*David M. Buss*

# Human Mate Selection

*Opposites are sometimes said to attract, but in fact we are likely to marry someone who is similar to us in almost every variable*

Historically, human mating systems have deviated from randomness in nearly every way imaginable. Major variants include polygyny, in which men take multiple wives; polyandry, in which women take multiple husbands; endogamy, or inbreeding, in which close genetic relatives mate; exogamy, or outbreeding, in which mating with genetic relatives is avoided; and hypergamy, usually paired with polygyny, in which women marry upward in the socioeconomic hierarchy. One deviation from randomness that has never been reliably demonstrated, however, is the tendency of opposites to marry or mate. On the contrary, assortative mating, which can be defined as the coupling of individuals based on their similarity on one or more characteristics, is the most common deviation from random mating in Western societies.

Who mates with whom has been a subject of intense interest among scientists ranging from biologists and geneticists to psychologists and sociologists. Part of the intrigue of human mating patterns lies in their range of impact, which transcends disciplinary boundaries. Sociologists study mate selection because more than 90% of all people are married at some point in their lives (Price and Vandenberg 1980), and these mar-

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riages affect social trends such as the distribution of wealth. Cultural historians are interested in it because institutions such as colleges and universities promote assortative mating by placing similar individuals of mating age into close proximity. Social psychologists have long been concerned with attraction, which is usually a prerequisite for mating; personality psychologists work with enduring dispositions of individuals, which often affect mate selection. Biologists focus on the evolutionary change produced by mating patterns. And behaviorial geneticists are interested in assortative mating because it can affect heritability estimates, create correlations among traits that were initially unrelated (e.g., between intelligence and physical attractiveness), and increase both genotypic variance in subsequent generations and the correlations between biological relatives on those traits for which assortative mating occurs.

Assortative mating has been examined with respect to a wide array of variables, including physical characteristics, age, ethnic origin, religion, socioeconomic status, intellectual and cognitive variables, personality traits, and social attitudes. In general, the tendency to choose someone similar to oneself as a mate is so pervasive that Thiessen (1979) prefers the term "assortative narcissism." Indeed, negative assortative mating in human populations has never been reliably demonstrated, with the single exception of sex. This section summarizes the major empirical findings pertaining to human assortative mating, with special emphasis given to recent data. The following section discusses one causal mechanism that may partially account for existing patterns of assortment, and the final section focuses on several important conse-

quences of assortative mating in human populations.

Age is probably the variable for which assortment—or similarity with one's mate—is the strongest. Correlations between spouses for age typically range between 0.7 and 0.9, with a mean of about 0.8; in this context, more than 0.5 is a high degree of correlation. It should be noted, however, that younger couples tend to be more similar in age than older couples, a finding that reflects a larger age gap between spouses in second marriages (Secord 1983). Husbands and wives are also similar with respect to race, religion, ethnic background, and socioeconomic status. For example, Burgess and Wallin (1953) found that 79.4% of a sample of couples had married someone of the same religious faith, while only 37.1% congruence would have been expected on the basis of chance alone. Similar levels of assortment on the basis of religion have been found in recent data (Buss 1984b). Warren (1966) reported correlations of approximately 0.6 for educational level, 0.3 for socioeconomic status, and 0.2 for the number of siblings each spouse had. Controlling for the level of education reduces the correlation for socioeconomic status, but status remains statistically significant.

Physical location, another variable that shows strong marital assortment, has two components: neighborhood and geographical region (Vandenberg 1972). Hollingshead (1950) reported a contingency coefficient of 0.71 between spouses for the social class of the neighborhoods where they lived prior to marriage. Geographically, Spuhler and Clark (1961) found that the median distance between the birthplaces of husband and wife and the place where they were married was only 177 km. Conceptions of ro-

mantic love aside, the "one and only" typically lives within driving distance: it is naturally easier to become intimate with someone who is close-by. These measures of propinquity, of course, are related to other variables such as socioeconomic status. For example, economic considerations affect where one lives. Correlations between variables illustrate both the complexity of choosing a mate and the difficulty of separating causal from concomitant variables in the selection process.

