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## Synonyms

Australia

Mate quality displays

#### **Definition**

Mate value comprises an individual's desirability on the mating market, including romantic and sexual desirability (Kirsner et al., 2003). Genetic quality, social status, personality, and numerous contextual variables all contribute to an individual's mate value. Mate-value signals include physical and behavioral traits that have been under selection pressure to advertise an individual's mate value to potential partners or rivals. They are an evolved means of conveying information to a target with the proximate function of altering the intended receiver's behavior, to the ultimate benefit of the signaler. The selection pressures shaping signals are thus typically derived from the responses of the receiver-known as receiver psychology. Signals are contrasted with cues, which are passive traits or phenotypic

variation that can provide a viewer with information but have not been subject to selection pressure from the receiver. Mate-value signaling, then, encompasses all the behaviors, traits, and characteristics that individuals display to prospective mates and rivals, that function to maximize the signaler's perceived mate value in the eyes of those mates and rivals. Signals may be honest, conveying accurate information to the receiver, or they may be dishonest, misleading the receiver to overestimate the signaler's mate value.

## **Mate Value: Signaling**

#### **Relevant Theoretical Frameworks**

Sexual Selection

Mate value is best understood from an evolutionary perspective, guided by the theories that collectively sit under the banner of sexual selection. Human mating preferences and behaviors are adaptive responses evolved to maximize reproductive success (Buss, 2007). In the context of intersexual selection—the selection pressures governing mate choice—members of one sex prefer mates with specific qualities over other potential mates. Across the Animal Kingdom, the mate preferences of one sex thus exert selection pressure on the opposite sex, driving the evolution of conspicuous signals that advertise and exaggerate their sought-after qualities (e.g., Rodriguez et al., 2006). Being able to signal your value as a

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T. K. Shackelford (ed.), Encyclopedia of Sexual Psychology and Behavior, https://doi.org/10.1007/978-3-031-08956-5 1489-1

potential partner is essential for attracting a suitable mate.

Signals of mate value may also be targeted at same-sex conspecifics. Being able to attract and retain a mate, through sexual signaling or self-promotion, is a form of intrasexual competition, where individuals compete for access to mates and resources. Mate-value signals thus do not just operate to signal to the opposite sex; they can also be used in intrasexual competition as a means of manipulating or warding off competitors. Since assessments of mate value are driven by what is considered desirable in the opposite sex, as well as the context of the mating interaction, signals of mate value vary by both sex and context.

## Parental Investment Theory

Parental investment is the total amount of energy and resources that an individual must expend to produce one offspring (Trivers, 1972). For human males, the minimal investment is the provision of sperm, while for females the minimal investment is 9 months of pregnancy and the risks of birth and costs of early child-rearing. Since male reproduction is limited by the relatively fewer offspring females can reproduce, then, females are a limiting resource. Typically, under these circumstances, females will be choosier, since the cost of an incorrect mating decision is higher, and males will compete for access to females, and hence be showier than females in their matevalue signals (for instance, the male green tree frog's mating calls or male bowerbirds elaborate building and dance). However, human males also invest significant costs in pursuing mating arrangements and child-rearing, so under typical, not minimal, circumstances, men may also be choosy (Kenrick et al., 1990) and mutual mate choice ensues (e.g., Johnstone et al., 1996). In mutual mate choice species such as humans, both sexes thus signal their desirability to the opposite sex. The differences in minimal parental investment between species will also impact sex differences in what are considered suitable signals of mate value. For instance, given females are the limiting resource in terms of reproductive capacity, males show stronger relative preferences for young and attractive mates. On the other hand,

females show a stronger relative preference for social status and resources, given the importance of these to child-rearing (Walter et al., 2020). As such, women will invest more in signals of beauty, while men will invest more in signals of status.

