
18. The study that put mating on the map and helped to spark a scientific revolution: ‘Sex differences in human mate preferences: evolutionary hypotheses tested in 37 cultures’ (Buss, 1989)

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SEX DIFFERENCES IN HUMAN MATE PREFERENCES: ONE OF EVOLUTIONARY PSYCHOLOGY’S GREATEST SUCCESS STORIES

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Sexual reproduction is how genes propagate into future generations, making sexual selection critical from a ‘gene’s-eye-view’ (Dawkins, 1976). Among the many challenges of sexual reproduction are selecting a fertile mate, being reciprocally chosen by that mate, deploying successful tactics of attraction, besting intrasexual competitors, and retaining that mate at least long enough for successful conception (Buss, 1988; Buss & Shackelford, 1997; Schmitt & Buss, 1996). Indeed, every human alive today exists only because an unbroken chain of ancestors successfully solved, or in some cases bypassed, enough of the adaptive problems of mating to pass on their genes.

Preferential mate choice is the first mating problem that requires solution, and one of enormous importance. Few decisions in life carry greater consequences than mate choice, as it potentially brings a cascade of proximate and ultimate benefits (e.g., genes for healthy immune functioning, provisioning of resources, and physical protection) or costs (e.g., sexually transmitted diseases, mutation loads, reputational harm, and abandonment; Andersson, 1994; Arnqvist & Rowe, 2005).

From an ultimate evolutionary perspective, mate choice is not only about selecting the traits of one’s partner, but also about shaping the traits one’s offspring will inherit, and thus one’s ongoing inclusive fitness (Hamilton, 1964). Although mate choice can be decoupled from reproduction in modern contexts, throughout most of human history the two were inseparable (Goetz et al., 2019). Successful mate choice, therefore, involves both passing on beneficial traits that enhance the reproductive prospects of one’s offspring, and securing a partner who will help ensure those offspring not only survive, but also acquire advantageous mates and reproduce successfully themselves. Since one’s own reproductive career inevitably ends, enhancing the reproductive success of offspring is the ultimate route to inclusive fitness. As Darwin himself noted, citing Schopenhauer: ‘The final aim of all love ... is really of more importance than all other ends in human life. What it all turns upon is nothing less than the composition of the next generation’ (Darwin, 1871, p. 586).

From a proximate perspective, mate choice impacts physical and mental health (Apostolou et al., 2023b, 2024; Braithwaite et al., 2010; Costello et al., 2022, 2025; Robles et al., 2014), financial success (Antonovics & Town, 2004), and even functions as a social signal of status to others (Winegard et al., 2013, 2017). The centrality of mating to human life is evident in culture: we write poetry and compose songs about love (Jankowiak & Fischer, 1992), and analyses of Billboard Top 100 songs suggest that the vast majority concern love, sex, or relationships (Hobbs & Gallup, 2011). In some societies, men even go to war over mates (Chagnon, 1988). Mating is so important to contemporary humans that we build billion-dollar industries around it in the form of dating apps (Curry, 2021) and cosmetic surgery to look more attractive (Nassab & Harris, 2013). It is difficult, therefore, to think of a more important domain of inquiry than investigating the psychology underpinning human mate preferences, and there are strong theoretical reasons to expect that selection would have favored the evolution of mate preferences over random mating.

No scholar has done more to spark scientific interest in the study of human mating than my PhD supervisor, David Buss. Over the course of his career, Buss discovered time and again that mating permeates almost all aspects of human life. So much so that even when he tried to take a break from studying human mating to study murder, he found that many killings carried tributary mating motives (Buss, 2005). As he often puts it, ‘you can run but you cannot hide from mating.’

As one of Buss’s current graduate students, it is a particular honor for me to write this retrospective chapter, reflecting on his landmark study on sex differences in human mate preferences (Buss, 1989), which is truly one of evolutionary psychology’s greatest success stories. The study had a pivotal role in mainstreaming the evolutionary psychology paradigm (Buss, 1995a), and is now one of the most highly cited articles in the history of the prestigious journal *Behavioral and Brain Sciences*. The chapter begins by reviewing the state of the literature before Buss’s classic contribution, then turns to the evolutionary logic underpinning his hypotheses, followed by the study’s remarkably progressive cross-cultural methodology and its core findings. I then trace the decades of replications and extensions that have accumulated, before concluding with reflections on how the study might have been conducted differently with the benefit of hindsight and modern methodological advances. The chapter closes with Buss’s own personal reflections, offering an insider’s view of the study’s inception, the skepticism it encountered, and the practical difficulties of carrying out such an ambitious cross-cultural project before the advent of the internet.

In short, this was the study that put mating on the map and helped to spark the scientific revolution of evolutionary psychology (Buss, 2020). For me, as for countless others, it has been a major inspiration and a central reason why we study the questions we do today, building on the foundation Buss laid. Beyond academia, his work has also ignited curiosity among broader audiences through influential books such as *The Evolution of Desire* (Buss, 2016), ensuring that insights about human mating reach not only scholars but also the public at large. It is my great privilege to reflect on the legacy of one of Buss’s most impactful scientific contributions: his 1989 cross-cultural study on human mate preferences.

MATING RESEARCH BEFORE EVOLUTIONARY PSYCHOLOGY AND BUSS (1989)

Darwin's (1859) theory of natural selection emphasized the evolution of traits that aided survival, but he soon recognized that survival advantage could not explain traits like the peacock's extravagant tail. In a now-famous letter to Asa Gray, he lamented that 'the sight of a feather in a peacock's tail, whenever I gaze at it, makes me sick!' (Darwin, 1860, p. 90). Such extravagant traits appeared maladaptive for survival, yet they persisted.

Grappling with this paradox led Darwin to formulate his second grand theory of sexual selection (Darwin, 1871). He identified two processes as central to shaping adaptations: intra-sexual competition, involving contests for status or territory, and intersexual selection, which requires consensus on desirable qualities, heritability of those traits, and sufficient generations for selection to act. Both natural and sexual selection are critical in understanding evolution, of course. You cannot reproduce if you do not survive, but if you survive and do not reproduce, or help in the reproduction of genetic relatives through inclusive fitness (Hamilton, 1964), you might as well be dead, at least from a Darwinian perspective.

The evolution of traits like the peacock's tail only makes sense in the context of preferential mate choice, which Darwin (1871) noted most animals exhibit. For instance, peahens tend to favor peacocks with the most vibrant plumage (Petrie et al., 1991). Similar patterns are evident among the great apes: female chimpanzees prefer socially dominant males (Klinkova et al., 2005), female mountain gorillas often choose males with more powerful chest beats that signal larger size (Robbins, 2003; Wright et al., 2021), and female orangutans nearing ovulation typically cooperate in mating only with dominant flanged males (Knott et al., 2010). Were humans a bizarre exception, lacking selective mate choice while virtually all other sexually reproducing species, including our closest ape cousins, exhibited it? Evolutionary theorizing, long predating the hundreds of empirical studies on the topic, suggested that we were not (Symons, 1979).

Yet before evolutionary psychology, the domain of human mating was largely neglected in psychology, though several theories had been proposed. Freud suggested that people seek mates resembling their opposite-sex parent (Freud, 1964). Winch (1958) argued that individuals seek complementarity (i.e., mates who possess qualities they themselves lack). Others proposed similarity models (e.g., Cattell & Nesselroade, 1967), while exchange and equity theories held that people seek relationships where valuable resources are balanced (e.g., Clark & Reis, 1988), although what counted as 'valuable' was left unspecified.

All of these prior psychological theories of mating preferences shared some notable limitations that the evolutionary perspective would go on to address. First, they were domain general with regard to content, failing to specify the primary dimensions on which similarity, complementarity, exchange, or equity might be based. This domain generality precluded predictions based on particular content domains such as economic resources, sexual resources, coalitional resources, or parental resources. Most importantly, all of these theories failed to provide an explanation of *why* humans would be motivated in the directions posited. They lacked a causal account of the functional origins of these mating goals—that is, the adaptive purposes for which they might have evolved. Notably, all prior theories viewed humans as sexually monomorphic, ignoring the possibility that women and men might differ strategically

in their mating psychology, and indeed, none contained any sex-differentiated premises or predictions (see Buss & Schmitt, 2019, for a review of prior theories).

EVOLUTIONARY PSYCHOLOGY'S THEORY OF SEX DIFFERENCES IN HUMAN MATE PREFERENCES

Evolutionary psychology provides a cogent meta-theory of sex differences and sex similarities (Buss, 1995b). Males and females are expected to differ in domains where they have recurrently faced different adaptive problems throughout evolutionary history, and to be similar in domains where they have faced similar problems (Buss, 1995b). As evolutionary success stories, each modern human has inherited the mate preferences of their reproductively successful ancestors. This sets the groundwork for the evolutionary perspective on sex differences in mate preferences (Symons, 1979). Given the fundamental biological asymmetries between men and women in reproduction (Trivers, 1972), it would defy evolutionary logic if selection had not also shaped corresponding psychological, strategic, and behavioral differences, including mate preferences. It would be analogous to evolution selecting for a complex anatomy, physiology, and musculature for bipedal locomotion, but humans lacking the psychological inclination to actually walk on two legs.

