of attractiveness, although the link is weaker than that of facial femininity (Rhodes, 2006).

Facial averageness is another quality linked with attractiveness, although this may seem counterintuitive. Researchers created computer composites of the human face, superimposing faces on each other to create new faces (Langlois & Roggman, 1990). The new faces differed in the number of individual faces that made them up—four, eight, sixteen, or thirty-two. The composite faces—the averages of the individual faces—were judged more attractive than the individual faces. And the more faces that went into the composite, the more attractive the face was judged to be. Two competing hypotheses have been advanced to explain why average faces are attractive. First, people may show a generalized cognitive preference for things that are easily processed, and stimuli that match an average prototype may be easier to process. People do indeed find averaged images of fish, birds, and even cars more attractive than individual fish, birds, or cars (Rhodes, 2006). Second, averageness may be a marker of genetic or phenotypic quality (Gangestad & Scheyd, 2005). Deviations from averageness may be cues to environmental insults such as disease or genetic mutations.

Standards of Beauty Emerge Early in Life. Most traditional psychological theories of attraction have assumed that standards of attractiveness are learned gradually through cultural transmission and therefore do not emerge clearly until a child is three or four years old or even later (Berscheid & Walster, 1974; Langlois, Roggman, Casey, Ritter, Rieser-Danner, & Jenkins, 1987). However, psychologist Judith Langlois and her colleagues have overturned this conventional wisdom by studying infants' social responses to faces (Langlois, Roggman, & Reiser-Danner, 1990).

Adults evaluated color slides of White and Black female faces for their attractiveness. Then infants two to three months and six to eight months old were shown pairs of these faces that differed in degree of attractiveness. Both younger and older infants gazed longer at the more attractive faces, suggesting that standards of beauty apparently emerge quite early in life. In a second study they found that twelve-month-old infants played significantly longer with facially attractive dolls than with unattractive dolls. This evidence challenges the commonly held view that the standards of attractiveness are learned through gradual exposure to current cultural models. No training seems necessary for these standards to emerge.

Standards of Beauty Are Consistent across Cultures. The constituents of beauty are neither arbitrary nor culture bound. When psychologist Michael Cunningham asked people of different races to judge the facial attractiveness of Asian, Hispanic, Black, and White women in photographs, he found tremendous consensus about who is and is not considered good-looking (Cunningham, Roberts, Wu, Barbee, & Druen, 1995). The average correlation between racial groups in their ratings of the attractiveness of these photographs was +.93. In a second study by the same investigators, Taiwanese subjects agreed with the other groups in the average ratings of attractiveness ($r = +.91$). Degree of exposure to Western media did not affect the judgments of attractiveness in either study. In a third study, Blacks and Whites showed tremendous agreement about which women's faces were most and least attractive ($r = +.94$). Consensus has also been found among Chinese, Indian, and English subjects between South Africans and North Americans; between Black and White Americans; and between Russians, Ache Indians, and Americans (Cross & Cross, 1971; Jackson, 1992; Jones, 1996; Morse, Gruzen, & Reis, 1976; Thakerar & Iwawaki, 1979).

Beauty and the Brain. Evolutionary psychologists are beginning to use neuroscience technology to identify the links between psychological mechanisms and specific brain circuits. Exploiting the new technology of functional magnetic resonance imaging (fMRI), scientists Itzhak Aharon, Nancy Etcoff, and their colleagues sought to identify the "reward value" of different images (Aharon, Etcoff, Ariely, Chabris, O'Connor, & Breiter, 2001). They exposed heterosexual male participants to four sets of faces differing in attractiveness, as determined by prior ratings: attractive females, average females, attractive males, and average males. While participants viewed these images, their brains were neuroimaged in six regions. The results proved to be dramatic. When men looked at attractive female faces, the nucleus accumbens area of the brain became especially activated. The nucleus accumbens is known to be fundamental reward circuitry—that is, it is a well-documented pleasure center of the brain. This reward circuit of the brain *fails* to become activated when men look at either typical female faces or any of the male faces. Beautiful female faces, in short, are especially rewarding to men, psychologically and neurologically. This important finding takes the field a step closer to identifying the specific neurological bases of mating adaptations that have been well documented psychologically and behaviorally.

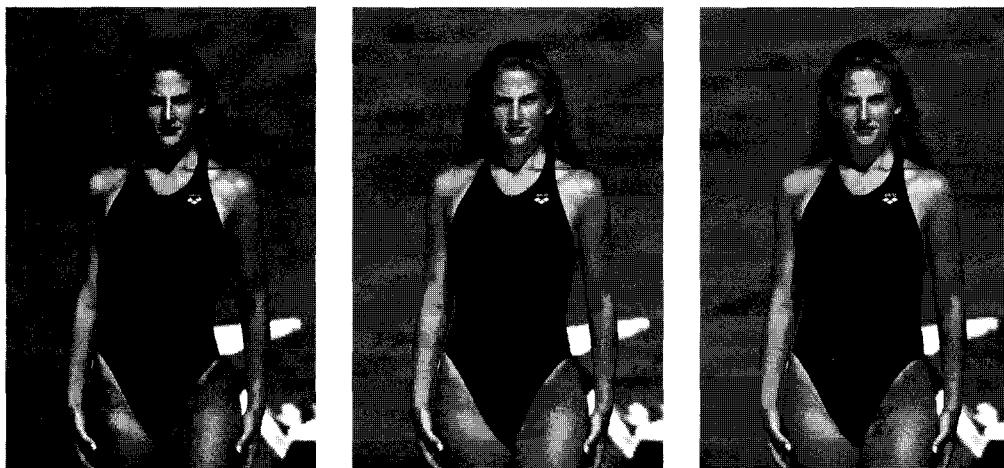
Preference for Body Fat and the Critical Waist-to-Hip Ratio

Facial beauty, however, is only part of the picture. Features of the rest of the body may also provide cues to a woman's reproductive capacity. Standards for female bodily attractiveness vary from culture to culture, along such dimensions as a plump versus a slim body build or light versus dark skin. Emphasis on particular physical features such as eyes, ears, or genitals also varies among cultures. The most culturally variable standard of beauty seems to be in the preference for a slim versus a plump body build and is linked with the social status that build conveys. In cultures where food is scarce, such as among the Bushmen of Australia, plumpness signals wealth, health, and adequate nutrition during development (Rosenblatt, 1974). Indeed, there is powerful evidence that in ecologies where food shortages are common, such as in Kenya, Uganda, and certain parts of Ecuador, men prefer women who are heavier and possess more body fat (Sugiyama, 2005). Even within cultures, men prefer heavier women when there are economic hard times (Pettijohn & Jungeberg, 2004). In cultures where food is relatively abundant, such as the United States and many Western European countries, the relationship between plumpness and status is reversed, and the wealthy distinguish themselves by being thin (Symons, 1979). Thus, although "body-weight preference varies across cultures and time, it does so in predictable ways" (Sugiyama, 2005, p. 318), suggesting context-dependent adaptations.

One study revealed a disturbing aspect of U.S. women's and men's perceptions of the desirability of plump or thin body types (Rozin & Fallon, 1988). Men and women viewed nine female figures that varied from very thin to very plump. The women were asked to indicate their ideal for themselves, as well as their perception of what men's ideal female figure was. In both cases women selected a figure that was slimmer than average. When men were asked to select which female figure they preferred, however, they selected the figure of exactly average body size. So U.S. women think that men want them to be thinner than is in fact the case.

Whereas men's preferences for a particular body size vary across cultures, psychologist Devendra Singh has discovered one preference for body shape that may be universal: the preference for a particular ratio between the size of a woman's waist and the size of her hips (Singh, 1993; Singh & Young, 1995). Before puberty, boys and girls show similar fat distributions. At puberty, however, a dramatic change occurs. Men lose fat from their buttocks and thighs, whereas the release of estrogen in pubertal girls causes them to deposit fat in the lower trunk, primarily on their hips and upper thighs. Indeed, the volume of body fat in this region is 40 percent greater for women than for men.