#### Sexual Strategies Theory

According to sexual strategies theory, men and women have distinct psychological mechanisms that underlie their short-term versus long-term mating preferences and behaviors (Buss, 1998). The primary problems facing men in short-term mating include identifying sexually accessible, fertile women and minimizing commitment, while the problems facing women include provision of immediate resources and identifying good genes. The problems faced in long-term mating for men and women are similar, including identifying reproductive value for men and locating men willing and able to invest for women. Both sexes must solve the problem of locating someone who is willing to commit and possesses good parenting ability. As such, the traits desired in the opposite sex will differ based not only on sex, but also on relationship context, with men's preferences for attractiveness in women in the short-term rating higher than women's preferences, and women's preferences for social status in the short-term rating higher than men's preferences (Li & Kenrick, 2006). Accordingly, the signaling of mate value will also vary according to sex and relationship context and may act in some cases as a signal of mating intent.

## **Evolution of Mate-Value Signals**

## Cues vs. Signals

Secondary sexual traits are features that vary systematically between sexes, and while these may phenotypically vary and act as cues to mate quality (e.g., sex-linked facial symmetry), they do not always benefit the signaler, so do not constitute signals. Cues can in some circumstances become signals. Based on Niko Tinbergen's arguments, certain behaviors or traits may, via ritualized displays, be co-opted as signals of mate quality. When mate-value signals have been driven by opposite-sex preferences, then the traits may not always be linked with good genes unless the

signal has evolved from a preexisting trait cue to underlying good genes (known as the preexisting trait hypothesis, e.g., clear skin). Accordingly, signals of mate value may signal traits beyond good genes, including resources and social status, though these are often linked to dominance (Whiting et al., 2003).

## Handicap Principle

According to Zahavi (1975), males will adjust their investment into expression of secondary sexual characteristics (ornamentation) only if they can bear the costs. That is, only an individual with actual high-quality genetic capacity would be able to both develop and maintain a metabolically expensive bodily ornament. In this case, elaborate secondary sexual characteristics are assumed to be honest signals of underlying genetic quality. This idea evolved from Zahavi's Handicap Principle, which he had proposed specifying that for a sexual signal to be honest, it had to be costly, thus imposing a handicap that only the genetically wellendowed could overcome. However, with many studies that contradict the handicap principle, it is not clear the extent to which costly signaling theory may explain the evolution of mate-value signals (Penn & Szamado, 2020).

## Compatibility and Dissimilarity

In addition to signals of mate quality via secondary sexual characteristics, which can be argued to signal overall genetic quality, there is also an importance of diversity or individuality. Genetic dissimilarity of potential mates can improve offspring strength through improvement of immunity and kin avoidance (Rushton et al., 1984). The most famous example of this is in the major histocompatibility complex (MHC) and its influence on body odors. Wedekind et al. (1995) demonstrated that women's preferences for men's scent were dependent on the similarity of their MHC, implying scent may carry valuable information to a mate on genetic dissimilarity, and therefore act as a cue to mate quality in terms of compatibility. Other signals of mate compatibility (e.g., parenting ability) may be manipulated to signal mate quality depending on context and the mate preferences of the observer.

# **Domains of Mate-Value Signals**

## Masculinity and Femininity

Sex-typical facial features, or sexual dimorphism, are more strongly linked with underlying health condition, and certainly affect perceiver's perceptions of attractiveness. In females, particularly, feminized faces (and bodies) are linked with sex hormone profiles and are more attractive (see Stephen & Luoto, 2021). Male masculinity in faces and bodies is less clearly attractive nor linked with underlying immune condition. That said, masculinity in faces and bodies is linked with both testosterone levels and several dominance traits in men, including strength, reproduction, and social status (Watkins et al., 2010). Further, masculinity in cognitions is strongly linked with wayfinding competence (Yang & Merrill, 2017). Hence, masculinity may signal typically dominant traits. Since women's perceptions of men's masculinity as attractive are dependent on a variety of factors, potentially including menstrual cycle phase, life history, and economic conditions, the value of masculinity as a signal of mate value to women is less clear. This aligns with the stronger variations in women's short-term and long-term mating preferences compared to men's.