Buss (1989) hypothesized that the mate preferences of our ancestors, passed on through reproductive success, have been inherited by modern humans. Drawing on Trivers's (1972) parental investment theory, he argued that because women incur greater obligatory investment in offspring, through pregnancy, childbirth, and lactation, their reproductive success historically depended on securing the investment of partners who could provide resources, protection, and stability, thereby helping them and their offspring overcome the hostile forces of nature (Buss, 2024).

For men, reproductive success was more strongly limited by access to healthy, fertile mates. This favored the evolution of male preferences for cues to reproductive value (Symons, 1979; Williams, 1975). Because reproductive value, health, and fertility are not directly observable, ancestral men relied on cues correlated with these qualities, such as physical attractiveness (Williams, 1975; Symons, 1979). Youthfulness is another such cue, since younger women have greater remaining reproductive potential (Conroy-Beam & Buss, 2019). Although cues to male health are observable, male fertility is less visible and less steeply age-graded than women's. Accordingly, women were predicted to value male attractiveness to some extent, but more strongly prioritize cues to status and resource-acquisition ability.

The value of theories and hypotheses, however, must be gauged by their empirical harvest. At the time, evolutionary approaches to human behavior faced the charge of being speculative 'just-so stories' lacking in empirical evidence (Gould & Lewontin, 1979). To handle a theory scientifically is to expose its tenets to refutation, and if evolutionary psychology was to establish itself as a viable scientific paradigm, it needed to generate *a priori* falsifiable predictions about human cognition and behavior, and collect data in support of its hypotheses (Costello et al., 2026; Lewis et al., 2017). Buss's (1989) now-classic study provided exactly such a test.

BUSS'S (1989) CROSS-CULTURAL STUDY

To test these evolutionary hypotheses, Buss conducted a large-scale, cross-cultural study of more than 10,000 participants across 37 cultures on six continents. Considering that roughly 96 percent of psychology samples came from WEIRD (Western, Educated, Industrialized, Rich, Democratic) societies, representing only about 12 percent of the world's population (Henrich et al., 2010), this cross-cultural approach was far ahead of its time. The study included the Zulu of South Africa, Gujarati Indians, polygynous groups from Lagos, Nigeria, six different regions of Brazil, and East Asian societies such as China and Japan, among many others.

Mate preferences were assessed with a systematic instrument. Participants rated 18 traits for desirability in a mate, including physical attractiveness, financial prospects, kindness, intelligence, ambition, and chastity. Ratings were made on a four-point scale, ranging from 'irrelevant' (0) to 'indispensable' (3). Participants also ranked 13 traits in order of importance, providing a complementary test of the hypotheses. This methodological approach enabled Buss to capture not only the absolute value of each trait but also its comparative importance across different cultures. The scale's combination of rating and ranking procedures provided a nuanced understanding of universal and sex-differentiated mate preferences, which were pivotal in testing the evolution-based predictions.

Key Findings: Men's Long-Term Mate Preferences

Age: The study confirmed that, universally, men place a strong emphasis on youth in desired mates. In each of the 37 samples, men preferred mates who are younger, which is consistent with the hypothesis that men value mates with higher reproductive value. These sex differences are the largest ones found in the study, showing statistical significance beyond the 0.0001 level in each of the 37 samples.

The samples, however, varied somewhat in age difference preferences. Nigeria and Zambia were the two countries in which men preferred the largest age difference between self and mate, 6.45 and 7.38 years younger, respectively. These are the only two countries in this study that practice substantial polygyny. In polygynous mating systems, men are typically older when they acquire wives than is the case in monogamous mating systems (Betzig, 1982; Hart & Pilling, 1960).

Did the age preferences men express for women correspond more closely to peak reproductive value (mid-teens) or to peak fertility (early 20s)? By subtracting the mean age difference preferred between men and their mates (2.66 years) from the age at which males prefer to marry (27.49 years), it can be inferred that men in the samples preferred to marry women who were approximately 24.83 years old. This age preference is closer to peak female fertility than to peak reproductive value (Symons, 1979).

Physical attractiveness: Cross-culturally, from Australia to Zambia, physical attractiveness and good looks were on everyone's top 10 list of important and desirable qualities, and men valued these factors significantly more than women in 34 out of the 37 cultures. In no culture did women care more about looks than men.

Key Findings: Women's Long-Term Mate Preferences

Financial prospects and ambition/industriousness: Women, in contrast, prioritized mates who demonstrated resource-acquisition ability. In 36 of 37 samples, the predicted sex difference emerged—women valued *good financial prospects* in a potential mate more highly than men did. In 34 of the 37 samples (92 percent), women placed greater value on *ambition and industriousness* than men.

Age: Although not specifically predicted, slightly older age was also a consistent preference for women in every culture, as older men are more likely to have accumulated resources, social connections, and skills necessary for provisioning. Indeed, women appeared to prefer a larger age difference (3.42 years older) than men (2.66 years younger).

Universality of sex differences: One of the most significant findings was the remarkable universality of these sex differences. Across cultures as diverse as Nigeria, Sweden, and Japan, men consistently prioritized physical attractiveness and youth, while women prioritized financial prospects and ambition. This cross-cultural consistency suggests that these preferences are not just culturally constructed but instead reflect deep evolutionary roots.

It is important to note, however, that male and female preference distributions overlapped considerably, despite mean differences. Neither earning potential nor physical appearance emerged as the highest rated or ranked characteristic for either sex, even though these characteristics showed large sex differences. Both sexes ranked the characteristics 'kind-understanding' and 'intelligent' higher than earning power and attractiveness in all samples, suggesting that species-typical mate preferences may be more potent than sex-differentiated preferences.

THE FAR-REACHING SIGNIFICANCE OF BUSS'S SEMINAL STUDY

The study's results fundamentally challenged the prevailing view among evolutionists at the time, which often emphasized that selective mating preferences were primarily a female domain (Anderson, 1986; Berenstain & Wade, 1983; Robinson, 1982; Smuts, 1987). Although parental investment theory (Trivers, 1972) predicts that women should be choosier, biparental care means that high-quality men are also a limited resource. As a result, both sexes exhibit selective mate preferences, each gaining adaptive advantages from doing so (see also Stewart-Williams & Thomas, 2013).

Buss's seminal work laid the groundwork for decades of subsequent research on mate preference psychology, providing a heuristic framework for such investigations (see Buss & Schmitt, 2019, for a review). These include research examining which cues elicit jealousy and distress (Buunk et al., 2011; Buss et al., 2000), competitor derogation tactics (Schmitt & Buss, 1996), status markers for each sex (Buss et al., 2020; Krems et al., 2022), patterns of sexual deception (Haselton et al., 2005; Buss, 2017), mate attraction tactics (Apostolou et al., 2023a; Buss, 1988a; Bleske-Rechek & Buss, 2006), mate retention strategies (Buss, 1988b; Buss & Shackelford, 1997), mate poaching tactics (Schmitt & Buss, 2001), causes of breakups, patterns of remarriage (Conroy-Beam & Buss, 2019), and even the qualities people desire in opposite-sex friends, which often mirror mate preferences (Bleske & Buss, 2000; Bleske-Rechek & Buss, 2001; Lewis et al., 2011, 2012; Szymkow & Frankowska, 2022). Indeed, in

the original article, Buss (1989, p. 14) explicitly and presciently foreshadowed the proliferation of research that could be based on these foundational findings:

Mate preferences should influence intrasexual competition such that males compete with each other to display the resources that females desire in mates; females should compete with each other to display the reproductively linked cues that males desire in mates (Buss, 1988a). Furthermore, mate preferences should affect opposite sex intrasexual maneuvers, such as tactics used to guard or retain mates (Buss, 1988b; Flinn, 1988), tactics used for mate poaching, and perhaps tactics used to derogate intrasexual competitors (Buss & Dedden, submitted). These now established sex differences in mate preferences across 37 cultures provide a foundation for testing hypotheses about human intrasexual competition on an international scale.

The paper was also pivotal in mainstreaming the evolutionary psychology paradigm (Buss, 1995a), which in recent decades has demonstrated the potential to revolutionize the psychological sciences (Buss, 2020; Costello & Thomas, 2024). Since its inception, there are now thousands of evolutionary psychology researchers around the world, many inspired and mentored by Buss. Some of these scholars were raised in postgraduate programs dedicated to evolutionary perspectives on human behavior (e.g., the MSc in Psychology, Culture and Evolution at Brunel University) and many join societies and attend conferences all around the world, including HBES (Human Behavior and Evolution Society) and NEEPS (Northeastern Evolutionary Psychology Society).

In the 1990s there was just one academic journal devoted to evolutionary psychology (*Ethology and Sociobiology*); now the field has roughly eight evolutionary journals. The flagship journal of the field, *Evolution and Human Behavior*, is enjoying an upward trajectory in terms of impact factor (Garfield, 2024). Considering the *Handbook of Evolutionary Psychology*, the 32 chapters of the 2005 first edition (Buss, 2005b) expanded to 52 in the 2016 edition (Buss, 2016b)—an increase of 62 percent in just over a decade. There are now multiple evolutionary psychology handbooks either already published or in the works, and there is even a growing periodic table of evolved psychological adaptations (Balachandran & Glass, 2012).