Spuhler (1968) summarized studies on assortment for a variety of physical characteristics, ranging from height, weight, and eye color to less obvious traits such as lung volume, nose breadth, and earlobe length. Coefficients of assortment for these characteristics typically average between 0.1 and 0.2, although figures as high as 0.3 and 0.4 are not uncommon. Individuals probably do not choose their mates on the basis of nose breadth or earlobe length, but selection for other variables such as height and race will cause auxiliary correlations on those characteristics that covary with them.

In addition to specific physical characteristics, spouses seem to select one another on the basis of overall physical attractiveness. An early study by Schooley (1936), for example, found a correlation among spouses of 0.41 for physical appearance. Because attractiveness can vary with age, more recent studies have controlled for age; this research has also reported positive correlations, however. For instance, Price and Vandenberg (1979) discovered correlations of 0.3 and 0.25 in two samples of couples.

Among psychological characteristics, attitudes, opinions, and world views have the strongest assortative mating coefficients. Early studies showed strong correlations between spouses on attitudes about such topics as war, birth control, and contemporary political issues (see Richardson 1939). More recently, Hill and his colleagues (1976) found a correlation of 0.5 for opinions on sex roles, and I found correlations from 0.37 to 0.5 for attitudes about technological growth, societal goals, and so forth (Buss, unpubl.).

Marital assortment for cognitive abilities is consistently moderate across a large number of studies. Jensen (1978) computed a median correlation for this research of 0.44.

Recent studies, however, have suggested that the correlations between spouses for mental abilities may be closer to 0.35 (Johnson et al. 1980). Significant positive correlations are found even after controlling for socioeconomic status and education (Watkins and Meredith 1981). Several studies have reported greater assortment for some specific cognitive abilities than for others. Perhaps the most consistent finding is that verbal abilities tend to show higher correlations than spatial abilities, perceptual speed and accuracy, and visual memory (Watkins and Meredith 1981; Zonderman et al. 1977). Thus, spouses do appear to be moderately assorted for cognitive abilities, and there is no evidence that this is a result of any phenotypic convergence over the course of the marriage (Zonderman et al. 1977).

Studies examining assortative mating for personality variables have typically involved subjects' evaluating themselves on scales and inventories, with small (approximately 0.2) but consistently positive correlations between spouses. More recently, I examined correlations for a set of 16 personality traits such as dominance, extraversion, and quarrelsomeness, using three separate sources of data: self-evaluation, and ratings of the subjects by their spouses and by independent interviewers (Buss 1984a). The results from all the sources generally supported the previously obtained low positive correlations. An interesting exception, however, was found for dominance and submissiveness in the spouse ratings and the interviewer ratings, both of which

yielded negative correlations between spouses. It may be that the spouses and the interviewers rated husbands and wives by implicitly comparing them with each other rather than with other reference groups such as peers; another possible explanation is that spouses become increasingly complementary in dominance and submissiveness within their marriage, in spite of their overall similarity with respect to the larger peer group. Finally, statistical analysis showed that older couples tended to be less, rather than more, similar to each other, again suggesting that spouses do not converge phenotypically during marriage.

Other recent research has examined correlations between spouses on the frequency with which they perform specific acts and classes of acts (Buss 1984b). In particular, correlations were computed for each of 800 acts from eight categories of personality traits drawn from Wiggins's (1979) model of interpersonal behavior: dominance (one act in this category was "I directed the conversation around to myself"), submissiveness (a sample act was "I accepted verbal abuse without defending myself"), quarrelsomeness ("I made belittling comments about the people who walked by"), agreeableness ("I helped a friend with a difficult assignment"), extraversion ("I told several jokes at the party"), introversion ("I stayed at home to watch TV rather than speak to the person"), being calculating ("I made a friend in order to obtain a favor"), and ingenuousness ("I told a secret to

Table 1. Characteristics commonly sought in a mate

| Rank | Characteristics preferred by males | Characteristics preferred by females |
|---|---|---|
| 1 | kindness and understanding | kindness and understanding |
| 2 | intelligence | intelligence |
| 3 | *physical attractiveness*[a] | exciting personality |
| 4 | exciting personality | good health |
| 5 | good health | adaptability |
| 6 | adaptability | *physical attractiveness* |
| 7 | creativity | creativity |
| 8 | desire for children | *good earning capacity* |
| 9 | college graduate | college graduate |
| 10 | good heredity | desire for children |
| 11 | *good earning capacity* | good heredity |
| 12 | good housekeeper | good housekeeper |
| 13 | religious orientation | religious orientation |