The waist-to-hip ratio (WHR) is thus similar for the sexes before puberty, in the range of 0.85 to 0.95. After puberty, however, women's hip fat deposits cause their WHRs to become significantly lower than men's. Healthy, reproductively capable women have WHRs between 0.67 and 0.80, whereas healthy men have a ratio in the range of 0.85 to 0.95. Abundant evidence now shows that the WHR is an accurate indicator of women's reproductive status. Women with lower ratios show earlier pubertal endocrine activity. Married women with higher ratios have more difficulty becoming pregnant, and those who do get pregnant do so at a later age than women with lower ratios. The WHR is also an accurate indication of long-term health status. Diseases such as diabetes, hypertension, heart attack, stroke, and gallbladder disorders have been shown to be linked with the distribution of fat, as reflected by the ratio, rather than with the total amount of fat per se. One study found that women with a low WHR (as indicated by small waist) *and* relatively large breasts, compared to women



Women with a low WHR (left panel) are judged to be more attractive than women with a higher WHR (right panel). A relatively low WHR signals that the woman is young, healthy, and not pregnant.

from three groups with different combinations of body-shape variables, had 26 percent higher levels of the ovarian hormone oestradiol (E2), which is a good predictor of fertility and pregnancy success (Jasienska, Ziolkiewicz, Ellison, Lipson, & Thune, 2004). The link between the WHR and both health and reproductive status makes it a reliable cue for ancestral men's preferences in a mate.

Singh discovered that WHR is indeed a powerful part of women's attractiveness. In a dozen studies conducted by Singh, men rated the attractiveness of female figures who varied in both WHR and total amount of fat. Again, men found the average figure to be more attractive than either a thin or a fat figure. Regardless of the total amount of fat, however, men find women with low WHRs the most attractive. Women with a WHR of 0.70 are seen as more attractive than women with a WHR of 0.80, who in turn are seen as more attractive than women with a WHR of 0.90. Studies with line drawings and with computer-generated photographic images produced the same results. The bodies of women who underwent surgery to remove fat from their stomachs and implant it on their buttocks—creating a lower WHR—were judged more attractive post-operation (Singh & Randall, 2007). Finally, Singh's analysis of *Playboy* centerfolds and winners of U.S. beauty contests over the past thirty years confirmed the invariance of this cue. Although both centerfolds and beauty contest winners got slightly thinner over that period, their WHRs remained the same, roughly 0.70.

Is there any evidence that low WHRs are preferred across different ethnic groups? In one series of studies, Singh and Luis (1995) presented line drawings of women differing in WHRs and body sizes to groups of young Indonesian and Black men and asked them to judge their attractiveness. The results proved almost identical to those of the original studies. Men judged female figures who were of normal weight and had low WHRs (0.70) the most attractive. A preference for a relatively low WHR has also been found in the United Kingdom, Australia, Germany, India, and Guinea-Bissau (Africa) and on the Azore Islands (Connolly, Mealey, & Slaughter, 2000; Furnham, Tan, & McManus, 1997; Singh, 2000).

Two studies have failed to replicate this effect—one in Peru (Yu & Shepard, 1998) and one among the Hadza in Tanzania (Marlow & Wetsman, 2001). In fact, among the Hadza, men were found to prefer somewhat heavier women with a higher WHR. But these apparent failures to replicate turn out not to be as straightforward as initially believed. It is becoming increasingly clear that WHR assessment is more complex than an “invariant preference” for a specific WHR such as .70. Notably, the normal range of women’s WHR is higher in foraging societies than in Western populations and the average WHR of the most fertile females is higher in foraging societies (Sugiyama, 2005). Thus, when stimuli are used that more accurately characterize the local cultural range of WHR, men tend to find attractive a WHR that is *lower than the local average* (Sugiyama, 2004a). One of the failures to replicate previously noted for the Hadza turned out differently when the stimuli included profile views of buttocks rather than frontal views (Marlow, Apicella, & Reed, 2005). As the authors concluded, “these results imply that there is less disparity between American and Hadza preferences for the actual WHR of real women” (Marlow et al., 2005, p. 458).

Another indication of the importance of WHR is revealed in a recent study that examined references to aspects of female beauty in British, Indian, and Chinese literature going back hundreds of years (Singh, Renn, & Singh, 2006). A narrow waist (implying a low WHR) was consistently described as beautiful. These findings provide additional evidence for the cross-cultural and historical importance of WHR as a marker of female beauty.

Finally, individuals differ in preferences for WHR in ways that are contingent on sexual strategy pursued. Specifically, men who tend to pursue a short-term sexual strategy have a stronger preference for low WHR than men pursuing a long-term mating strategy (Schmalt, 2006). And men pursuing a short-term mating strategy are more likely than men pursuing a long-term strategy to approach women with a low WHR (Brase & Walker, 2004). Although the explanation for these findings is open to question, it is plausible that men with higher “mate value” may be initiating contact with the most physically attractive women. In sum, WHR is an important bodily cue to female attractiveness and is known to be linked to female fertility. Nonetheless, preferences for specific WHR values vary predictably with the actual values of WHR in the local culture and also with sexual strategy pursued.

Sex Differences in the Importance of Physical Appearance

Because of the abundance of cues conveyed by a woman’s physical appearance, and because male standards of beauty have evolved to correspond to these cues, men place a premium on physical appearance and attractiveness in their mate preferences. A cross-generational mating study spanning a fifty-seven-year period from 1939 to 1996 in the United States gauged the value men and women place on different characteristics in a mate (Buss, Shackelford, Kirkpatrick, & Larsen, 2001). The same eighteen characteristics were measured at roughly one-decade intervals to determine how mating preferences have changed over time in the United States. In all cases, men rated physical attractiveness and good looks as more important and desirable in a potential mate than did women. Men tend to see attractiveness as important, whereas women tend to see it as desirable but not crucial. The sex difference in the importance of attractiveness has remained constant from one generation to the next and did not vary over the entire fifty years.

This does not mean that the importance people place on attractiveness is forever fixed. On the contrary, the importance of attractiveness has increased dramatically in the United

States in this century alone (Buss et al., 2001). For nearly every decade since 1930, physical appearance has increased in importance for men and women about equally, corresponding with the rise in television, fashion magazines, advertising, and other media depictions of attractive models. For example, the importance attached to good looks in a marriage partner on a scale of 0 to 3 increased between 1939 and 1996 from 1.50 to 2.11 for men and from 0.94 to 1.67 for women, showing that mate preferences can change. Indeed, these changes point to the importance of *cultural evolution* and the impact of input from the social environment. The sex difference so far remains invariant, however.