When Buss (1988a) published his first empirical evolutionary psychology article in the *Journal of Personality and Social Psychology*, it may have been the only one that year or the year after that. Now, largely thanks to the impact of Buss (1989), evolutionary psychology research is routinely published in the highest-impact journals in psychology (e.g., *Psychological Science*). Further testament to the impact of Buss (1989) on the broader field of psychology is the fact that, at the time of writing, it is ranked as the sixth most cited article in the entire history of the prestigious journal *Behavioral and Brain Sciences*. Furthermore, between the years 2001 and 2004, more than one-third of the publications in this journal were informed by evolutionary themes (Glass et al., 2012). This same trend has been found in other important journals as well (e.g., the *Journal of Personality and Social Psychology*; see Webster, 2007). Finally, a recent analysis found that the psychology journals publishing the most replicable research often publish evolutionary psychology papers, including the top ranked *Journal of Individual Differences*, with *Archives of Sexual Behavior* and *Evolutionary Psychology* all counted in the top 10 (Schimmack, 2022).

This chapter now reviews the extensive body of evidence that has replicated and extended Buss's (1989) foundational findings throughout recent decades. Although contemporary research on mate preferences has increasingly explored individual differences and socioecological influences on mate preferences (see Buss & Schmitt, 2019, for a review), for brevity

I focus on the remarkable replicability of the key findings. In an era marked by a replication crisis (Open Science Collaboration, 2015), these findings stand out as some of the most enduring contributions to the psychological sciences and illustrate the value of theory grounded in evolutionary logic for producing findings that consistently replicate.

DECADES OF REPLICATING WOMEN'S LONG-TERM MATE PREFERENCES

The mate preferences found in Buss (1989) have been consistently observed across various cultures and are supported by a wealth of empirical evidence, including self-report surveys, online dating data, fertility outcomes, and cross-cultural studies spanning both postindustrial societies and small-scale hunter-gatherer groups (Buss & Schmitt, 1993; Eastwick et al., 2014; Feingold, 1992; see Buss & Schmitt, 2019, for an extensive review).

In many cultures, women, more than men, tend to place more emphasis on cues to the *ability* and *willingness* to provide resources to them and their offspring. Specifically, women tend to value cues such as status and prestige, ambition and work ethic, confidence and intelligence, honesty and a good reputation for generosity, and slightly older age, which serves as a cue to resources/status (Cashdan, 1996; Kenrick & Keefe, 1992; Jonason et al., 2012). In some cultures, women have a preference for hunting skills, physical strength, body size, shoulder width, music skills, and oratory skills, as these are qualities that convey relevant information about a man's ability and willingness to acquire and devote resources in those cultures (Frederick & Haselton, 2007; Gurven & Hill, 2009; Sell et al., 2017).

Findings about women's preferences for resources have remained consistent over historical time and are reflected all around the world from India, Brazil, China, and the United States (Bech-Sørensen & Pollet, 2016; Buss et al., 2001; Chang et al., 2011; Kamble et al., 2014; Pollet & Nettle, 2008; Souza et al., 2016), and are even reflected in folktales from around the world in historical literature (Gottschall et al., 2004). Although both men and women have slightly decreased in valuing ambition and industriousness over time, the magnitude of the sex difference has remained largely consistent for decades (Buss et al., 2001).

Self-report surveys: Sprecher et al. (1994) examined a nationally representative sample from the US and found that women, more than men, expressed long-term mate preferences for someone who had a *steady job* ($d = -0.73$), was older by five years ($d = -0.67$), earned more than they did ($d = -0.49$), and was highly educated ($d = -0.43$). Later, in another large national sample of US individuals, Fales et al. (2016) found that the percentage of people indicating that it was desirable or essential for a potential partner to have had a steady income was larger for women (97 percent) than for men (74 percent) ($d = -1.17$). In studies of the minimum percentile that people would accept in a long-term mate, women put earning capacity in the 70th percentile, whereas men put it in the 40th (Kenrick et al., 1990).¹

Experimental and online dating data: An experimental study presented participants with images of men's and women's body shapes along with information about their annual salary. Ratings of romantic attractiveness were approximately 1000 times more sensitive to salary information when women rated men. While men could move themselves two points higher on a bespoke attractiveness scale by increasing their salary tenfold, women could only achieve a similar two-point jump if they increased their salary by 10,000 times (Wang et al., 2018).

Similarly, research has found a 91 percent increase in ‘right swipes’ for men with a master’s degree versus a bachelor’s degree on the online dating app Tinder (Neyt et al., 2019).

Using cross cultural data from 1.8 million online daters from 24 countries, Jonason and Thomas (2022) found that resource-acquisition ability (as indicated by education and income) improved the attention received for men by almost 2.5 times that of women, a sex difference that was found in each country studied. In this study, high-competency men (i.e., master’s degree-level earning around £76,000) received almost 90 percent more indicators of interest (swipes or messages) on average.

A study of more than 40,000 online daters in Australia found that women were much more likely to initiate contact with potential mates who had higher education levels than they did (Whyte & Torgler, 2017). In a large nationally representative sample of internet dating profiles in the United States, Anderson and Klofstad (2012) found that women engage in more resource-seeking than men do. Finally, Ong and Wang (2015) found that women of all income levels disproportionately visit the profiles of men with higher incomes. Men with the highest level of income received 10 times more visits than men with the lowest income, but men were largely unaffected by women’s listed incomes.

Non-WEIRD cross-cultural evidence: Evolutionary scholars have continued to follow Buss (1989) in comprehensively cataloguing mate preferences in a truly cross-cultural way, with many studies representing between 20 and 50 cultures, consistently finding a large degree of universality in mate preferences (Lippa, 2007; Shackelford et al., 2005; Thomas et al., 2020). For example, sex differences in resource-related mate preferences were found across 100 percent of more than 50 studied nations (Lippa, 2007). Recently, Walter et al. (2020) found that in a 45-nation sample ($N = 14,399$), cross-culturally, universal sex differences remain. Women, more than men, preferred older mates and mates with good financial prospects in every sample studied.

Sex differences in many preferences for resource-related traits are also evident in the ethnographic record of preindustrial cultures (e.g., Smith & Apicella, 2020). For instance, Pillsworth (2008) found that among the Shuar (a group of modern hunter-horticulturalists in Amazonian Ecuador), specifically for women, the link between their ratings of a peer’s *provider qualities* and their desirability as a long-term partner was very strong ($z = 3.05, p < 0.01$), whereas for men, this connection wasn’t statistically significant ($z = 0.92, p = 0.36$).² Scelza and Prall (2018) observed among the Himba (a pastoralist society in northwestern Namibia in which both men and women can take on both long-term concurrent ‘informal’ additional mates) that Himba women prefer both wealthy husbands and generous ‘boyfriends.’

Among the Hadza hunter-gatherers of Tanzania, Marlowe (2004) found that women ranked men’s ability to provide food resources higher than men ranked women’s foraging ability. Finally, in a comprehensive review of 33 preindustrial cultures, von Rueden and Jaeggi (2016) found that men’s status consistently correlates with greater reproductive success, regardless of how status was assessed (e.g., physical strength, hunting prowess, wealth, or political power) and regardless of the culture’s way of life (e.g., foraging, horticulture, pastoralism, or agriculture).

Another study of the Kipsigis from Kenya, Africa, found that men who owned quite a lot of land were more likely to attract women as wives, and multiple wives if they were quite wealthy (Mulder, 1990). In comparing Czechian women’s past sexual partners with the fathers of their children, Štěrbová et al. (2019) found that Czechian fathers had more education and

were more conscientious than ex-partner nonfathers. Nettle and Pollet (2008) also found evidence that links between cues to men's status and their mating success are typically even stronger in small-scale preindustrial hunter-gatherer societies such as the Hadza ($\beta = 0.36$), Ache ($\beta = 0.31$), and Tismane ($\beta = 0.22$), compared to postindustrial societies such as the United Kingdom ($\beta = 0.10$), the United States ($\beta = 0.12$), or Sweden ($\beta = 0.17$).³

Fertility and marriage outcomes of men who exhibit cues to status and resources: Evidence pointing toward women's evolved mate preferences also comes from men's marriage and fertility outcomes. Using a probability sample, higher-status men were more likely to marry in the United States (Hopcroft, 2021). A study of 21,973 men from a US dataset gathered in 1910 found that the higher a man's socioeconomic status, the greater the chances that he would actually marry (Pollet & Nettle, 2008). Nettle and Pollet (2008) also documented that in the United Kingdom, a man's higher level of status is related to his higher fertility, but the same is much less true for women's status. Most studies also find that men who possess cues to high status are more likely to be married (especially remarried) to younger wives (a male mate preference) than are lower-status men (e.g., Kenrick & Keefe, 1992; Pollet et al., 2013). Research also finds that men who are involuntarily celibate are typically lower-educated and more likely to be unemployed and live with their parents into adulthood—that is, be of lower status (Costello et al., 2022, 2025).

Financial provisioning as a male courtship tactic: Buss's (1989) study not only documented robust sex differences in mate preferences but also laid the groundwork for decades of research on the tactics of intrasexual competition and attraction, avenues of inquiry he even anticipated in his original paper. One clear example is men's use of financial provisioning as a courtship strategy.