[a] The sex differences in ranking are significant beyond the 0.001 level (n = 162) for characteristics in italics.

someone who had previously betrayed my trust"). After the 25 most prototypical acts within each category were composited, spouses showed an average correlation of 0.2 for self-evaluations of how often they performed the acts and 0.31 for the reports of the spouse (Buss and Craik 1983, 1984). The categories of extraversion, quarrelsomeness, and ingenuousness showed particularly strong correlations between spouses. As was the case with the personality variables, the couples who had been married longer were less similar to each other than were couples who had been married for a shorter period of time.

In summary, there is a rough hierarchy of characteristics based on how high correlations are between spouses on these variables. In general, age, education, race, religion, and ethnic background show the strongest assortment. These are followed by attitudes and opinions (0.5) and then by mental abilities (0.4), socioeconomic status (0.3), height, weight, and eye color (0.25–0.3), classes of acts and personality variables (0.2–0.25), number of siblings (0.2), and a host of physical characteristics (0.15). The specific studies are thoroughly reviewed in articles by Vandenberg (1972), Jensen (1978), and Thiessen and Gregg (1980).

## Preferences in mate selection

Evolutionary considerations of mate selection date back to Darwin (1871). After completing *On the Origin of Species . . .* in 1859, Darwin observed that many sex differences in characteristics such as the plumage of peacocks seemed to have no survival value and therefore appeared not to be part of natural selection. To account for these findings, he proposed the concept of "sexual selection" as a second process causing evolutionary change. Sexual selection, Darwin thought, would account for findings that he believed could not be explained by natural selection alone.

Darwin's concept of sexual selection subsumes two closely related processes. The first, called intrasexual selection, is the tendency of members of one sex to compete with each other for access to members of the opposite sex. The second, intersexual selection, is the preferential choice members of one sex express for certain members of the opposite sex. Darwin

called intersexual selection "female choice" because he observed that, throughout the animal world, females tend to be more discriminating in their choice of mates. Patterns of sexual selection do not immediately involve environmental or ecological adaptations. Instead, they primarily concern the behavioral interactions of the members of a species, which are not necessarily affected by the prevailing demands of the physical environment. If females prefer males with certain characteristics, then the preferred male characteristics will be increasingly represented in subsequent generations.

It is now recognized that sexual selection operates through differential reproductive success (see, for example, Campbell 1972). Natural selection subsumes sexual selection. There is one basic evolutionary mechanism, not two, and the proximate processes of evolutionary change reduce to the differential replication of genes. Nonetheless, sexual selection describes a central process by which genes are differentially reproduced—a process that may be more relevant among humans today than variance in life expectancy or fertility.

There are three levels of preferences in sexual selection: those that are shared by most individuals, those that vary according to sex, and those that vary among individuals. Each level of preferences has distinct consequences for assortative mating.

Characteristics in a mate that are commonly desired are, unfortunately, not possessed by all potential spouses. In a relatively monogamous mating system, it follows that some individuals must settle for a mate who is less than ideal. In addition, if any individuals have to make do with no mates at all, it will probably be those who lack desired characteristics. Those who do possess the valued traits typically marry others with the same or with equally sought-after characteristics. For instance, someone who is dependable might marry someone who is intelligent in what is called cross-character assortment (Buss and Barnes, unpubl.). The previously uncorrelated traits of dependability and intelligence may then covary in the children of such marriages.

Sex differences in the characteristics that are desired in a potential mate can also produce cross-character

assortment. If females generally prefer intelligent males because they typically have higher incomes and status, and if most males prefer physically attractive females, then over time these two characteristics will tend to covary (Vandenberg 1972). Indeed, one large-scale longitudinal study has found that physically attractive females do marry males of higher socioeconomic status (Elder 1969). Cross-assortment based on sex differences in preferred characteristics remains an important, but little-examined, aspect of human mating patterns. What specific sex differences occur will be discussed below.