These sex differences are not limited to the United States or even to Western cultures. Regardless of location, habitat, marriage system, or cultural living arrangement, men in all thirty-seven cultures included in the study on choosing a mate—from Australians to Zambians—valued physical appearance in a potential mate more than women (see Figure 5.6). China typifies the average difference in importance attached to beauty, with men a 2.06 and women a 1.59. This internationally consistent sex difference persists despite variations

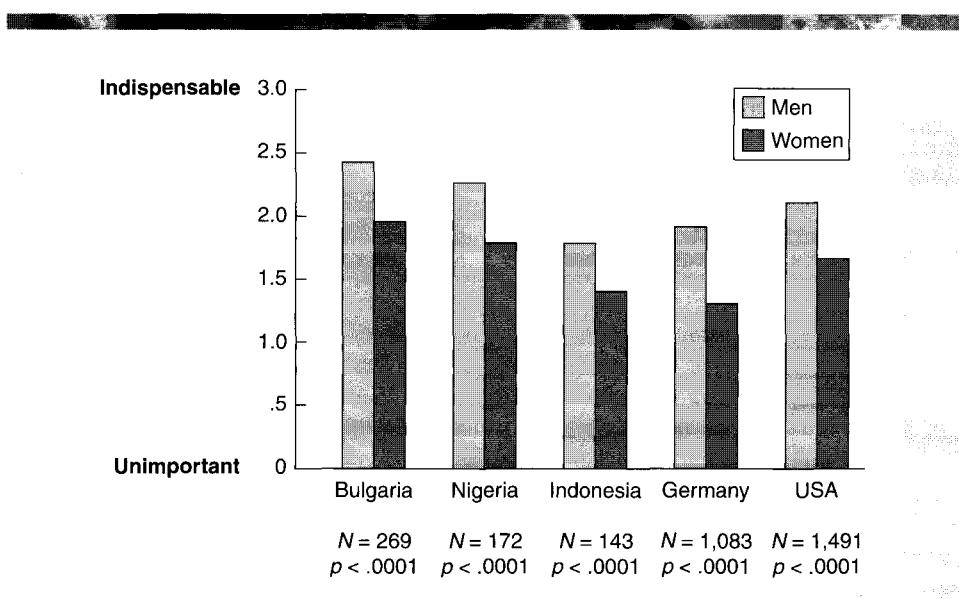


FIGURE 5.6 Desire for Physical Attractiveness in a Long-Term Mate.
Participants in thirty-seven cultures rated this variable, in the context of eighteen other variables, on how desirable it would be in a potential long-term mate or marriage partner using a four-point rating scale, ranging from zero (irrelevant or unimportant) to three (indispensable).

N = sample size.

p values less than .05 indicate that sex difference is significant.

Source: Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review, 100*, 204–232. Copyright © 1993 by the American Psychological Association. Adapted with permission.

in race, ethnicity, religion, hemisphere, political system, or mating system. A study of mate preferences among the Hadza revealed that more than five times as many men as women placed great importance on the fertility of a potential spouse—one who could bear many children (Marlow, 2004). When asked “How can you tell?” most Hadza men responded by saying “you can tell just by looking,” suggesting that men are aware that physical appearance conveys vital information about fertility. Men’s preference for physically attractive mates appears to be the product of a species-wide psychological mechanism that transcends cultural variation.

Do Men Have a Preference for Ovulating Women?

Perhaps one of the most obvious predictions one could make about men’s desires is that they should show a strong preference for women at the time women *ovulate*—when the egg is released into the woman’s uterus to potentially be fertilized by a sperm. Ancestral men who were able to detect ovulating women would have several reproductive advantages over men who could not. First, they could channel their courtship, seduction, and sexual behavior toward women at that time, thus maximizing the odds of successful fertilization. Second, they could save a tremendous amount of effort by avoiding women who were not ovulating. Third, a married man could restrict his mate-guarding efforts to the period in which his spouse was ovulating.

In humans, however, ovulation is “concealed” or “cryptic”; conventional scientific wisdom is that there is no evidence that men can detect when women are ovulating (Symons, 1992, p. 144). Despite the tremendous reproductive advantages of detecting and desiring ovulating women, selection seems not to have given men these adaptations. Perhaps this conclusion is too hasty.

There are several lines of evidence that suggest that men might, in fact, be able to detect when women ovulate (Symons, 1995). First, during ovulation women’s skin becomes “vascularized,” or suffused with blood. This corresponds to the “glow” that women sometimes appear to have, a healthy reddening of the cheeks. Second, women’s skin lightens slightly during ovulation as compared with other times of the menstrual cycle—a cue universally thought to be a sexual attractant (van den Berghe & Frost, 1986). A cross-cultural survey found that “of the 51 societies for which any mention of native skin preferences . . . is made, 47 state a preference for the lighter end of the locally represented spectrum, although not necessarily for the lightest possible skin color” (van den Berghe & Frost, 1986, p. 92).

Third, during ovulation women’s levels of circulating estrogen increase, which produces a corresponding decrease in women’s waist-to-hip ratio (Symons, 1995, p. 93). A lower WHR, as noted earlier, is known to be sexually attractive to men (Singh, 1993). Fourth, ovulating women are touched more often in singles bars (Grammer, 1996). Fifth, men found the body odor of women, taken from cotton pads worn under the armpit, to be more attractive and pleasant smelling during the follicular (fertile) stage of the menstrual cycle (Havlicek, Dvorakova, et al., 2005; Singh & Bronstad, 2001). Sixth, women’s faces are judged by both sexes to be more attractive during the fertile than during the luteal phase (Roberts, Havlicek, Flegr, Hruskova, Little, Jones, et al., 2004).

So we have six pieces of circumstantial evidence pointing to the possibility that men can detect when women ovulate: vascularization of the skin, lightening of the skin, reduction in WHR, increased touching in singles bars, more pleasant odor, and increased facial

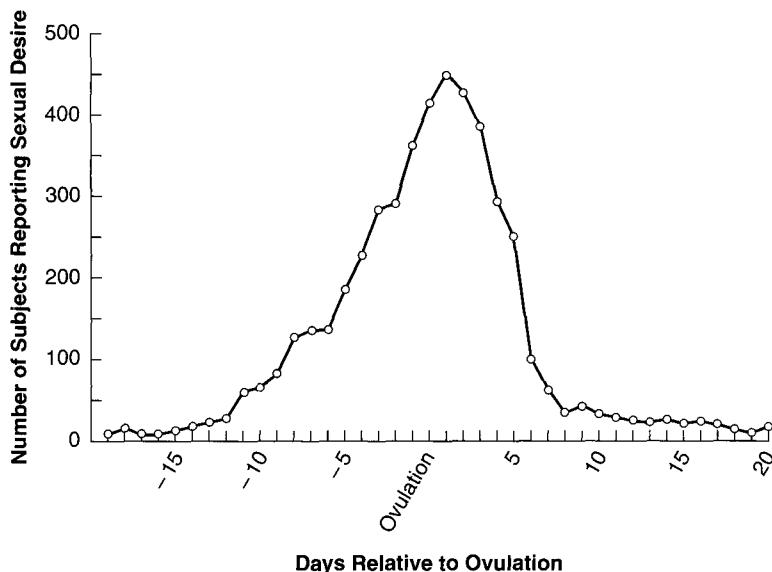


FIGURE 5.7 Women's Sexual Desire as a Function of Ovulation Cycle
Women's sexual desire tends to peak around ovulation, which was determined by shifts in basal body temperature.

Source: Stanislaw, H., & Rice, F. J. (1988). Correlation between sexual desire and menstrual cycle characteristics. *Archives of Sexual Behavior*, 17, 499–508. New York: Plenum Publishing. Adapted with permission.

attractiveness. Because ovulating women might be sending more sexual signals to men, however, men might not be *detecting* when women ovulate so much as they are *responding* to the sexual interest the women express.

Another study lends circumstantial support to the woman-initiated contact hypothesis. Researchers looked at a sample of married women over a period of twenty-four months (Stanislaw & Rice, 1988). Ovulation was determined by measuring basal body temperature, which rises just prior to ovulation. Over the twenty-four months, women put an “X” on a chart on those days on which they experienced “sexual desire.” As shown in Figure 5.7, women’s reported desire increased steadily as ovulation approached, peaked at or just after ovulation, and then decreased steadily as they approached the infertile period of menstruation. So the fact that ovulating women are touched more at singles bars may reflect their increased sexual desire, increased exposure of skin, and perhaps other sexual signals that researchers did not examine.

In summary, definitive studies on whether men can detect when women ovulate remain to be conducted. The available evidence is sufficient to suggest that there are *potentially observable* physical changes in a woman’s skin and body when she ovulates—changes known

to be sexually attractive to men. Over the next few years we will be able to determine whether the conventional wisdom—that men cannot detect when women ovulate—is true or false.