Women's long-term mate preferences for resource acquisition ability are not only evident in their own self-reports and behavior but are also reflected in men's actual courtship strategies. Women's evolved preferences have created selection pressures on men to develop tactics that advertise resource acquisition and generosity. In this way, the psychology of one sex shapes the psychology and behavior of the other.

Sexual economics theory (Baumeister & Vohs, 2004), building on parental investment theory (Trivers, 1972) and Symons's (1979) insight that women function as the limiting reproductive resource, explains why men, as the lower-investing sex, often compete by channeling resources into courtship behaviors. Parallels are found across species: male insects provide nuptial gifts (Vahed, 1998), and primate males sometimes trade food for mating opportunities (Gomes & Boesch, 2009).

Human males display similar patterns. Men, more than women, conspicuously exhibit wealth and generosity to attract mates (Buss, 1988a; Schmitt & Buss, 1996; Sundie et al., 2011; Kruger, 2008). Cross-cultural surveys confirm that men are more likely than women to use the acquisition and display of material resources as mate attraction strategies (Apostolou et al., 2023a). Experimental evidence shows that mating cues increase men's emphasis on resource acquisition (Roney, 2003), prompt greater financial generosity (Chen et al., 2025), and lead men to contribute more to charity when observed by women (Iredale et al., 2008). Men also use gift-giving as a courtship tactic, which women interpret as signaling romantic interest (Dobson et al., 2026; Jonason et al., 2009; Komiya et al., 2019). Critically, both sexes reliably perceive male financial provisioning as a form of flirtation (Wade & Feldman, 2016; Kennair et al., 2022).

Together, these findings illustrate that men's behaviors have been shaped in ways that directly reflect women's evolved mate preferences, making financial provisioning a central tactic in human courtship.

DECADES OF REPLICATING MEN'S LONG-TERM MATE PREFERENCES

Buss's (1989) foundational findings that men universally prioritize youth and physical attractiveness in mates have since been supported and elaborated upon by decades of cross-cultural, experimental, and observational research (see Buss & Schmitt, 2019, for a review). These findings provide strong evidence that men's mate preferences align with evolutionary predictions about the reproductive value cued by these traits.

The motivational consequences of perceiving another individual as attractive provide key insights into why evolution by natural selection would have shaped these mechanisms in the first place—that is, to guide people toward fitness-enhancing selection of mates (Buss & Schmitt, 2019). There are many behavioral manifestations of men's mate preference for youth and fertility—for example, men's behavior in actual mate choice, purchase of brides and sex workers, and online dating behavior.

Findings that emerge consistently across data sources that do not share the same methodological limitations are especially powerful (Costello et al., 2026; Schmitt & Pilcher, 2004). By appealing to the cumulative weight of multiple data sources, researchers can transcend the limitations of any single data source and arrive at a firmer empirical foundation for the findings that men have a strong mate preference for youth and physical attractiveness as cues to reproductive value. This chapter now evaluates these diverse findings.

Behavior around marriage: In a survey of 454 traditional cultures, the highest frequency of brides was in the 12 to 15 years old age bracket (Frayser, 1985). In Buss's comprehensive cross-cultural study on mate preferences, it was found that men across 37 societies universally preferred younger wives (Buss, 1989). For instance, Croatian men aged 21.5 years old expressed a desire for wives around 19 years old, mirroring similar preferences among Chinese, Canadian, Colombian, and Nigerian men. On average, men across these cultures sought partners approximately 2.5 years younger than themselves. Although the preference for younger partners is consistent globally, its intensity varies across cultures. Scandinavian men, for example, tend to prefer brides only 1 or 2 years younger, whereas Nigerian and Zambian men, in polygynous mating systems, prefer brides 6.5 and 7.5 years younger, respectively (Buss, 1989). This preference in polygynous societies may stem from men's older age upon acquiring sufficient resources to attract wives.

Other evidence includes the fact that brides tend to be around three years younger than grooms at first marriage across various cultures (Buss, 1989). With increasing age and remarriage, men tend to marry increasingly younger women: around three years younger at first marriage, five years at second marriage, and eight years at third marriage in the United States (Guttentag & Secord, 1983). Similar trends are observed in historical records from Sweden and Norway (Low, 1991; Conroy-Beam & Buss, 2019). Some men, particularly in South Korea, engage in marriages with significantly younger brides through mechanisms like bride purchasing, with age gaps of up to two decades (Buss & Schmitt, 2019). The age of potential

brides influences premarriage spending customs, such as engagement ring costs, observed in various cultures (Mulder, 1990; Cronk & Dunham, 2007). Younger wives are subject to more intense mate-guarding compared to older wives (Buss & Shackelford, 1997).

Personal ads: Analysis of personal ads further demonstrates age-related mate preferences. In an early study analyzing 800 ‘lonely hearts’ advertisements from a national newspaper, women were more likely to offer attractiveness and seek someone older, and men were more likely to seek attractiveness and someone younger (Harrison & Saeed, 1977). As men age, their preference for younger partners becomes more pronounced, as evidenced by a study encompassing 21,245 individuals aged 18 to 65 (Schwarz & Hassebrauck, 2012). Men in their thirties typically seek partners around 5 years younger, while those in their fifties often desire partners 10 to 20 years younger (Kenrick & Keefe, 1992). These findings have been largely replicated, with similar patterns found in online formats around the world (Alterovitz & Mendelsohn, 2009; de Sousa Campos et al., 2002; Dunn et al., 2010; Hitsch et al., 2010; Phua et al., 2018).

Sex work: Studies on sex work consistently show that escorts who are young, have a low body mass index, reasonably large breasts, and a waist-to-hip ratio near 0.7 (i.e., traits indicating reproductive value) tend to command higher fees for their sexual services than older, larger, and less curvy counterparts (Dunn, 2018; Griffith et al., 2016; Prokop et al., 2020; Sohn, 2016). Similarly, mail-order brides tend to be significantly younger than conventional brides (Sohn, 2017). This illustrates that when provided with broader mate choice possibilities beyond what their mate value affords in their mating market, men select younger, more fertile mates who exhibit cues of reproductive value.

Artificial depictions of attractive women: From sex dolls to magazine models, cartoons, video games, and comic books, idealized depictions of the female form consistently emphasize cues of youth and reproductive value, such as low waist-to-hip ratios (Costello, 2025; Lassek & Gaulin, 2016; Burch & Johnsen, 2020; Burch & Widman, 2023). These idealized figures highlight how, when unconstrained, men’s mate preferences reveal a strong emphasis on cues of reproductive value.

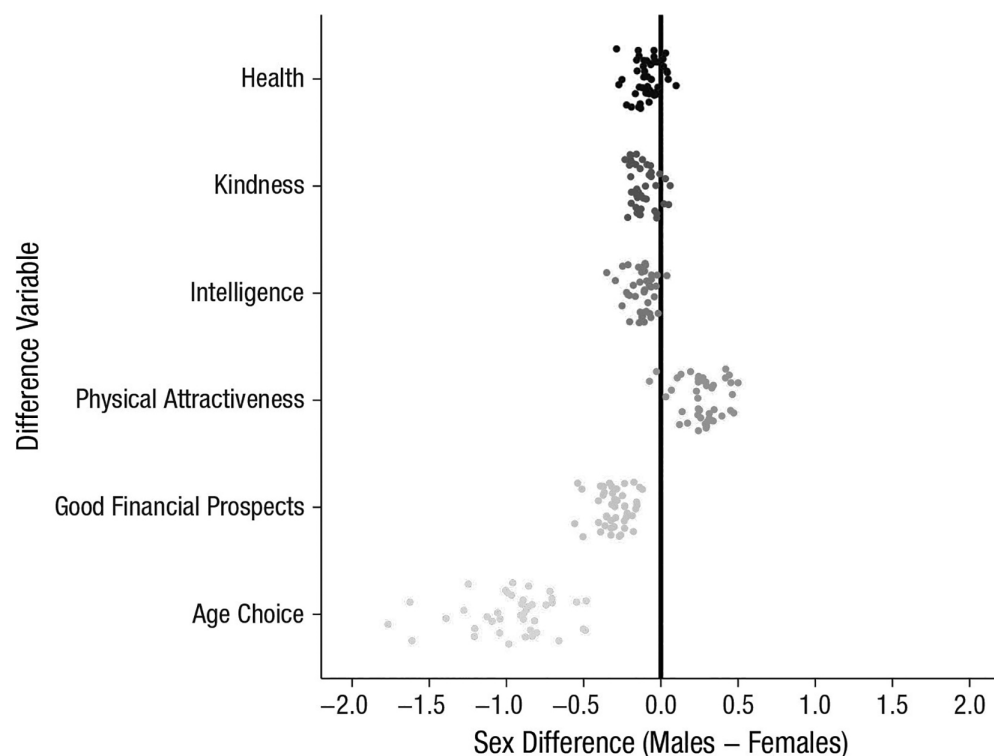
Online dating: Men’s preferences for youth and beauty are evident in the ubiquitous and evolutionarily novel contexts of online dating, where men still seek younger partners (Alterovitz & Mendelsohn, 2009; Burrows, 2013; Conway et al., 2015; Kreager et al., 2014; Phua et al., 2018). Women report being more likely than men to try to create a more physically attractive profile (McWilliams & Barrett, 2014) and to underreport their weight (Hall et al., 2010). Finally, a recent eye-tracking study shows that men focus mainly on physical attractiveness in online dating profiles (Gale et al., 2024), and another eye-tracking study revealed heightened attentional focus on younger female faces by men (Fink et al., 2008).