## Nonsexually Dimorphic Physical Attractiveness

There are a variety of physical traits beyond sexual dimorphism that may serve as cues to underlying health, though the extent to which some of these have either been co-opted or evolved as active or even honest signals of mate value is unclear. For instance, facial symmetry is undeniably attractive, although not necessarily strongly related to underlying immune condition (see Stephen & Luoto, 2021). Skin quality, including color and texture, is more strongly linked with underlying health (Stephen et al., 2009) so may serve as an honest signal. Either way, since physical features may be strategically manipulated through the use of makeup, surgery, and even clothing, their use may represent a signal of mate value to observers.

# Adornments and Attractiveness Enhancement Attractiveness enhancement acts as a selfpromotional tactic in competition and thus signals

mate value. The ability to enhance attractiveness through means of makeup and cosmetic procedures may also signal financial status, given the costliness of these items and procedures. Firstly, makeup has been shown to increase the physical attractiveness of the user by enhancing natural areas of light and dark contrast (Russell, 2009). Higher facial contrast is linked with youth and health—cues to female mate value—so the use of makeup likely serves as a means of both signaling and enhancing one's (apparent) mate value. In support of this, men respond to made-up women differently, for instance, increasing monetary tips (Gueguen & Jacob, 2012) and approaching them more in a bar (Gueguen, 2008). In addition to attractiveness, cosmetics may signal other aspects of sexual intent, for instance, variation in sociosexuality (comfort with and attitudes toward a short-term mating strategy) is linked with quantity of makeup use (Wagstaff, 2018), and so use of cosmetics may serve as a signal of mate value in particular contexts (e.g., in a shortterm mating context). Finally, cosmetics may serve a role in mate-value signals in intrasexually competitive contexts as a means of warding off other high mate-value competitors. For instance, Sulikowski et al. (2022) showed that when high self-rated mate-value women viewed a made-up, attractive, female face, they subsequently lowered their own perceived mate value compared to those participants who viewed less attractive or nonmade-up faces.

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Similarly, cosmetic surgery may also alter one's apparent mate value, though in a more drastic or permanent manner compared to cosmetics. Fat reduction procedures may accentuate the masculine or feminine bodily features so desired in the opposite sex (Davis & Arnocky, 2022). Self-sexualization, including acceptance of cosmetic surgery, has been shown to be predicted by mate value.

Other adornments such as tattoos may have a role to play in signaling mate value. Koziel et al. (2010) argued that as tattoos (and other body modifications) can take a toll on health, the successful acquisition of a tattoo may serve an indicator of fitness. Regardless, tattoos, particularly tattoos on men, may serve a social signaling function including signaling masculinity and

dominance (Galbarczyk & Ziomkiewicz, 2017). However, as shown by Molloy and Wagstaff (2021) this may only be an attractive mate-value signal to women who are themselves low on self-rated attractiveness.

#### Socioeconomic Status

Socioeconomic status is defined by wealth, occupational prestige, and education; essentially a signal of one's social class. Socioeconomic status can also have important impacts on physical health owing to greater access to societal resources (e.g., Wang & Geng, 2019). Indeed, the link between resources and reproductive success can be observed in several contemporary societies (Nettle & Pollet, 2008). Assortative mating principles (Buss, 1985) emphasize that individuals choose partners who are similar to them, so signaling socioeconomic status is important to ensure one is attracting a mate of the right social class. Signals of socioeconomic status though can be faked, so may not represent an honest signal. Their use as a signal of mate quality also differs by sex. The relative importance of social status in a mate is higher for females than for males; therefore, males tend to invest more in signaling their social status. Conspicuous consumption, the acquisition and display of costly goods (luxuries) to enhance prestige, may act to signal social status and therefore mate value. Griskevicius et al. (2007) showed that men desire to spend more on luxuries when prompted with a mating scenario or shown pictures of women. Competitive scenarios can also elicit the desire to spend money on luxury goods, indicating conspicuous consumption may serve as a signal of mate value in intrasexual competition. Specifically, Otterbring et al. (2018) showed that men spend more on expensive products in the presence of a dominant male, and that this effect was more pronounced for men of shorter stature.