Solutions to the Problem of Paternity Uncertainty

Women are rare among primates in possessing the unusual adaptation of concealed or cryptic ovulation (although, as noted earlier, it may be less concealed than we think). Such relatively cryptic female ovulation obscures a woman's current reproductive status. Concealed ovulation dramatically changed the ground rules of human mating. Women became attractive to men not just during ovulation but throughout the ovulatory cycle. Cryptic ovulation created a special adaptive problem for men by decreasing the certainty of their paternity. Consider a primate male who prevents other males from mating with a female for the brief period during which she is in estrus. In contrast to human males, he can be fairly "confident" of his paternity. The period during which he must sequester and have sex with her is sharply constrained. Before and after her estrus, he can go about his other business without running the risk that his partner will become impregnated by another male.

Ancestral men did not have this luxury. Because mating is not the sole activity needed for humans to survive and reproduce, women could not be "guarded" around the clock. The more time a man spent guarding, the less time he had available for grappling with critical adaptive problems. Ancestral men, therefore, were faced with a unique paternity problem not faced by other primate males: how to be certain of their paternity when ovulation was concealed.

Marriage potentially provided one solution (Alexander & Noonan, 1979; Strassman, 1981). Men who married would benefit reproductively relative to other men by substantially increasing their certainty of paternity. Repeated sexual contact throughout the ovulation cycle raised the odds that a woman would bear a given man's child. The social traditions of marriage function as a public joining of the couple, providing a clear signal about who was mated with whom, and thus potentially reducing conflict within male coalitions. Marriage also provides opportunities to learn intimately about one's mate's personality, making it difficult for her to hide signs of infidelity. These benefits of marriage would have outweighed the costs of foregoing the sexual opportunities available to ancestral bachelors, at least under some conditions.

For an ancestral man to reap the reproductive benefits of marriage, he had to seek reasonable assurances that his wife would remain sexually faithful to him. Men who failed to recognize fidelity cues would have suffered in reproductive success because they lost the time and resources devoted to searching, courting, and competing. By failing to be sensitive to these cues, a man risked losing the benefits of the woman's parental investment in his children, which might instead be diverted to another man's children. Perhaps even more devastating in reproductive terms, failure to ensure fidelity meant that his own efforts would be channeled to another man's offspring.

Our forebears could have solved this uniquely male adaptive problem by seeking qualities in a potential mate that might increase the odds of securing their paternity. At least two preferences in a mate could solve the problem for males: (1) the desire for *premarital chastity* and (2) the quest for *postmarital sexual fidelity*. Before the use of modern contraceptives, chastity would likely have provided a clue to the future certainty of paternity. On the assumption that a woman's proclivities toward chaste behavior would be stable over time, her premarital chastity would signal her likely future fidelity. A man who didn't select a chaste mate may have risked becoming involved with a woman who would cuckold him.

Today it seems that men value virgin brides more than women value virgin grooms, at least in the United States according to a cross-generational mating study. But the value men place on virginity has declined over the past half-century, coinciding with the increasing availability of birth control (Buss et al., 2001). In the 1930s men viewed chastity as close to indispensable, but in the past two decades they have rated it desirable but not crucial. Among the eighteen characteristics rated in the study, chastity went from the tenth most valued in 1939 to the seventeenth most valued in the 1990s. Despite the decline in the value of chastity in the twentieth century and despite regional variations, a significant sex difference remains—men more than women emphasize chastity as being important in a potential long-term mate.

The trend for men to value chastity more than women holds up worldwide, but it varies tremendously among cultures. At one extreme, people in China, India, Indonesia, Iran, Taiwan, and the Palestinian Arab areas of Israel attach a high value to chastity in a potential mate. At the opposite extreme, people in Sweden, Norway, Finland, the Netherlands, West Germany, and France believe that virginity is largely irrelevant or unimportant in a potential mate (Buss, 1989a) (see Figure 5.8).

In contrast to the worldwide consistency in the different preferences by sex for youth and physical attractiveness, only 62 percent of the cultures in the international study on choosing a mate placed a significantly different value by gender on chastity in a committed mateship. Where sex differences in the value of virginity are found, however, men invariably placed a greater value on it than did women. In no case did women value chastity more than men.

The cultural variability in the preference of each sex for chastity may be due to several factors: the prevailing incidence of premarital sex, the degree to which chastity can be demanded in a mate, the economic independence of women, or the reliability with which it can be evaluated. Chastity differs from other attributes, such as a woman's physical attractiveness, in that it is less directly observable. Even physical tests of female virginity are unreliable, whether from variations in the structure of the hymen, its rupture due to nonsexual causes, or its deliberate alteration (Dickemann, 1981).

Variation in the value that people place on chastity may be traceable in part to variability in the economic independence of women and in women's control of their own sexuality. In some cultures, such as Sweden, premarital sex is not discouraged and practically no one is a virgin at marriage (Posner, 1992). One reason may be that women in Sweden are far less economically reliant on men than in most other cultures. Marriage provides few benefits for Swedish women as compared with women in most other cultures (Posner, 1992). The Swedish social welfare system includes daycare for children, long paid maternity leaves, and many other material benefits. Swedish taxpayers effectively provide what husbands formerly provided, freeing women from their economic dependence on men. That independence lowers the cost to women of a free and active sex life before marriage, or as an alternative to marriage. Thus practically no Swedish women are virgins at marriage, and in fact the importance that men place on chastity has declined to a worldwide low of 0.25 on a 0 to 3 scale (Buss, 1989a).

From a man's reproductive perspective, a more important cue than virginity to paternity certainty is a reliable signal of future fidelity. If men cannot require that their mates be virgins, they can require of them sexual loyalty. A study of short- and long-term mating found that U.S. men view lack of sexual experience as desirable in a spouse (Buss & Schmitt, 1993). Furthermore, men see promiscuity as especially undesirable in a marriage partner, rating it -2.07 on a scale of -3 to $+3$. The actual amount of prior sexual activity in a potential mate, rather than virginity per se, would have provided an excellent guide for

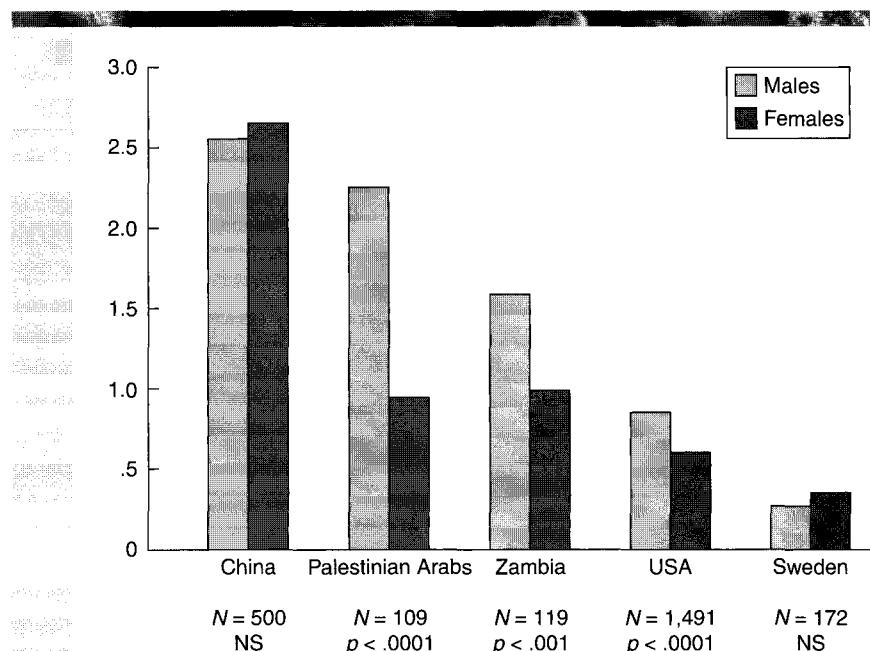


FIGURE 5.8 Desire for Chastity, or No Previous Experience with Sexual Intercourse, in a Long-Term Mate. Participants in thirty-seven cultures rated this variable, in the context of eighteen other variables, on how desirable it would be in a potential long-term mate or marriage partner using a four-point rating scale, ranging from zero (irrelevant or unimportant) to three (indispensable).