LONG-TERM MATE PREFERENCES VALUED SIMILARLY BY BOTH SEXES

Buss (1989) provided the foundational framework for understanding sex-differentiated mate preferences, but his work also highlighted the shared priorities between men and women in long-term mate selection. A plethora of subsequent findings suggest that men and women similarly value various traits in long-term mates.

Robust research demonstrates that men and women both prioritize intelligence (Kenrick et al., 1990; Li et al., 2002; Walter et al., 2020), creativity (Li et al., 2002), warmth and trustworthiness (Buss et al., 2001; Fletcher et al., 1999; Valentine et al., 2020), good parenting skills (Buss, 1991; Lu et al., 2015), agreeableness (Botwin et al., 1997), and kindness and honesty (Barclay, 2010; Li et al., 2011). Humor is another trait valued by both sexes, though a notable sex difference is that men tend to prefer partners who are receptive to their humor, while women place greater emphasis on a partner's ability to produce humor (Bressler et al., 2006; Feingold, 1992; Greengross, 2014).

In short, by initially illuminating these shared preferences, Buss (1989) set the stage for decades of research confirming that although sex differences are prominent in certain domains, men and women both prioritize similar traits in others (Figure 18.1 and Table 18.1).



Note: Dot positions represent the random slope values (b) for each country, showing sex differences in five mate preferences and age choice. The black vertical line indicates where values would fall if no sex differences existed. For the mate preferences, positive values reflect stronger preferences among men than women for a given trait, while negative values indicate stronger preferences among women than men. For age choice, negative values signify that men preferred younger partners and women preferred older partners.

Source: Figure from Walter et al. (2020).

Figure 18.1 Sex differences in mate preferences and age choice across a 45-country sample ($N = 14,399$)

Table 18.1 Decades of replicating and extending sex differences in human mate preferences

Domain	Finding	References
Mate preferences	Both men and women desire love, intelligence, creativity, warmth, trustworthiness, good parenting, agreeableness, kindness, and honesty. Women prioritize resources and status, which signal a partner's ability to provide support for her and her offspring. Men prioritize youth and physical attractiveness as these traits are indicators of reproductive value.	Asendorpf et al., 2011; Badahdah & Tiemann, 2005; Baize & Schroeder, 1995; Barclay, 2010; Buss, 1989; Buss et al., 1990, 2001; Buss & Shackelford, 2008; Choy et al., 2023; Coats et al., 2012; Feingold, 1992; Fletcher et al., 1999, 2000; Gerlach et al., 2019; Gonzaga et al., 2008; Greengross, 2014; Hopcroft, 2021; Jankowiak & Fischer, 1992; Jonason et al., 2012, 2013, 2017; Jonason & Thomas, 2022; Jones et al., 1995; Kenrick et al., 1990; Li et al., 2002, 2011; Lu et al., 2015; March et al., 2018; Marlowe, 2004; Miller, 2007; Pawlowski & Koziel, 2002; Pérusse, 1993; Pollet & Nettle, 2008; Scelza & Prall, 2018; Schwarz & Hassebrauck, 2012; Tessman, 1995; Thomas et al., 2020; Valentine et al., 2020; Walter et al., 2020; Wang et al., 2018; Whyte & Torgler, 2017; Yong et al., 2022; Zhang et al., 2019. For a review, see Buss & Schmitt, 2019.
Age preferences	Women tend to prefer somewhat older men, whose age is associated with greater resources and status. Men tend to prefer younger women who have higher reproductive value.	Baize & Schroeder, 1995; Buss, 1989; Buss & Schmitt, 1993; Dunn, 2018; Dunn et al., 2010; Fieder & Huber, 2007; Hill & Hurtado, 1996; Kenrick & Keefe, 1992; Low, 1991; Otta et al., 1999; Schwarz & Hassebrauck, 2012; Walter et al., 2020. For a review, see Conroy-Beam & Buss, 2019.

Domain	Finding	References
Features of male and female beauty	Men have evolved preferences for physical features that are cues of youth and reproductive value, such as low waist-to-hip ratio, facial symmetry, lumbar curvature, small feet, smooth skin, and long, lustrous hair.	Aung & Williams, 2018; Bereczkei & Mesko, 2006; Bertamini & Bennett, 2009; Bovet, 2019; Brewer & Riley, 2009, 2010; Brody & Weiss, 2013; Brooks et al., 2010; Brooks et al., 2015; Brown, 1991; Buss & Schmitt, 1993; Connolly et al., 2004; Cornelissen et al., 2009; Costello, 2025; Courtiol et al., 2010; Crossley et al., 2012; Dixson et al., 2003, 2007, 2010, 2011; Doyle & Pazhoohi, 2012; Ellis, 1992; Etcoff, 1999; Fessler et al., 2005; Fink & Neave, 2005; Fink et al., 2006, 2008, 2016; Fitzgerald et al., 2016; Forestell et al., 2004; Furnham et al., 1997; Gallup & Fink, 2018; Gangestad & Scheyd, 2005; Garza et al., 2016; Grammar & Thornhill, 1994; Grammer et al., 2003; Griffith et al., 2016; Groyecka et al., 2017; Gründl et al., 2009; Hinsz et al., 2001; Howard, 2024; Hughes & Gallup, 2003; Jones et al., 1995, 2001; Karremans et al., 2010; King, 2013; Koscinski, 2013, 2014, 2019; Langlois et al., 1990; Lassek & Gaulin, 2006, 2007, 2008, 2016, 2018; Lewis et al., 2015, 2017; Marlowe, 1998; Mengelkoch et al., 2022; Pawlowski & Koziel, 2002; Pazhoohi & Kingstone, 2022; Pisanski & Feinberg, 2013; Platek & Singh, 2010; Prantl & Gründl, 2011; Provine et al., 2013; Puts, 2010; Puts et al., 2022; Rhodes, 2006; Rilling et al., 2009; Röder et al., 2013; Rozmus-Wrzesinska & Pawlowski, 2005; Russell et al., 2014; Saad, 2008; Shackelford & Larsen, 1997; Singh, 1993; Singh & Randall, 2007; Singh & Young, 1995; Singh et al., 2010; Sorokowski & Pawlowski, 2008; Stephen et al., 2009; Sugiyama, 2015; Symons, 1995; Thornhill & Gangestad, 2006; Tovée et al., 1999a; Tovée et al., 1999b; Wheatley et al., 2014.
	Women have evolved preferences for traits indicating a man's capacity to acquire and protect resources, including athleticism, physical formidability, health, height, and facial masculinity.	Collins & Missing, 2003; Evans et al., 2006; Feinberg et al., 2005; Puts, 2005; Röder et al., 2013
Voice preferences	Men have evolved a preference for feminine vocal qualities, such as higher pitch, which are associated with youth, fertility, and reproductive health.	
	Women have evolved a preference for deeper male voices, which are linked to physical formidability, maturity, and testosterone, traits tied to protection and resource acquisition abilities.	

Domain	Finding	References
Sex differences in tactics of mate attraction and rival derogation	Women emphasize their own attractiveness while derogating rivals' looks and promiscuity. Men display status and resources while derogating rivals' ambition, status, and formidability. These tactics function to appeal to the mate preferences of the opposite sex.	Apostolou et al., 2023a; Bendixen & Kennair, 2015; Buss & Dedden, 1990; Davis & Arnocky, 2022; Fink et al., 2014; Haselton et al., 2005; Pawlowski & Dunbar, 1999; Roney, 2003; Schmitt & Buss, 1996; Toma et al., 2008; Tooke & Camire, 1991.
Rival characteristics that elicit distress and jealousy	Men are more jealous of high-status and formidable rivals, whereas women are more jealous of physically attractive rivals, reflecting the mate preferences of the opposite sex.	Buunk et al., 2010, 2011; Buunk & Dijkstra, 2004, 2015; Buss et al., 2000; Dijkstra & Buunk, 1998, 2002

Note: Although many findings prior to Buss (1989) were consistent with his hypotheses, only studies published after Buss (1989) are included here. Because sex-differentiated mate preferences have been replicated so widely and so often, it is inevitable that some studies have been overlooked unintentionally. The table is intended to illustrate the breadth and robustness of replications rather than provide an exhaustive review of the literature.

NOVEL PARADIGMS IN HUMAN MATE PREFERENCE RESEARCH

Beyond direct replications, Buss's (1989) study also spurred the development of new paradigms designed to probe the structure of human mate preferences. These approaches clarify not only what people value but also how preferences are represented and integrated into mate choice. Researchers have conceptualized preferences in several ways. Weighted-sum models treat preferences as importance weights applied to each trait, summed into an overall mate value (e.g., Buss, 1989). Threshold models emphasize minimum acceptable levels, such that a partner is rejected if they fail to meet basic standards, regardless of other qualities (e.g., Kenrick et al., 1990; Csajbók et al., 2022). Ideal standards models view preferences as mental templates of desired partners, with attraction determined by the closeness of a candidate to that ideal (Fletcher & Simpson, 2000). Recent evidence suggests that people integrate mate preferences in a compensatory fashion, whereby strengths in some qualities offset weaknesses in others (Brandner et al., 2020).