Not all individuals value the same characteristics in a potential mate, and these differences too can produce assortative mating. Thiessen and Gregg (Thiessen 1979, Thiessen and Gregg 1980) have proposed that the tendency to seek in mates the phenotypic characteristics reflecting similar genetic material is a reproductive strategy that represents a compromise between endogamy and exogamy. Positive assortment results in offspring related to each parent by 50% plus the degree to which couples who mate possess genes in common. Thus, an individual's genetic reproduction is enhanced by mating with someone who shares at least some of his genes. If Thiessen's argument is correct, it follows that individuals will differ in their selection preferences, seeking in mates those characteristics that they themselves possess.

In establishing links between selection preferences and assortative narcissism, Thiessen and Gregg (1980) identified an important gap in our current knowledge: our inability to pinpoint exactly what traits prospective mates consider important. A recent series of studies using several samples of individuals, some with mates and some without, was undertaken to fill this gap (Buss and Barnes, unpubl.). In the first study, we asked 93 married couples to rate the desirability of 76 characteristics in a potential mate, and we identified which traits were commonly desired, which reflected sex differences in preferences, and which were the result of individual preferences.

The 15 characteristics that received the highest desirability ratings for the sample as a whole were, in order: providing good companionship, honesty, consideration,

having a good disposition, affectionateness, dependability, intelligence, kindness, understanding, being interesting to talk to, loyalty, faithfulness, having a good sense of humor, adaptability, and gentleness. Statistical analyses yielded 25 significant sex differences; only about 4 would have been expected to occur by chance alone. Females valued the characteristics of good earning capacity, good family background, professional status, kindness, gentleness, and considerateness more than males did. Males rated the attributes of physical attractiveness, beauty, frugality, and being a good housekeeper more highly than females did.

We identified nine composite characteristics that reflected individual preferences, which we used as the basis for subsequent studies: kindness or considerateness, being socially exciting, being cultured or intelligent, religious orientation, interest in domesticity, professional status, liking children, political conservatism, and being easygoing or adaptable. Individuals' ratings of these factors were found to relate substantially to the characteristics of their spouses, suggesting that their preferences influenced their choice of mate.

A second study, using subjects of different age, geographic location, marital status, and education, was designed both to examine the ordering of the most desirable factors of the first study and to test the replicability and generality of the sex differences found in that study (Buss and Barnes, unpubl.). The subjects in the second study ranked 13 characteristics from most to least desired in a potential mate.

Table 1 shows how the males and females in the second study rated these characteristics. As in the first study, kindness and intelligence were strongly preferred characteristics, while being a good housekeeper and religious orientation were not highly ranked by the sample as a whole. The two most striking sex differences concerned physical attractiveness and good earning capacity; these differences occurred regardless of the subjects' age, education, geographic location, or marital status, and they replicated the sex differences found in the first study.

Are couples assortatively mated on the basis of how they rate the characteristics they value in a spouse?

To address this question, we computed the correlations between spouses for each of the nine composite traits in the first study. The results showed strong positive assortment for religious orientation (0.65) and liking children (0.52); moderate positive correlations for being cultured or intelligent (0.39), being socially exciting (0.37), political conservatism (0.36), and being easygoing or adaptable (0.35); and small, nonsignificant correlations for professional status (0.22) and for kindness or considerateness and interest in domesticity (0.16 in both cases). Thus, spouses appear to have similar selection preferences, but the magnitude of their similarity varies greatly with the particular composite or individual characteristic under consideration.

Four general conclusions can be reached from these studies. First, at least in the United States, there is a moderate consensus about which attributes are preferred in potential mates (e.g., kindness and intelligence), and this consensus transcends differences in age, education, marital status, and geographic location. Second, sex differences were found within each sample, and these differences also transcend variations in the samples. Third, individuals differ in their selection preferences, and their mate selection is affected by these differences. Fourth, couples show positive assortment for individual selection preferences.