N = sample size.

p values less than .05 indicate that sex difference is significant.

NS indicates that sex difference is not significant.

Source: Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: An evolutionary perspective on human mating. *Psychological Review*, 100, 204–232. Copyright © 1993 by the American Psychological Association. Adapted with permission.

ancestral men to solve the problem of paternity uncertainty. Contemporary studies show that the best predictor of extramarital sex is premarital sexual permissiveness—people who have many sexual partners before marriage are more likely to be unfaithful than those who have few sexual partners before marriage (Thompson, 1983; Weiss & Slosnerick, 1981).

Modern men place a premium on fidelity. When U.S. men evaluated sixty-seven possible characteristics for their desirability in a committed mateship, faithfulness and sexual loyalty emerged as the most highly valued traits (Buss & Schmitt, 1993). Nearly all men gave these traits the highest rating possible, an average of +2.85 on a scale of -3 to +3. Cross-cultural tests remain to be conducted to see whether this is a universal male desire.

Men regard unfaithfulness as the least desirable characteristic in a wife, rating it a -2.93, reflecting the high value that men place on fidelity. Unfaithfulness proves to be more upsetting to men than any other pain a spouse could inflict on her mate—a finding for which there is excellent cross-cultural evidence (Betzig, 1989; Buss, 1989b; Daly & Wilson, 1988). Women also become extremely upset over an unfaithful mate, but several other factors, such as sexual aggressiveness, exceed infidelity in the grief they cause women.

In summary, we now have the outlines of some of the qualities that men desire in a long-term mate (but see Box 5.1 for a mystery of men's mating). In addition to the personality characteristics of kindness, dependability, and compatibility, men place a premium on youth

BOX 5.1

Homosexual Orientation

Heterosexual orientation is a prime example of a psychological adaptation—roughly 96 to 98 percent of men and 98 to 99 percent of women have a primary orientation toward heterosexuality. Any orientation that lowered the likelihood of successful reproduction would be ruthlessly selected against. The persistence of a small percentage of primarily or exclusively lesbian women and homosexual men poses a genuine evolutionary puzzle. Empirical studies show that sexual orientation has a small to moderate heritable component (Bailey, Pillard, Dawood, Miller, Farrer, Trivedi, & Murphy, 1999) and that homosexual men have lower rates of reproduction than heterosexuals (Bobrow & Bailey, 2001; McKnight, 1997; Muscarella, 2000).

One early evolutionary explanation of male homosexuality was the *kin altruism theory* (Wilson, 1975). According to this theory, genes for homosexual orientation could have evolved if they led homosexuals to invest heavily enough in their genetic relatives to offset the costs of forgoing direct reproduction. The kin altruism theory, however, received no empirical support from a study of gay and heterosexual men. Gay men did not differ from heterosexual men in their likelihood of funneling resources toward kin (Bobrow & Bailey, 2001; Rahman & Hull, 2005). In fact, gay men reported being more estranged from their genetic relatives, contrary to the kin altruism theory.

A more recent theory proposes that we should focus on the functions of homoerotic behavior per se, rather than sexual orientation (Muscarella, 2000). Evolutionary psychologist Frank Muscarella

proposes a specific function for homoerotic behavior: alliance formation. According to this theory, homoerotic behavior by young men with older men provided a strategy for gaining allies, boosting themselves up the status hierarchy, and ultimately gaining greater sexual access to women. The *alliance formation theory* has several virtues, such as focusing on the functions of homosexual behavior, and an emphasis on cross-species comparative framework (same-sex sexual contact has also been documented in other primate species). Nonetheless, the theory encounters several empirical difficulties. Although it might explain practices in a minority of cultures, such as ancient Greece or certain New Guinean tribes, there is no evidence that the majority of young men in most cultures use homoerotic behavior as a strategy of alliance formation. Indeed, nonsexual same-sex alliances appear to be the norm and are commonly accomplished without sexual activity. Furthermore, there is no evidence that men who engage in homoerotic behavior succeed more than those who do not in forming alliances or ascending in status. Further research is needed on these issues.

Despite the recent theoretical and empirical attention to understanding and explaining homosexual orientation and same-sex sexual behavior, their origins remain scientific mysteries. Progress might accelerate with the realization of the possibility that there might be no single theory that can fully explain both gay males and lesbians, much less one that can explain the profound individual differences among those with a same-sex sexual orientation.

and physical attractiveness. Standards of attractiveness correlate highly with female fertility. In essence, men's desire for physical attractiveness solves the problem of seeking women who are reproductively capable. Reproductive capability, however, is not enough. Internal female fertilization posed a second adaptive problem for men, who value sexual fidelity and perhaps cues to controllability (Brown & Lewis, 2004) in a long-term mate as solutions to the problem of paternity uncertainty.

■ CONTEXT EFFECTS ON MEN'S MATING BEHAVIOR

*O*n this section we look at the effects of two contexts on men's mating behavior. First, we consider the fact that desires rarely show a one-to-one correspondence with actual mating behavior. As discussed in Chapter 4, where we considered women's desires, men who are high in "mate value" have better odds of getting what they want in a mate. Men who are highly desirable to women by virtue of possessing the status and resources that women prefer should be in the best position to translate that into actual mating behavior.

Second, there is a notable discrepancy between modern environments and the ancestral environments in which we evolved. Over the course of evolutionary history, humans most likely evolved in small groups containing perhaps fifty to two hundred individuals (Dunbar, 1993). In these small groups a particular man would have encountered at most perhaps a dozen to two dozen attractive women. In modern environments humans are bombarded with literally thousands of images of attractive models from billboards, magazines, television, and the movies. This section considers the possible impact of this modern environment on human mating mechanisms.

Men in Positions of Power

Although most men place a premium on youth and beauty in a mate, it is clear that not all men are successful in achieving their desires. Men lacking the status and resources that women want, for example, generally have the most difficult time attracting such women and may have to settle for less than their ideal. Evidence for this possibility comes from men who have historically been in a position to get exactly what they prefer, such as kings and other men of unusually high status. In the 1700s and 1800s, for example, wealthier men from the Krummerhörn population of Germany married younger brides than did men lacking wealth (Voland & Engel, 1990). Similarly, high-status men from the Norwegian farmers of 1700 to 1900 to the Kipsigis in contemporary Kenya consistently married younger brides than did their lower-status counterparts (Borgerhoff Mulder, 1988; Røskift, Wara, & Viken, 1992).

Kings and despots routinely stocked their harems with young, attractive, nubile women and had sex with them frequently (Betzig, 1992). The Moroccan emperor Moulay Ismail the Bloodthirsty, for example, acknowledged siring 888 children. His harem included five hundred women. But when a woman reached the age of thirty, she was banished from the emperor's harem, sent to a lower-level leader's harem, and replaced by a younger woman. Roman, Babylonian, Egyptian, Incan, Indian, and Chinese emperors all shared the tastes of Emperor Ismail and enjoined their trustees to scour the land for as many young pretty women as could be found.



Men with status and resources—qualities that women desire in a long-term mate—are better able than men without status and resources to translate their preferences for young attractive women into actual mating behaviors.