Although the core findings from Buss (1989) have been supported across many of these different paradigms (see Buss & Schmitt, 2019), a full review is beyond the scope of this chapter (see Conroy-Beam et al., 2022, for an overview of mate preference paradigms). One of the clearest illustrations of Buss's foundational findings, however, is the mate preference priority (luxuries vs. necessities) paradigm, and thus warrants special attention.

Mate preference priority model (luxuries vs. necessities): Building on the theoretical foundation of Buss (1989), Li and colleagues (2002) developed the mate preference priority model using a budget allocation paradigm. In this design, participants are given a low, medium, or high budget of 'mate dollars' with which to construct an ideal partner. Each mate dollar increases a trait by one percentile point, forcing individuals to make trade-offs under constraint. If allocated equally, a low budget produces a mate with uniformly low trait levels. In practice, however, men tend to prioritize physical attractiveness when resources are scarce, whereas women weight social status and resource-acquisition ability more heavily. As budgets increase, both sexes allocate more toward traits like kindness and intelligence. Replicated many times (e.g., Choy et al., 2023; Jonason et al., 2012, 2017; Li, 2007; Li et al., 2011; March et al., 2018; Thomas et al., 2020; Yong et al., 2022; Zhang et al., 2019), this paradigm provides strong evidence that sex-differentiated mate preferences emerge most clearly under trade-off conditions, while shared human preferences (e.g., for kindness and intelligence) become salient once necessities are secured.

Computational models: More recently, researchers have moved beyond verbal models to computational approaches that formalize how preferences are integrated under real-world mating-market constraints (see Conroy-Beam, 2022). For example, Conroy-Beam and Buss (2016) used agent-based simulations to show that stated preferences do in fact causally shape mate choices, reproducing patterns found in real-world couples, a question long debated within mating research (see Eastwick et al., 2014). These models represent an important step forward by specifying the algorithms of mate evaluation, helping to integrate stated preferences and actual mate choice outcomes.

RESPONSES FROM COMPETING THEORIES: THE DEVELOPMENT OF SOCIAL ROLE THEORY

At the time of Buss's (1989) publication, no social science theory was grounded in evolutionary biology, and none predicted sex differences in mating psychology (Buss & Schmitt, 2019). His cross-cultural study directly challenged prevailing frameworks. In response, social role theory emerged as an alternative explanatory framework. Its logic was first outlined in Buss and Barnes's (1986) 'structural powerlessness' hypothesis and later elaborated by Eagly and Wood (1999), though only after robust cross-cultural sex differences had already been documented.

Social role theory posits that sex differences in mate preferences arise primarily from sociocultural factors rather than evolved psychological mechanisms. According to this view, women's preference for resource acquisition traits in mates is driven by their historical exclusion from power and access to resources, which were largely controlled by men. To compensate for this structural powerlessness, women seek mates with high socioeconomic status to gain access to resources indirectly. Men, by contrast, do not prioritize financial prospects in a mate because they already control resources and because women possess fewer resources to begin with (Buss & Barnes, 1986).

Eagly and Wood (1999) elaborated on this framework by incorporating elements of evolutionary biology, arguing that sex differences in traits such as men's greater strength and women's capacity for childbearing give rise to gendered social structures. These structures, in turn, reinforce sex differences in mate preferences through divisions of labor and sociopolitical hierarchies. Crucially, social role theory yields a clear, testable prediction: as societies become more egalitarian (i.e., where men and women have equal access to resources and power), psychological sex differences in mate preferences should diminish or even disappear (Eagly & Mitchell, 2004).

Buss (1989) directly tested the social role explanation through multiple analyses. First, he examined the mate preferences of women with high personal income and professional success. If social role theory were correct, these women, having achieved resource independence, should exhibit weaker preferences for resource acquisition traits in mates. However, the opposite pattern emerged. Financially successful women placed an even greater emphasis on mates with high status, professional degrees, and intelligence compared to women with lower incomes. For instance, women's personal income positively correlated with the desire for a mate with higher income ($r = +0.31$), a college education ($r = +0.29$), and a professional degree ($r = +0.35$).⁴ These findings directly contradicted the predictions of the structural powerlessness hypothesis.

In another test, Buss (1989) examined cultural-level indicators of gender inequality to assess whether greater gender egalitarianism predicts smaller sex differences in mate preferences. Across 30 cultures, neither economic inequality nor educational inequality between the sexes correlated significantly with the magnitude of sex differences in preferences for mates with good earning capacity. These results further challenged the core predictions of social role theory.

Eagly and Wood (1999) subsequently conducted secondary analyses of Buss's data, using different measures of gender equality across a subset of cultures. Out of four analyses, only one yielded a statistically significant correlation between gender equality and reduced sex

differences in mate preferences for resources, while none of the tests supported the predicted cultural variation in sex differences for preferences for physical attractiveness. Across the eight critical tests of social role theory's predictions, only one was statistically significant, suggesting limited empirical support for the theory.

Subsequent research has continued to challenge the predictions of social role theory. Cross-cultural studies consistently find that women with greater access to economic resources still prefer mates with high resource acquisition potential. For example, a study of 1670 Spanish women found that those with higher socioeconomic status were more likely to seek men with similar or higher status in personal advertisements (Gil-Burmann et al., 2002). Similarly, research on Jordanians revealed that both men and women with high socioeconomic status placed greater emphasis on traits like ambition and industriousness in potential mates (Khallad, 2005). In Serbia, women with high status expressed stronger preferences for mates with socioeconomic resources, contrary to the predictions of the social role model (Todosijević et al., 2003).

Compelling evidence comes from examinations of what happens when the competing theories are put head-to-head in the same study. For instance, Walter et al. (2020) used a new 45-country sample ($N = 14,399$) to test competing theories of sex differences in human mate preferences against each other, finding strong evidence for evolutionary psychology, but not for biosocial role theory. The evidence for universal sex differences in mate preferences remained robust. Men, more than women, prefer attractive, young mates, and women, more than men, prefer older mates with financial prospects (Walter et al., 2020).

More broadly, large-scale cross-cultural studies have found evidence that contradicts structural powerlessness hypothesis or social role theory. That is, sex differences in mate preferences tend to be larger, not smaller, in more gender egalitarian societies (e.g., Schmitt, 2012). This 'gender equality paradox' highlights how biological and evolutionary factors underpin sex differences, even in contexts of high sociopolitical equality (Geary, 2021).

The Bakweri people of Cameroon offer another real-world test of social role theory. Among the Bakweri, women hold significant personal and economic power due to their labor on plantations and a substantial sex ratio imbalance favoring women (236 men per 100 women). Despite their economic independence, Bakweri women continue to prefer mates with resources and often divorce husbands who fail to provide sufficient support (Ardener et al., 1960). This case highlights that even in contexts where women possess substantial power and resources, preferences for resource acquisition traits persist, consistent with evolutionary predictions.

The development of social role theory as a response to Buss (1989) highlights the theoretical diversity and debate sparked by the study. Crucially, these critiques led to the articulation of explicit tests (i.e., particularly of the structural powerlessness and gender egalitarianism predictions) that have not been consistently supported. These unsupported predictions actually bolster, rather than undermine, evolutionary explanations of sex differences in mate preferences, as they illustrate their cross cultural consistency across diverse socioecological contexts.

HOW BUSS'S (1989) STUDY MIGHT BE CONDUCTED DIFFERENTLY TODAY

With the benefit of hindsight and the advent of modern research practices and methodologies, certain aspects of Buss's (1989) seminal study could have been refined to further enhance its impact. Modern practices such as pre-registration (Nosek et al., 2018) and adversarial collaboration (Clark & Tetlock, 2023), along with refinements to specific hypotheses like the virginity hypothesis, offer valuable opportunities for reflection.

Pre-registration: One way Buss (1989) could have benefited from modern advancements in research practices is through the adoption of formal pre-registration. Pre-registration of studies, now a gold standard in psychological science (Nosek et al., 2018), requires researchers to specify their hypotheses, methods, and analysis plans prior to data collection. This practice fosters transparency, reduces biases, and allows other researchers to replicate findings more effectively. Buss's approach already anticipated some of the logic underlying pre-registration. He informally asked scholars to predict the study's outcomes prior to conducting the research. Notably, many predicted no universality and no significant sex differences in mate preferences (see the author's personal reflection at the conclusion of this chapter). Formal pre-registration of these divergent predictions would have further emphasized the groundbreaking nature of Buss's findings and highlighted how the results contradicted the prior assumptions of many other scholars.

