Differences in Parental Investment Contribute to Important Differences Between Men and Women

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Abstract

Parental investment theory addresses sex differences that result from the trade-off between parenting effort and mating effort. For example, relative to men, women spend more time caring for offspring, are more selective in assenting to sexual intercourse, are more upset by a partner's emotional infidelity than by a partner's sexual infidelity, and are better able to inhibit their behaviors in certain situations. These and other sex differences are attributable to evolved mechanisms that work in interaction with the physical and social environments.

Keywords

parental investment theory; evolutionary psychology; sexual strategies

Sex differences in behaviors traditionally have been attributed to "social" factors, because of the presumed flexibility of human behavior. Proposals that evolved mechanisms explain why men and women behave as they do have been regarded warily because of the belief that "biological" causation (including evolutionary causes) implies biological determinism. Modern evolutionary psychological theory, however, makes no such claims, but argues that contrasting "social" with "evolutionary" explanations is a false dichotomy (see Tooby & Cosmides, 1992). From this perspective, human nature includes evolved psychological mechanisms that require input such as social norms and cultural beliefs for their operation, and different behavioral outcomes will result from these evolved mechanisms in different environments. In this article, we apply a theory motivated by such evolutionary psychological logic, parental investment theory (Trivers, 1972), to interpret some well-documented sex differences.

According to an evolutionary psychological perspective (see Buss, 1994), ancestral men and women faced different adaptive problems that threatened their survival and reproduction. As a result, they evolved different psychological mechanisms, and evidence of this ancient heritage is apparent in modern humans (for a review, see Buss, 1994). Parental investment theory accounts for many of these differences. According to this theory, there is a conflict for both males and females in how much time, effort, and resources to invest in mating versus parenting. For many species, including humans, males need to invest substantially less in parenting than females to achieve successful reproduction. In mammals, fertilization and gestation occur within the female, and, after birth, mothers provide the primary nutritional support for their offspring until they are weaned. Male investment in offspring may be as little as the sperm produced during copulation. In humans, paternal investment is not essential for a man's offspring to reach adulthood, and although the amount of time men spend in child care varies across cultures, fathers spend less time interacting with and caring for their children than do mothers in all cultures that have been studied (see Geary, 1998).

Yet human males spend more time caring for their offspring than is typical for male mammals. One factor contributing to this unusually high level of paternal investment is humans' extended childhood. Humans spend more time as juveniles than other primates, needing many years to develop the brain and the knowledge necessary to navigate the complexities of society. This prolonged immaturity requires a supportive environment to which both mothers and fathers ideally contribute. Evidence from many cultures and historical records indicates that the death rate of offspring increases as a function of father's absence, particularly in harsh environments (see Geary, 1998). Thus, whereas mothers opt to invest substantially in their children's care after birth in order to ensure their offsprings' survival, the case is not as clear-cut for fathers, particularly when one considers the number of additional offspring men can have by investing more effort in mating. Women also may choose to invest less in the care of a child and more in mating, but the caloric costs and duration of pregnancy and nursing (in traditional societies today, and surely in our evolutionary past, nursing extends to the age of 3 or 4 years) reduce the number of children a woman can expect to have in her lifetime.

There is evidence that paternal investment influences socialization practices and the amount of parental investment subsequent generations devote to their offspring (Belsky, Steinberg, & Draper, 1991). In environments where fathers are absent or where there is marital discord, the resulting stress produces harsh and inconsistent child care and insecure attachment.

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Under such situations, children reach puberty early, form short-term and unstable relationships, and invest relatively little in their own offspring. In stressful and uncertain environments, there is a tendency to invest more in mating (for both sexes) than in parenting. The pattern is reversed for children growing up in harmonious homes and homes where the father is present; such children mature later, postpone sexual activity, and display greater investment in the fewer children they produce. In sum, the availability of resources, which is related to paternal investment and spousal harmony, leads to different patterns of socialization, resulting in differential parental investment in the next generation.

The differential investment of males and females in their offspring has resulted in the evolution of different ways of behaving and thinking in men and women. Although these differences are generated by evolved psychological mechanisms, they are more variable than is typical in mammals. Here, we discuss two areas in which men and women behave and think differently, as predicted by parental investment theory: sexual strategies and inhibitory abilities.

SEXUAL STRATEGIES

One class of sex differences that can be understood in terms of parental investment theory is sexual strategies (Buss, 1994). Males in most mammals can achieve tremendous reproductive success by inseminating many females, making males relatively indiscriminate when it comes to choosing a sex partner. Females, in contrast, have much more invested, at least potentially, in a single copulation. The possibility of pregnancy, and the time and energy spent caring for the resulting offspring, favored ancestral females who were selective in mating. Because of the long period of immaturity in humans, ancient women's reproductive interests were often best served by selecting a mate who not only would provide good genes (e.g., as signaled by facial symmetry; Shackelford & Larsen, 1997), but who also would invest in her and her offspring. Over evolutionary time, it was also in men's reproductive interests to see to it that their offspring received the support necessary to survive to reproductive age. But the amount and duration of investment necessary to ensure the survival of offspring was less for men than for women. Thus, although both men and women shared a common reproductive goal (getting their offspring to adulthood), the optimal level of investment to achieve this goal was unequal for the sexes, placing males' and females' reproductive interests in conflict.