Marriage patterns in the United States today confirm the fact that men with resources are most able to actualize their preferences. High-status older males, such as rock stars Rod Stewart and Mick Jagger and movie stars Warren Beatty and Jack Nicholson, frequently select women two or three decades younger. Several sociological studies have examined the impact of a man's occupational status on the physical attractiveness of the woman he marries (Elder, 1969; Taylor & Glenn, 1976; Udry & Eckland, 1984). Men high in occupational status are able to marry women who are considerably more physically attractive than can men low in occupational status. Indeed, a man's occupational status seems to be the best predictor of the attractiveness of the woman he marries. Men in a position to mate with younger, more attractive women often do.

Men who enjoy high status and income are apparently aware of their ability to attract more desirable women. In a study of a computer dating service involving 1,048 German men and 1,590 German women, ethologist Karl Grammer found that as men's income goes up, they seek younger partners (Grammer, 1992). Men earning more than 10,000 deutsche marks, for example, advertised for mates who were between five and fifteen years younger, whereas men earning less than 1,000 DM advertised for mates who were between zero and

five years younger. Each increment in income is accompanied by a decrease in the age of the woman sought.

Context Effects from Viewing Attractive Models

Advertisers exploit the universal appeal of beautiful, youthful women. Madison Avenue is sometimes charged with advancing a single arbitrary standard of beauty that everyone else must live up to. This accusation is at least partially false. The standards of beauty, as we have seen, are not arbitrary but rather embody reliable cues to fertility and reproductive value. Advertisers that more closely exploit existing mate preferences are almost sure to be more successful than those that do not. Advertisers perch a clear-skinned, regular-featured young woman on the hood of the latest car because the image exploits men's evolved psychological mechanisms and therefore sells cars.

The media images we are bombarded with daily, however, have a potentially pernicious consequence. In one study, after groups of men looked at photographs of either highly attractive women or women of average attractiveness, they were asked to evaluate their commitment to their current romantic partners (Kenrick, Neuberg, Zierk, & Krones, 1994). The men who had viewed pictures of attractive women thereafter judged their actual partners to be less attractive than did the men who had viewed pictures of women who were average in attractiveness. Perhaps more important, the men who had viewed attractive women thereafter rated themselves as less committed to, less satisfied with, less serious about, and less close to their actual partners. Parallel results were obtained in another study in which men viewed physically attractive nude centerfolds: They rated themselves as less attracted to their partners (Kenrick, Gutierres, & Goldberg, 1989).

The reasons for these changes are found in the unrealistic nature of the images and in the psychological mechanisms of men. The few attractive women selected for advertisements are chosen from a cast of thousands. In many cases thousands of pictures are then taken of each chosen woman. *Playboy*, for example, is reputed to shoot roughly 6,000 pictures for each monthly magazine. From these thousands of pictures, a few are selected for publication. So what men see are the most attractive women in the most attractive pose in the most attractive airbrushed photograph. Contrast these photographs with what men would have witnessed 100,000 years ago, living in a band of a few dozen individuals. It is doubtful that in that environment men would have seen even a dozen women considered attractive by today's measure. The presence of a relative abundance of attractive women, however, might reasonably induce a man to consider switching mates, and hence he would decrease his commitment to his existing mate.

Consider modern times. We carry with us the same evaluative mechanisms that evolved in ancient times. Now, however, these mechanisms are artificially activated by the dozens of attractive women we witness daily in our advertisement-saturated culture, in magazines, on billboards, on TV, and in movies. These images do not represent real women in our actual social environment. Rather, these images exploit mechanisms designed for a different environment.

As a consequence of viewing such images men may become dissatisfied with, and less committed to, their mates. The potential damage inflicted by these images affects women as well because they create a spiraling and unhealthy competition with other women. Women find themselves competing with other women to embody the images they see

daily—images they believe are desired by men. The unprecedented rates of eating disorders and radical cosmetic surgery may stem in part from these media images. The images work by exploiting men's existing evolved standards of beauty and women's competitive mating mechanisms on an unprecedented and unhealthy scale.

Testosterone and Men's Mating Strategies

The hormone testosterone (T) plays a key role in male “mating effort,” the time and energy devoted to pursuing mates and besting same-sex competitors (Ellison, 2001). Higher T levels facilitate male pursuit of females, and T levels increase after interacting with an attractive woman, especially when the woman rated the man’s behavior as designed to impress her (Roney, Mahler, & Maestripieri, 2003). Maintaining high levels of T, though, can be costly for men. T can compromise immune functioning, and because it is linked with mating effort, it may interfere with parenting effort (it’s difficult for a man to be a good parent if he’s always chasing other women). Consequently, evolutionists have hypothesized that T levels should drop after a man succeeds in attracting a long-term mate, and studies have found precisely that (Burnham, Chapman, Gray, McIntyre, Lipson, & Ellison, 2003; Gray, Chapman, Burnham, McIntyre, Lipson, & Ellison, 2004). One study found that men in committed relationships had 21 percent lower T levels than unpaired men (see Figure 5.9). Married men who had children had even lower levels of T.

There could be at least two different reasons for the link between T and relationship status. One is that T levels drop *after* becoming involved in a committed relationship. Alternatively, perhaps men with low T levels are more likely to get into committed relationships, whereas high T men prefer to remain free to pursue short-term mating. What is the evidence? First, men in the later stages of a relationship have lower T levels than men in the early stages of a relationship (Gray et al., 2004). Second, a longitudinal study found that divorced men who remarry experience a subsequent drop in T (Mazur & Michalek, 1998). These findings suggest that T drops after forming a committed relationship.

Men in committed relationships, however, do not always entirely refrain from additional mating attempts. Some continue to pursue additional matings. According to the mating effort hypothesis, men in relationships who pursue additional matings should have higher T levels than men who remain monogamous. That is precisely what McIntyre and colleagues discovered (McIntyre, Gangestad, Gray, Chapman, Burnham, O'Reurke, & Thornhill, 2006). They asked men in relationships: “Would you ever consider having an ‘affair’ (sex with someone else) behind the back of your relationship partner?” Men who said “yes” had higher T levels than men who said “no.” These findings support the mating effort hypothesis. T is linked with allocating time and energy to seeking and competing for mates; T drops after the successful formation of a relationship and the production of children in order to facilitate pair-bonding and parental effort, but only if the man is not pursuing extra-pair sex.

The Necessities and Luxuries of Mate Preferences

Norman Li and colleagues have devised an important method—the budget allocation method—to determine which mate qualities are “necessities” and which are “luxuries.” Imagine that you are financially poor and thus have a limited budget (Li, Bailey, Kenrick,