Adversarial collaboration: Clark and Tetlock (2023) contend that *adversarial collaboration*, a methodological procedure in which disagreeing scholars work together to resolve their empirical disputes, will minimize false positives, expedite scientific corrections, stimulate progress for stalemated scientific debates, and ultimately improve the quality of social scientific outputs. The debate about the causal origins of sex differences in human mate preferences between evolutionary psychology and social role theorists perhaps could have been more readily resolved if theorists from both camps were open to an adversarial collaboration. Although not exactly an adversarial collaboration, Walter et al. (2020) tested competing theories of sex differences in human mate preferences against each other, finding strong evidence for evolutionary psychology, but not for biosocial role theory. The evidence for universal sex differences in mate preferences remained robust. Men, more than women, prefer attractive, young mates, and women, more than men, prefer older mates with financial prospects (Walter et al., 2020).

Reformulating the virginity/chastity hypothesis: In retrospect, one area where Buss (1989) might have benefited from theoretical refinement is in the formulation of the virginity/chastity hypothesis. Buss's (1989) original formulation of the virginity/chastity hypothesis proposed that men, faced with the problem of paternity uncertainty, evolved a mate preference for virginity, or no prior sexual experience, in long-term mates. The logic was that while women have always been 100 percent certain of their maternity, ancestral men could never achieve this level of certainty. Given the severe reproductive costs men would have faced if they unwittingly invested heavily in offspring that were not biologically their own, adaptations to increase the probability of paternity certainty would have been critical for men's reproductive success.

The virginity/chastity hypothesis, in hindsight, had conceptual limitations. One issue is that for a mate preference to evolve, it must center on observable or assessable qualities (Buss &

Schmitt, 2019). Unlike traits such as age, reliably assessed through visual and behavioral cues like smooth skin, lack of wrinkles, or a sprightly gait, or physical attractiveness, which signals health and fertility (Symons, 1995), virginity is not directly observable. Ancestral men could not reliably assess virginity through direct observation. Even physical tests like palpating the hymen are inherently unreliable because the hymen varies significantly among women and can rupture due to non-sexual causes such as horseback riding, for example (O'Connor, 2008).

More relevant to solving the problem of paternity uncertainty may not have been virginity itself but rather whether a woman was pregnant by another man at the time of commitment and whether she would remain sexually faithful after commitment or marriage. These qualities of sexual fidelity and current reproductive status could be indirectly observed or inferred through behavioral cues and social reputation within the small-group living environments of our ancestors. Men could evaluate a woman's past sexual conduct through her reputation, as past behavior often predicts future behavior. For instance, having a large number of premarital sexual partners is statistically linked to greater likelihood of infidelity after marriage (Buss, 2017).

Perhaps due to these conceptual issues, empirical support for the virginity hypothesis has been weak and inconsistent (e.g., Thomas et al., 2020, 2025). Buss's own findings revealed significant cultural variability in the absolute value placed on virginity. Although 62 percent of cultures surveyed showed sex differences in valuing virginity, 38 percent did not, but notably with zero reversals in which women valued virginity more than men. Moreover, the magnitude of value placed on virginity varied widely across cultures. These results indicate that the virginity/chastity hypothesis, as originally framed, does not hold universally, illustrating the conceptual limitations in its framing.

There is, however, much stronger support for men's preference for *sexual fidelity* in long-term mates. Buss and Schmitt (1993) found that men consistently ranked sexual fidelity as one of the most desirable qualities in a spouse. On a scale of -3 (extremely undesirable) to +3 (extremely desirable), men rated 'faithful' +2.88 and 'sexually loyal' +2.85—the two most highly valued qualities among 67 evaluated. Conversely, 'unfaithful' (-2.93) and 'sleeps around a lot' (-2.79) were the least desirable qualities. These findings reflect men's sensitivities to cues of past and future sexual fidelity, which would have been observable in ancestral environments through behavioral patterns and social reputation (see Stewart-Williams et al., 2017; Thomas et al., 2025). Although the virginity hypothesis, as initially framed, has not been well-supported, these findings on sexual fidelity demonstrate how evolutionary psychology can refine hypotheses in light of both conceptual clarity and empirical data (see Costello et al., 2026).

By revisiting Buss's (1989) study with the perspective afforded by modern research standards, we can appreciate how some of the approaches were far ahead of their time, while acknowledging areas where conceptual refinements could have been applied. Whether through the implementation of formal pre-registration or the iterative improvement of hypotheses such as the virginity/chastity hypothesis, this retrospective analysis illustrates the progressive nature of science. Nonetheless, Buss's seminal work remains a cornerstone of evolutionary psychology, providing a robust foundation for ongoing inquiry in the domain of human mate preferences.

CONCLUSION

Buss's (1989) landmark study on sex differences in mate preferences endures as a defining contribution to evolutionary psychology and an exemplar of replicability in the psychological sciences. By systematically testing evolutionary predictions from parental investment theory across 37 cultures, it uncovered profound insights into human mating psychology, provided robust evidence for sex-differentiated mate preferences, and reshaped how researchers conceptualize mating behavior.

Men's preference for youth and physical attractiveness and women's prioritization of resources and ambition were remarkably consistent across cultures, supporting evolutionary predictions and challenging purely cultural explanations. At the same time, the study highlighted shared mate preferences, such as intelligence, kindness, and love, that speak to the cooperative foundations of long-term pair bonding.

The study's influence extends well beyond its empirical findings. It catalyzed a paradigm shift in the social sciences, helping to mainstream evolutionary psychology as a framework for understanding human behavior. This shift inspired decades of subsequent research on topics such as tactics of mate attraction, rival derogation, jealousy, and sexual deception, while also stimulating debate and alternative explanations, like social role theory. Although the empirical evidence has largely undermined social role theory in this domain, its emergence illustrates the productive tension that drives scientific progress.

With hindsight, certain aspects of the study could have been refined. Formal pre-registration might have amplified the failed predictions of skeptics, and the virginity/chastity hypothesis was conceptually underspecified. Yet these limitations highlight the iterative nature of science, and the study's core insights have withstood decades of scrutiny. Advances in cross-cultural methods, online dating data, and innovative mate preference paradigms continue to extend and enrich its findings.

More broadly, Buss's (1989) study illustrates how evolutionary perspectives advance psychology by addressing the ultimate 'why' behind human behavior. Grounded in evolutionary logic, this approach generates predictions that are both testable and explanatory, linking individual behaviors to ancestral adaptive challenges and setting a standard for theoretical integration in the behavioral sciences.

In sum, Buss's (1989) study represents a pivotal moment in psychology, demonstrating the utility of evolutionary theory in guiding researchers toward producing replicable and universally relevant findings. Its insights have profoundly shaped the field, inspired new generations of scholars, and continue to guide research today. This chapter has reviewed its lasting scientific legacy and now turns to Buss's own personal reflections on how the project began, the doubts it encountered, and the practical hurdles of coordinating a global study without the benefit of modern technology.

PERSONAL REFLECTIONS ON THE 37-CULTURE MATE PREFERENCES STUDY

David M. Buss

When I was in graduate school, one of my four mentors was Dr Jeanne Block. She has a theory of the few sex differences that had been documented at the time—mainly sex differences in aggression and rough-and-tumble play, with boys tending to be higher than girls on both. Her theory was based solely on socialization (Block, 1973). Parents dress girls in pink and boys in blue, she argued. They give girls Barbie dolls and give boys toy trucks. So whatever behavioral or psychological sex differences emerge were due, according to her theory, to differential treatment by parents and teachers during development. A documentary on her theory was produced called *The Pinks and the Blues*, and Dr Block received many accolades for her theory.

I was skeptical. These early emerging sex differences appeared to occur in many diverse cultures, at least from the cross-cultural data then available (e.g., Whiting et al., 1988). Moreover, the unidirectional causality from parents to children seemed to ignore the possibility that children themselves influenced their parents, for example by gravitating toward or showing a preference for playing with sex-linked toys, so causality must at least be bidirectional (e.g., Buss, 1981).

While in graduate school, I came across Darwin's theory of sexual selection (Darwin, 1871), and thought this could provide a powerful theoretical framework for explaining many psychological sex differences—something I eventually articulated post-PhD in *American Psychologist* (Buss, 1995b), the same journal in which Dr Block had published her blank-slate parental socialization theory of sex differences (Block, 1973).

I completed my PhD in Personality Psychology at the University of California at Berkeley in 1981. There existed no evolutionary psychology then, and almost no one used an evolutionary perspective to study human psychology. At Berkeley, literally none of the 40 or so psychology professors used an evolutionary perspective in their theorizing or in their empirical work. This is puzzling to some of my current students who ask me questions like, 'When was I drawn into the field of evolutionary psychology?' Simply put, there was no field of evolutionary psychology back then (see Kennair, 2016, for a brief history of the founding of evolutionary psychology).

When I started my first professorship at Harvard University, I decided to test empirically some of the predictions based on the theory of parental investment and sexual selection (Trivers, 1972), as well as speculations by the great evolutionary biologist George C. Williams (1975), who first articulated the concept of reproductive value, and the superb book on the evolution of human sexuality by Don Symons (Symons, 1979). I had no idea what to expect, since at that time, evolutionary hypotheses about humans remained in the realm of speculation, sometimes derogatorily branded as 'just-so stories' (Gould & Lewontin, 1979). No one was actually testing them empirically. This was a 'side project' for me, since I had a successful program of research in personality psychology developing the act frequency approach (e.g., Buss & Craik, 1983). I did not need another program of research, but I was drawn inexorably to evolutionary theory to find a non-arbitrary scientific foundation for a theory of human nature.