#### Intelligence and Skills

Intelligence and the possession of problem-solving skills are important attributes to survival and therefore reproduction. Intelligent individuals are also likely to be more adept at solving social problems, thus conferring a reproductive advantage (e.g., Miller, 2000). In demonstration of this, Jonason

et al. (2019) found that imagined mates with equal or greater intelligence were more desirable, especially for women when rating a potential long-term relationship partner. The display of humor may be a signal of intelligence, especially for men. Greengross and Miller (2011) demonstrated that intelligence predicted humor production capacity, which in turn predicted lifetime number of sexual partners. The production of humor may also be affected by reproductive context, further demonstrating its use as a signal of mate value. Barel (2019) showed that while in the room with a same-sex individual (a competitor), men produced funnier jokes than women, especially when primed with a photograph of an attractive female.

In addition to intelligence, the demonstration of skills is a well-established signal of mate value. Challenging scenarios requiring the use of motor skill may act as signals of mate value in other mammals. For instance, in some species, females incite competition in the males and then mate with the winner (Byers, 1997). The conspicuous display of athletic ability may also demonstrate mate value in humans. Schulte-Hostedde et al. (2012) found that women perceived men who played more sport as more promiscuous, and athletes were rated as more competitive and healthier than nonathletes. The display of athletic skill may also be triggered by context. Vandenbroele et al. (2020) showed that invoking sexual arousal increased the desire of participants to share a workout if they rated themselves low on mate value. For high mate-value individuals, no difference was observed between the high and low sexual arousal conditions, implying that the use of mating signals in a particular context may depend on individual differences.

#### Virtue Signaling

In addition to a stronger desire for social status as a mate preference trait, women also have a stronger preference for kindness and helpfulness (Farrelly, 2011). As such, men may also signal their mate value through virtue signaling or the public expression of opinions or sentiments to manipulate a view of one's character. This can include public donations of money to charity. Van Vugt and Iredale (2013) found that men contribute more public

goods in a game when being observed by the opposite sex than the same sex, while no effect of observer sex was found for women. Similarly, Jensen (2013) showed in three social dilemma games that participants with an attractive observer were more altruistic, but only if they had a generous disposition. This further demonstrates that different mate-value signals may be used depending on an interaction between context and individual differences.

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# Individual Differences in Mate-Value Signaling

#### Personality

The dark personality traits include Machiavellianism, psychopathy, narcissism, and sadism, and represent a coordinated system of traits that use manipulative tactics in social situations to gain social and reproductive advantage. Accordingly, the use of mate-value signals is likely to be affected by the dark traits, particularly as the use of deception in this group is common (Jonason et al., 2014). Monteiro et al. (2017) found that higher narcissism was related to more self-promotional tactics, regardless of sex, in a short-term mating context. For men, higher psychopathy and lower Machiavellianism were also associated with more selfpromotion. Self-promotion is also demonstrated with selfies on social media, with narcissists taking and posting more selfies, especially when pictured alone (McCain et al., 2016).

## Sexual Strategies

Finally, an individual's desired sexual strategy will affect the types of mate-value signaling they engage in. For instance, physical attractiveness is more important in short-term mating contexts than long-term mating contexts, while women are more stringent in short-term mating contexts than men are (Buss & Schmitt, 2017). Similarly, men pay more attention to women's facial attractiveness in long-term contexts and more attention to bodily attractiveness in short-term contexts (e.g., Wagstaff et al., 2015). Accordingly, men's and women's use of mate-value signals will differ based on sexual strategy and the desires of the opposite sex in these contexts. Signals of mate value that emphasize

resources, for instance, are judged as more effective for men seeking a long-term mate (Schmitt & Buss, 1996), while men's long-term mating strategies are associated with the display of children in dating profiles, presumably as a signal of investment capabilities (Zinck et al., 2022).

#### **Cross-References**

- ► Enhancement of Appearance
- ► Intrasexual Mate Competition (Women)
- ▶ Make-up

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