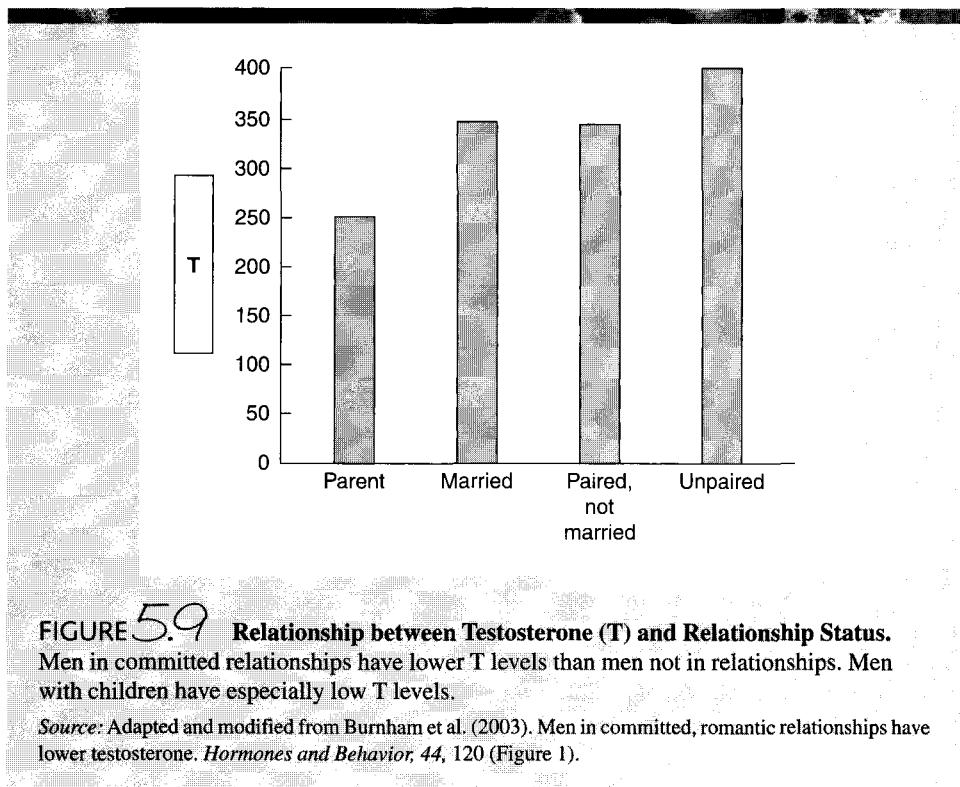


FIGURE 5.9 Relationship between Testosterone (T) and Relationship Status.

Men in committed relationships have lower T levels than men not in relationships. Men with children have especially low T levels.

Source: Adapted and modified from Burnham et al. (2003). Men in committed, romantic relationships have lower testosterone. *Hormones and Behavior*, 44, 120 (Figure 1).

& Linsmeier, 2002). You might spend most of your money on the necessities of life, such as food. As your budget increases, however, most people would spend more on luxuries—TVs, iPods, expensive cars, or designer clothes. Li applied these economic concepts to the domain of mate preferences. What do people prefer when they have a low versus a high budget of “mating dollars,” a concept that might correspond to “mate value”?

To find out Li and colleagues devised the budget allocation method. They gave participants varying budgets—low, medium, and high. They discovered that when given a *low* budget and asked to allocate their mating dollars across a number of mate attributes, men allocated a relatively large proportion of their budget to physical attractiveness and women allocated a relatively large proportion of their budget to resources—precisely in line with the sex differences found in all the other studies of mate preferences. As the budget increased, however, men and women spent increasing proportions of their mating dollars on “luxuries” such as kindness, creativity, and liveliness (although kindness and intelligence came close to being necessities).

The varying budgets—low, medium, and high—are likely to show some parallels to individual differences in “mate value.” Those low in mate value have less choice, so want to ensure adequate levels on the necessities of mating—for men, some minimum level of attractiveness; for women, some minimum level of resources and status. As mate value

increases, people can afford to be choosier on a wider array of characteristics. Thus, this line of research is likely to lead to understanding contextual shifts in mate preferences as a function of varying levels of mate value.

■ EFFECT OF MEN'S PREFERENCES ON ACTUAL MATING BEHAVIOR

In this section we examine the impact of men's long-term mate preferences on behavior. First, we explore a study of personal ads to see whether men respond more to the ads of women who indicate qualities that embody men's desires. Second, we look at age preferences and actual mating decisions. Finally, we look at the effects of men's mate preferences on women's mating strategies and examine whether women who are trying to attract men strive to embody the preferences that men express.

Men's Responses to Women's Personal Ads

If men act on their preferences for women who are young and physically attractive, then they should respond more to women who display these qualities. In a natural experiment two psychologists examined the responses of men to personal ads placed in two newspapers, one in the Midwest and the other on the West Coast (Baize & Schroeder, 1995; see Chapter 4). The mean age of the sample respondents was thirty-seven, with a range from twenty-six to fifty-eight.

When responses to the ads placed by men and women were compared, several striking differences emerged. First, men tended to respond to women's ads more than women responded to men's ads. Men tended to receive only 68 percent as many letters as women did. Second, younger women received more responses from men than did older women. Third, although mentioning *physical attractiveness* produced more responses from both sexes, it produced significantly more responses for women than for men.

In sum, men's responses to women's personal ads provides a natural source of evidence suggesting that men act on their preferences.

Age Preferences and Marital Decisions

Actual marriage decisions confirm the preference of men for women who are increasingly younger than they are as the men age. American grooms exceed their brides in age by roughly three years at first marriage, five years at second marriage, and eight years at third marriage (Guttentag & Secord, 1983). Men's preferences for younger women also translate into actual marriage decisions worldwide. In Sweden during the 1800s, for example, church documents reveal that men who remarried following a divorce had new brides 10.6 years younger on average (Low, 1991). In all countries around the world where information is available on the ages of brides and grooms, men on average exceed their brides in age, as documented in Chapter 4 (Buss, 1989a).

The age difference between spouses as a function of the age of the man is shown dramatically in Figure 5.10. This figure shows the average age difference between brides and grooms as men get increasingly older for a sample drawn from the Island of Poro over a

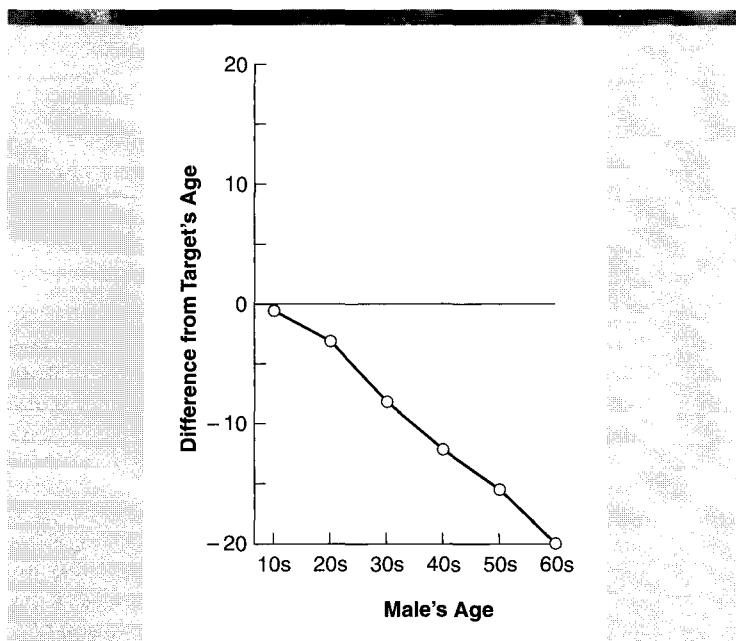


FIGURE 5.10 Actual Age Differences in 1,511 Marriages on the Island of Poro (1913–1939).

Source: Kenrick, D. T., & Keefe, R. C. (1992). Age preferences in mates reflect sex differences in reproductive strategies. *Behavioral and Brain Sciences*, 15, 75–133. Reprinted with permission.

twenty-five-year period (Kenrick & Keefe, 1992). Men in their twenties tended to marry women just a year or two younger than themselves. Men in their thirties tended to marry women three to four years younger than themselves. Men who married in their forties, however, married women who were thirteen or fourteen years younger. These data, although limited to a single time and place, are representative of the general trend for men to marry women who are increasingly younger as they grow older (Kenrick & Keefe, 1992). Nearly identical findings have been discovered in a modern sample from Brazil, in an analysis of 3,000 newspaper announcements of forthcoming marriages (Otta, Queiroz, Campos, da Silva, & Silveira, 1999).

The cross-cultural data confirm the age differences between brides and grooms in actual marital decisions. The age difference ranges from about two years in Poland to roughly five years in Greece. Averaged across all countries for which we have good demographic data, grooms are three years older than their brides, or roughly the same difference that is expressly desired by men worldwide (Buss, 1989a). In polygynous cultures the age difference is even larger. Among the Tiwi of Northern Australia, for

example, high-status men often have wives who are two and three decades younger (Hart & Pilling, 1960).