My first study using an evolutionary framework was focused on testing for sex differences in a relatively small sample of a couple of hundred people living in Cambridge, Massachusetts. To my delight and surprise, the predicted sex differences in mate preferences emerged, with men more than women placing a higher premium on cues to fertility and women, more than men, valuing resources and cues to future resource acquisition in a potential spouse. The theory of sexual selection, it seemed to me, provided a powerful scientifically grounded framework for predicting sex differences (Buss, 1995b). Men and women face different adaptive challenges in mate competition and mate selection, so why would sexual selection not have fashioned sex-differentiated solutions to those challenges?

The problem, however, was that tests of evolutionary hypotheses in a small sample of Cambridge people is hardly compelling evidence. We now call such samples WEIRD (Henrich et al., 2010) since they are so unrepresentative. So in 1984 I decided to launch the *International Mate Selection Project*. As I was launching it, I decided to show a dozen or so professor colleagues my Cambridge study results and asked them to make predictions. Are these sex differences limited to Cambridge, or to America, or to Western cultures, or perhaps to capitalist cultures? All but one professor predicted that they would not be found universally across cultures.

My regret is that I did not ask these professors to sign their predictions. The hindsight bias is now well known in psychology (Fischhoff, 1975, 2025), but I was naïve about it. And it occurred in some cases in subsequent reactions to the publication of the 37-culture study: ‘I would have predicted that.’ But only one of the dozen or so professors I asked actually did predict universal sex differences—Don Symons.

My study was laboriously conducted over a five-year period. This was the pre-internet era. Almost no one in psychology did cross-cultural research, much less on a grand scale. Nearly all of psychology was studied using undergraduates at American universities. The study was unprecedented, but it was not easy.

I had an adventitious stroke of good luck, however. I got invited to give a talk to the psychology department at Yale. I thought, ‘What the hell—why not test the waters and give a talk on human mate selection,’ given the very limited data I had. As it turned out, the Yale audience was mostly receptive, and the editor of the prestigious journal *American Scientist* happened to be there for my talk. When I returned to Harvard, I received a letter from him inviting me to write an article. I accepted, and published my first article on mating, *sans* cross-cultural data but outlining some predictions based on sexual selection theory, entitled ‘Human mate selection’ (Buss, 1985).

Cascading on this good fortune was the fact that the *American Scientist* has a huge international distribution. I started to receive reprint requests from scientists around the world. Every time I received a request from a country that was not yet in my study, I invited them to collaborate with me on the International Mate Selection Project. I suspect that it helped that my invitations came on Harvard stationery. Many probably thought it would be prestigious to collaborate with a Harvard professor, although most likely did not know that I was an unknown lowly assistant professor, barely out of my PhD.

All but one accepted my invitation, a success rate that astonished me. I ended up with 50 different collaborators from 37 different cultures. These include personal contacts I had, such as my good friend from Norway, Per Gjerde; my friend from Ireland, Geraldine Moane; my

friend from Germany, Alois Angleitner; my German squash partner at Harvard, who was a professional translator; and many others.

Doing cross-cultural work was an eye-opener about cultural differences. My collaborator who studied the Zulu tribe of South Africa described going into the shanty-towns as ‘a frightening experience,’ given the amount of violence occurring in the apartheid era of South Africa at the time. My Chinese collaborator managed to collect data from four different cities within mainland China, but had to smuggle the data to me in coded sheets of paper placed inside an envelope. My collaborator from what was then an Eastern Bloc, Iron Curtain, and communist country collected half of the data before being shut down by an authoritarian government (I never received data from that country), for which my collaborator apologized profusely, but of course I understood the restrictions she was under. One of my collaborators from a polygynous culture in Africa asked me to clarify whether I wanted men to describe their mate preferences for a first wife, or a second wife, or a third wife? The question may seem strange to contemporary readers, but given our ancestral history of preferential polygyny (Betzig, 1982), it was in fact a highly relevant one.

Although massive cross-cultural studies are easier today, given the internet, all of this was done with ‘snail mail.’ I received boxes upon boxes of raw data that required processing, coding, and formatting for analysis by computer. This laborious task was handled by a wonderful student of mine at Michigan, Armen Asherian, who, together with a friend, accomplished this arduous task over many months.

The first publication from the project, in *Behavioral and Brain Sciences*, focused on testing the key hypotheses made in advance of the study (Buss, 1989). The journal invited commentaries, and 29 scholars from many different disciplines wrote commentaries—psychologists, anthropologists, economists, geneticists, etc. Some were laudatory, some less so. Leda Cosmides and John Tooby, for example, praised the paper and suggested a novel hypothesis to explain the cultural variation in the importance placed on virginity, which turned out to be the most culturally variable mate preference in the entire study.

A critical commentary suggested that patriarchal exclusion of women from high-earning jobs and gender role socialization might explain the greater priority they placed on ‘good financial prospects’ in a long-term mate—a hypothesis I first articulated many years earlier, which I called the ‘structural powerlessness hypothesis’ (Buss & Barnes, 1986). In my author’s response, I provided evidence bearing on this testable alternative (Buss, 1989, author’s response). Using a sample of American women who varied substantially in their personal income, I found that these professionally successful women tended to value financial prospects and related attributes *more, not less*, than more economically disadvantaged women.

Using the cross-cultural data and measure of gender inequality, I found that there was essentially no correlation between gender equality-inequality of the culture and the priority women place on a prospective mate’s financial prospects. In short, I found no support for the social role explanation of this universal sex difference. Subsequent research by independent investigators have mostly reached the same conclusion (e.g., Walter et al., 2020; see Buss & Schmitt, 2019, for a review), although some still cling to the sex role socialization hypothesis.

I think that the 37-culture study did more than just show that evolutionary psychological hypotheses were testable and falsifiable, capable of refutation to use Popper’s terminology (see Costello et al., 2026, for more on evolutionary psychology’s falsifiability). It helped to put into question the ‘blank-slate’ default model of mind so prevalent in the social sciences.

Importantly, it led to an astonishingly rich cascade of other studies that followed from the framework of sexual selection theory.

Because the two component processes of sexual selection are conceptually linked, the preferences of one sex should set the ground rules for competition in the other sex (Buss, 1988a). This led, in turn, to the first raft of studies documenting *tactics of mate attraction* (Buss, 1988a; Schmitt & Buss, 1996), the first studies of *derogation of competitors* (Buss & Dedden, 1990; Schmitt & Buss, 1996), the first studies of human *mate retention tactics* (Buss, 1988; Buss & Shackelford, 1997), the first studies of *mate poaching* (Schmitt & Buss, 2001), as well as the first studies that robustly documented sex differences in the psychological design of *sexual jealousy* (Buss et al., 1992; Buss, 2018). All this conceptual and empirical work led to *Sexual Strategies Theory* (Buss & Schmitt, 1993, 2019), the first wide-ranging theory of human mating strategies from an evolutionary perspective.

Looking back to the 37-culture study from a modern perspective, it is quite gratifying that the meta-theoretical framework of evolutionary psychology has emerged as a prominent paradigm within psychological science (Costello & Thomas, 2024). And the field of human mating, once relatively ignored and seen as of peripheral interest within the field, has mushroomed into the perhaps most robust ‘success story’ within evolutionary psychology (Buss & Schmitt, 2019). It has attracted many hundreds of scientists internationally and thousands of research papers, with new discoveries about human mating uncovered every year. These add to the already massive body of scientific findings and render a more sophisticated and nuanced understanding of this important domain of human psychology.

NOTES

1. Cohen’s d is a standard measure of effect size, indicating the magnitude of a difference between two groups. Cohen (1988) suggested that 0.20 is ‘small,’ 0.50 ‘medium,’ and 0.80 ‘large.’ In fact, most effects in psychology are much smaller, with the average effect size in individual differences research around $d = 0.24$ (Gignac & Szodorai, 2016). By comparison, values approaching or exceeding $d = 0.80$, such as those reported here, are unusually large—on par with some of the most robust effects in psychology.
2. A z -score here reflects how strong the relationship is between two variables, with higher values indicating stronger evidence. In psychology, a z of about 2 is typically considered statistically significant. Thus, a $z = 3.05$ ($p < 0.01$) means there was a very robust link between women’s ratings of provider qualities and their judgments of long-term partner desirability. By contrast, the male result ($z = 0.92$, $p = 0.36$) shows no reliable connection.
3. The Greek letter β (beta) here refers to a standardized regression coefficient, a statistic that shows the strength of a relationship between two variables while putting them on the same scale. Larger values mean a stronger association. For example, a β around 0.10 is considered small, while values above 0.30 are relatively strong in psychology. Thus, the links between men’s status and mating success in small-scale societies ($\beta = 0.22$ – 0.36) are meaningfully stronger than those typically observed in modern industrialized nations ($\beta = 0.10$ – 0.17).
4. The letter r refers to a correlation coefficient, which measures the strength of the relationship between two variables. Correlations range from -1.00 to $+1.00$. A value of 0 means no relationship, values around ± 0.10 are considered small, ± 0.30 medium, and ± 0.50

large in psychology. Thus, correlations around +0.30 indicate a moderate and meaningful positive link between women's own income and their desire for mates with higher status.

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