Men are not indiscriminate when it comes to selecting a mate, especially when selecting a long-term partner. Men around the world want long-term partners who are attractive, intelligent, and kind. Women also desire attractive, intelligent, and kind men as husbands, but, as predicted by parental investment theory, they rate financial resources as more important in a mate than do men (Buss, 1989). Despite the selectivity that men and women universally display in choosing a long-term partner, and consistent with parental investment theory, women are more selective in granting sex, and men are more eager to have casual sex (see Buss, 1994).

Men and women have evolved different psychological mechanisms as solutions to the adaptive problems unique to their sex. For example, fertilization occurs within the female, and it is the female who gestates and gives birth to the offspring. This greater prenatal investment of the female comes at considerable cost but brings with it certainty of maternity. In contrast, males, who may invest only sperm and the energy necessary to copulate, cannot be certain of paternity. Furthermore, because women conceal ovulation and are potentially sexually receptive throughout their menstrual cycle, it is difficult for a man to know when copulation is likely to result in pregnancy. As a result, being the unwitting social father to another man's genetic offspring is a possibility for men. This in fact occurs in between 2% and 30% of all births; the rate is similar in traditional societies, and there is no reason to believe that it differed substantially for our ancestors (see Baker & Bellis, 1995). Women, of course, cannot so easily be fooled into rearing another woman's child who they believe is their own, although they do risk losing a mate's investment to another woman.

One consequence of this sex difference in the certainty of genetic parenthood can be seen in men's and women's reactions to a long-term partner's infidelity. When asked to imagine that their long-term partner is either (a) having casual sex with another person or (b) developing a close emotional relationship with another person, men and women respond differently. Verbal reports and measures of physiological arousal indicate that women are more upset by a partner's emotional infidelity, which could signal a loss of resources, whereas men are more upset by a partner's sexual infidelity (Buss, Larsen, Westen, & Semmelroth, 1992).

In conclusion, human sex differences in parental investment predict sex differences in sexual strategies. These sex differences include the greater inclination of men to pursue short-term casual sex; the greater selectivity of women in choosing a mate, especially in the context of short-term mating; and the greater

distress of men in response to a long-term partner's sexual infidelity and of women in response to a partner's emotional infidelity.

INHIBITORY ABILITIES

Inhibition refers to the withholding of a response in situations in which that response otherwise would be made. The ability to inhibit inappropriate sexual and aggressive responses is important for the success of both men and women in modern (and presumably ancestral) society and may have played a role in the evolution of human intelligence, particularly social intelligence (Bjorklund & Harnishfeger, 1995). However, ancestral women may have needed greater inhibitory abilities than ancestral men in certain contexts, because of their different reproductive strategies (Bjorklund & Kipp, 1996). For example, because of ancestral women's greater investment in the potential consequences of an act of copulation, it might have been in their reproductive interests to have greater control of their sexual arousal and related behaviors in order to more closely evaluate the value of a man before assenting to sex. Ancestral women also may have needed substantial political skill in order to keep sexual interests in other men hidden from a mate. Male response to suspected female infidelity can be violent, and even when adultery does not lead to aggression, it often leads to divorce, which both historically and in contemporary societies is more detrimental to a woman and her offspring than to a man (see Buss, 1994).

Similarly, the bulk of child-care responsibilities falls to women, and these also may require enhanced inhibitory abilities. For example, parents often must put the needs of their infants ahead of their own, delaying gratification of their own desires and resisting distractions that would take them away from their infants. They also must inhibit aggression toward infants or young children who may cry continuously, disobey, and damage personal property.

In support of these hypotheses, research has shown that women are better able to control the expression of their emotions than are men, despite the fact that women are more emotionally expressive than men. In studies in which people are asked to display a positive emotion after a negative experience (e.g., pretending that a foul-tasting drink tastes good) or vice versa, females (from the age of 4 years and up) are better able to control their emotional expressions (i.e., fool a judge watching their reactions) than are males (e.g., Cole, 1986). In other research, there is evidence that females are better than males on tasks that involve resisting temptation and delaying gratification (e.g., Kochanska, Murray, Jacques, Koenig, & Vandegeest, 1996), precisely the pattern one would predict if selection pressures associated with child care were greater on ancestral females than on ancestral males. And there is limited evidence that women are better able to inhibit sexual arousal than are men (Cerny, 1978; Rosen, 1973). In contrast, there is no female advantage in inhibitory abilities for cognitive tasks such as selective attention, suggesting that the sex differences are relatively domain-specific, restricted to abilities related to sexual and parenting contexts, as predicted by parental investment theory.