Effect of Men's Mate Preferences on Women's Competition Tactics

According to the theory of sexual selection, the preferences of one sex are predicted to influence the forms of competition that occur in the opposite sex (Buss, 1994b). Specifically, if men's preferences have exerted an important impact on mating behavior over time, we would predict that women would compete with one another to fulfill or embody what men want. Three sources of data are relevant to examining this prediction: research on the tactics that women use to attract men, research on the tactics that women use to derogate competitors, and research on the self-descriptions that women include in their personal ads when seeking men.

In one study, Buss (1988c) examined the self-reported usage and the perceived effectiveness of 101 tactics of mate attraction. Appearance enhancement figured prominently. Women, significantly more than men, reported using the following attraction tactics: "I wore facial makeup," "I went on a diet to improve my figure," "I learned how to apply cosmetics," "I kept myself well-groomed," "I used makeup that accentuated my looks," and "I got a new and interesting hair style." The ratings of perceived effectiveness matched the self-reported performance: All acts of appearance enhancement were judged to be more effective for women in attracting men than vice versa.

In a related series of studies, William Tooke and Lori Camire (1991) looked at the usage and effectiveness of tactics of intersexual deception, or the ways in which men deceive women and women deceive men in the mating arena. They asked male and female undergraduates to report on their performances and rate the effectiveness of various tactics of deceiving the opposite sex. Women, more than men, used tactics of deception involving their physical appearance: "I sucked in my stomach when around members of the opposite sex," "I wore a hairpiece around members of the opposite sex," "I wore colored contact lenses to make my eyes appear to be a different color," "I dyed my hair," "I wore false fingernails," "I wore dark clothing to appear thinner than I really was," and "I wore padded clothing." Women's use of deceptive appearance enhancement was judged to be significantly more effective in attracting mates than men's use of such tactics. Another study found that as women get older, they tend to withhold information about their age when they place personal advertisements for mates (Pawlowski & Dunbar, 1999b). The authors interpret this as a possible deception tactic, one that obscures a cue that is known to be important to men in their long-term mate preferences. In sum, when it comes to attracting the opposite sex, women's behavior appears to be highly responsive to the preferences expressed by men.

Women also appear to be sensitive to the mate preferences of men in their interactions involving rivals (Buss & Dedden, 1990). One tactic involved derogating a rival's physical appearance using acts such as "made fun of his/her appearance," "told others that the rival was fat and ugly," and "made fun of the size and shape of the rival's body." Derogating a rival's physical appearance was judged to be more effective when women used it than when men used it. Interestingly, Maryanne Fisher found that women in the high estrogen (fertile) phase of their cycle are more likely than women in the low estrogen phase

to derogate a rival's physical appearance (Fisher, 2004). She concludes: "If women compete intrasexually for 'good' mates via attractiveness, it would be advantageous to have heightened levels of competition when it matters most—during times critical for reproduction" (Fisher, 2004, p. S285).

An even larger sex difference pertained to derogation of the rival's sexual fidelity. Recall that men put a premium on sexual fidelity in a long-term mate, most likely as an evolved solution to the problem of paternity uncertainty. One derogation tactic, "calling competitor promiscuous," violates men's desire for a faithful wife with acts such as "called rival a tramp," "told others that the rival had slept around a lot," and "told others that the rival was loose, and would sleep with just about anybody." Calling a competitor promiscuous was judged to be more effective for women than for men. On the basis of these studies we can conclude that women's derogation tactics appear to be sensitive to men's long-term mate preferences, especially on the dimensions of physical appearance and desire for fidelity.

The effects of the premium men place on physical appearance may lead to negative or maladaptive outcomes for women—eating disorders. According to the *sexual competition hypothesis*, eating disorders such as anorexia (extreme thinness) and bulimia (binge eating, followed by purging through vomiting or fasting) are maladaptive by-products of a mate competition strategy of pursuing thinness (Abed, 1998). U.S. women who are engaged in especially intense intrasexual competition for mates are more prone than other women to be dissatisfied with their bodies and experience a high drive for thinness, which in turn contributes to the eating disorders of anorexia and bulimia (Faer, Hendriks, Abed, & Figueiredo, 2005). The authors argue that the combination of (1) the importance men place on physical appearance in mates, (2) media images depicting thinness in models, and (3) the high levels of health in the United States cause a kind of runaway intrasexual competition to appear youthful, with thinness being a key cue to youth. Eating disorders, which are much more prevalent among women than among men, represent maladaptive extremes of women's same-sex competition for mates.

In summary, three sources of evidence support the notion that men's preferences affect actual behavior in the mating arena. First, men respond more to personal ads advertising qualities that fulfill men's expressed preferences, such as a desire for women who are physically attractive and young. Second, men actually marry younger women, an age difference that increases with each successive marriage. And third, women's mate attraction tactics and derogation of rival tactics map closely onto the dimensions that men prefer in a long-term mate. Specifically, women enhance their appearance as a tactic for attracting men and derogate their rivals on the dimensions of appearance and promiscuity. From all this empirical evidence we can reasonably conclude that men's preferences in a long-term mate affect not only their own mating behavior, but also the mating behavior of women in their mate competition tactics.

■ SUMMARY

There were many potential benefits to ancestral men who married. They would have increased their chances of attracting a mate, especially a more desirable mate. By marrying, men would have increased their certainty in paternity because they gained continuous or exclusive or predominant sexual access to the woman. In the currency of fitness, men also

would have benefited through the increased survival and reproductive success of their children, accrued through paternal protection and investment.

Two adaptive problems loom large in men's long-term mate selection decisions. The first is identifying women of high fertility or reproductive value—women capable of successfully bearing children. A large body of evidence suggests that men have evolved standards of attractiveness that embody clues to a woman's reproductive capacity. Signals of youth and health are central among these clues—clear skin, full lips, small lower jaw, symmetrical features, white teeth, absence of sores and lesions, facial femininity, facial symmetry, facial averageness, and a small ratio of waist to hips. Standards of beauty linked to youth, health, and fertility are consistent across cultures. Preferences for amount of body fat and waist-to-hip ratio (WHR) vary predictably across cultures depending on relative food scarcity as well as the actual WHR distributions in the local culture.

The second large adaptive problem is the problem of paternity uncertainty. Over human evolutionary history men who were indifferent to this adaptive problem risked raising another man's children, which would have been tremendously costly in the currency of reproductive success. Men in many countries value virginity in potential brides, but this is not universal. A more likely candidate for a universal solution is to place a premium on cues to fidelity—the likelihood that the woman will have intercourse exclusively with him.

At least four contexts affect men's long-term mating strategies. First, men who have what most women want, such as power, status, and resources, are most able to successfully attract women that most men prefer. Second, viewing attractive images of other women appears to lower men's commitment to their regular partner. Third, getting into a committed mating relationship causes a reduction in testosterone (T) levels in men, but only if they are monogamously oriented and do not desire extra-pair sex. Fourth, men's mate preferences shift as a function of their "mating budget." On limited mating budgets, men place exceptional importance on the "necessities" such as an adequate level of physical attractiveness. After these necessities are met, men pay more attention to "luxuries" such as creativity and personality traits, although kindness and intelligence are viewed as very close to being necessary in a long-term mate.

Four sources of behavioral data confirm the hypothesis that men's mate preferences affect actual mating behavior. First, men who respond to personal ads show higher response rates to women who claim to be young and physically attractive. Second, men worldwide actually marry women who are younger by roughly three years; men who divorce and remarry tend to marry women who are even younger, with a five-year difference at second marriage and an eight-year difference at third marriage. Third, women devote much effort to enhancing their physical appearance in the context of attracting men, which suggests that women are responding to the preferences that men express. And fourth, women tend to derange their rivals by putting down their physical appearance and calling them promiscuous—tactics that are effective in rendering rivals less attractive to men because they violate the preferences that men hold for a long-term mate.

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