## Consequences of assortative mating

A complete discussion of the consequences of mate selection would surely include such considerations as individual spouses' happiness, personality change over time as a function of choosing a mate, the distribution of wealth in society, and genetic changes in subsequent generations. The present discussion will focus more narrowly on three known genetic consequences of assortative mating for characteristics that show significant heritability: increased genotypic variance, correlations among traits that were initially unrelated, and effects on variance within and between families.

Assortative mating for traits showing significant heritability has no effect on the frequency with which a gene occurs unless assortment is linked with selection. The population mean remains unchanged. But assortative mating does increase the frequency of genotypes—combinations of genes—that produce extreme phenotypes, and it decreases the frequency of genotypes that create average phenotypes. Overall, the net effect is to increase the amount of variation within the population for the traits for which assortment occurs. Thus, using height as an example of these traits, a greater percentage of individuals in subsequent generations will be quite tall or quite short, while a smaller percentage will be of medium height. Although the increase in genotypic variance resulting from positive assortative mating is small for many characteristics, it accumulates over time.

The results of increasing the amount of variation for certain characteristics have not yet been examined empirically, but several possible consequences could have a significant effect. First, for those heritable traits that are commonly preferred in mates such as intelligence and physical attractiveness, there will be an increasing difference between the haves and the have-nots in subsequent generations. Second, societal institutions may become increasingly strained or may require modification in order to accommodate the increasing variance. Third, the characteristics for which assortment occurs may become even more important in evaluating an individual because such judgment is often based on the difference between individuals (Buss 1983). And fourth, an increase in variance might make it easier for an individual at one extreme to find and marry someone else at that extreme, so that a positive feedback loop is established for assortative mating (Allen 1970; Buss 1984c).

A second genetic consequence of assortative mating is the creation of new correlations among previously unrelated traits. This effect will occur most strongly in mating systems in which there is some consensus about which characteristics are preferred in a spouse, significant sex differences occur in selection preferences, and the choice of a mate is based on overall "market value," or the sum of a person's desirability in a variety of characteristics. If members of a mating population agree to some degree on preferences in a spouse, as the evidence suggests is

the case (Buss and Barnes, unpubl.), and if market value can be calculated by combining several traits, then over generations the socially desirable qualities will increasingly co-vary. Thus, the differences between the haves and the have-nots on the preferred characteristics that can be combined will become even greater than if assortative mating operated independently on each desired characteristic.

A third important effect of assortative mating is that it generally increases the correlations among biological relatives on those characteristics for which assortment occurs. Family members become more similar to each other, which means each family is more homogeneous. Simultaneously, differences between families increase. These effects have implications for recent sociobiological theories about kin selection, reciprocal altruism, and nepotism. Familial communication and cooperation, for example, may be predicted to increase with greater homogeneity, since the benefits of altruistic and nepotistic acts would increase while the disadvantages decreased (Thiessen and Gregg 1980). In this sense, assortative mating promotes the replication of an individual's genes without incurring additional reproductive costs.

Because families provide most of children's early environment, the inequalities resulting from increasing genotypic variance between families may be even further compounded by a correlation between genotype and environment (Plomin et al. 1977). For example, the trait of extraversion can become linked with an environment in which parents talk a great deal. Assortative mating will increase the magnitude of this sort of correlation for children, since it means that parents are more similar or in closer agreement on those attributes that affect the environment they provide.

Strengthening such correlations can be expected to amplify the similarities within each family and the differences between families, thus increasing both the inequality among members of a population and the correlations among socially desirable traits. These expected consequences of current mating patterns are sufficiently important to warrant careful empirical examination.

How rapidly do these consequences of assortative mating occur?

The answer depends both on the heritability of each characteristic and on the intensity of assortment, and these values can only be estimated crudely. Jensen (1978) has hypothesized that if the present level of assortative mating for intelligence has existed for several generations, it may account for more than half the individuals now alive whose IQs are greater than 130. The general effects of assortative mating are likely to be small for one generation, but because they accumulate over generations, they acquire considerable importance in the long run.

There is no evidence that the patterns of mate selection in Western societies have changed substantially over the past 50 years: current levels of assortment are comparable to those that occurred in the 1920s and 1930s. However, modern trends toward increasing geographical mobility and equality of opportunity may ultimately increase the intensity of assortment by making it easier for similar individuals of mating age to congregate.

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