CONCLUSIONS

Different psychological mechanisms in men and women, attributable to sex differences in minimum parental investment over evolutionary history, provide the skeletal features for adapted behaviors. They represent biases that, in the distant past, served men's and women's reproductive fitness well. However, humans exert greater intentional control over sexual behavior than any other animal, and the evolved sexual and child-care strategies of men and women are not invariantly manifested, but instead are responsive to physical and social environments over the course of development. From this perspective, nature and nurture are not alternative explanations, but instead are two sides of the same explanatory coin.

Recommended Reading

Bjorklund, D.F., & Kipp, K. (1996). (See References)
Buss, D.M. (1994). (See References)
Buss, D.M. (1999). *Evolutionary psychology: The new science of the mind.* Needham Heights, MA: Allyn & Bacon.
Geary, D.C. (1998). (See References)
Trivers, R. (1972). (See References)

Acknowledgments—We would like to thank David Buss, David Geary, Erika Hoff-Ginsberg, Martha Hubertz, Gregg LeBlanc, Santo Tarantino, Robin Vallacher, and Viviana Weekes, who provided helpful comments and suggestions that improved this article.

Note

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References

Baker, R.R., & Bellis, M.A. (1995). *Human sperm competition.* London: Chapman & Hall.
Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood experience, interpersonal development, and reproductive strategy: An evolu-

tionary theory of socialization. *Child Development, 62,* 647–670.
Bjorklund, D.F., & Harnishfeger, K.K. (1995). The role of inhibition mechanisms in the evolution of human cognition. In F.N. Dempster & C.J. Brainerd (Eds.), *New perspectives on interference and inhibition in cognition* (pp. 141–173). New York: Academic Press.
Bjorklund, D.F., & Kipp, K. (1996). Parental investment theory and gender differences in the evolution of inhibition mechanisms. *Psychological Bulletin, 120,* 163–188.
Buss, D.M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences, 12,* 1–49.
Buss, D.M. (1994). *The evolution of desire.* New York: Basic Books.
Buss, D.M., Larsen, R.J., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. *Psychological Science, 3,* 251–255.
Cerny, J.A. (1978). Biofeedback and the voluntary control of sexual arousal in women. *Behavior Therapy, 9,* 847–855.
Cole, P.M. (1986). Children's spontaneous control of facial expression. *Child Development, 57,* 1309–1321.
Geary, D.C. (1998). *Male, female: The evolution of human sex differences.* Washington, DC: American Psychological Association.
Kochanska, G., Murray, K., Jacques, J.Y., Koenig, A.L., & Vandegeest, K.A. (1996). Inhibitory control in young children and its role in emerging internalization. *Child Development, 67,* 490–507.
Rosen, R.C. (1973). Suppression of penile tumescence by instrumental conditioning. *Psychometric Medicine, 35,* 509–514.
Shackelford, T.K., & Larsen, R.J. (1997). Facial asymmetry as an indicator of psychological, emotional, and physiological distress. *Journal of Personality and Social Psychology, 72,* 456–466.
Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind* (pp. 19–136). New York: Oxford University Press.
Trivers, R. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). New York: Aldine de Gruyter.

The Clustering and Contagion of Suicide

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Abstract

Two general types of suicide cluster have been discussed in the literature; roughly, these can be classified as mass clusters and point clusters. Mass clusters are media related, and the evidence for them is equivocal; point clusters are local phenomena, and these do appear to occur. Contagion has not been conceptually well developed nor empirically well supported as an explanation for suicide clusters. An alternative explanation for why suicides sometimes cluster is articulated: People who are vulnerable to suicide may cluster well before the occurrence of any overt suicidal stimulus, and when they experience severe negative events, including but not limited to the suicidal behavior of one member of the cluster, all members of the cluster are at increased risk for suicidality (a risk that may be offset by good social support).

Keywords

suicide clusters; suicide contagion

The phenomena of attempted and completed suicide are troubling and mysterious enough in themselves; the possibility that suicide is socially contagious, even more so. This article considers whether suicide clusters exist, and if so, whether "contagion" processes can account for them.

There is a potentially important distinction between the terms suicide cluster and suicide contagion. A cluster refers to the factual occurrence of two or more completed or attempted suicides that are nonrandomly "bunched" in space or time (e.g., a series of suicide attempts in the same high school or a series of completed suicides in response to the suicide of a celebrity). The term cluster implies nothing about *why* the cluster came to be, only *that* it came to be. By contrast, contagion refers to a possible explanation (as I argue later, a fairly vague explanation) of *why* a cluster developed. Clusters (of a sort) appear to occur, but the status of contagion as the reason for such occurrences is more equivocal.

CLUSTERS—OF A SORT—APPEAR TO OCCUR

Given that attempted and completed suicides are relatively rare, and given that they tend to be more or less evenly distributed in space and time (e.g., suicides occur at roughly the same rate in various regions of the United States and occur at roughly the same rate regardless of the day of the week or the month), it is statistically unlikely that suicides would cluster by chance alone. Yet cluster they do, at least under some circumstances. (Such clustering is often termed the "Werther effect," after a fictional character of Goethe's whose suicide purportedly inspired actual suicides in 18th-century Europe.) Two general types of suicide cluster have been discussed in the literature: mass clusters and point clusters. Mass clusters are media related; point clusters, local.