

the nature of the underlying mechanisms involved in strategy selection. The concept of conditional adaptation could benefit from greater attention to the underlying mechanisms that evaluate characteristics of the environment and shift a person's desires and preferences as a function of those characteristics. G&S do not fully articulate how contextual factors produce these shifts in mating strategies. One might argue that until intervening processes are proposed and described in deeper detail, the term "conditional strategy" is reduced to a description of behavior, rather than an explanatory concept. We hasten to add that most discussions of evolutionary bases of human behavior – including our own (Berry 2000; Kuczaj 1998) – have been vague about underlying mechanisms. The field of evolutionary psychology could benefit greatly from more attention to this issue.

How might a man's attractiveness as a mate become linked with his preferred mating strategy? If attractive men can increase reproductive success via short-term strategies, and less attractive men attain the greatest reproductive success via long-term strategies, one possibility is that selection yielded two types of men: Attractive men who prefer short-term approaches, and unattractive men who prefer long-term strategies. (This is analogous to Gangestad & Simpson's [1990] proposed explanation of individual differences in female sociosexuality.) If we assume that attractiveness, fitness, and strategies are inherited in such a way that attractive men possess one strategy and unattractive men another (and this is, of course, a big assumption), then evolution has produced individual differences in men's mating preferences that are linked to their attractiveness. However, note that this really is not an example of a conditional adaptation – a single adaptation that produces different preferences as a function of other variables. Instead, this explanation posits the evolution of different adaptations in different individuals. The mechanism of strategy choice in such a case is genetic, with one's attractiveness being paired with a strategy that optimizes mating success for one's appearance. Strategy choice, then, is neither conscious nor a function of the environment, but instead genetically determined.

There are, of course, alternative possibilities. Perhaps all men desire many low-investment sexual partners. However, attractive men typically attract such partners, whereas unattractive men rarely do. Thus, attractive men are likely to succeed via this strategy, but unattractive men are not. If unattractive men can successfully secure one sexual partner by adopting a long-term strategy, and they adopt such an approach, they will have at least one partner. In contrast, if unattractive males adopt a short-term approach, they are more likely to have no partners (unless, perhaps, there are no attractive males available). Thus, in this scenario, unattractive men adopt a long-term strategy not because they prefer one partner to many, but because one is better than none. This explanation predicts a pattern of behavior identical to what has been documented empirically. However, it does not describe a conditional adaptation as described by G&S, who posit actual differences in preferences as a function of a man's attractiveness. Instead, this is an example of a single sex-typical evolved preference – a desire for many partners – the realization of which is constrained by women's reactions to a man's attractiveness, and is more consistent with the notion of conditional strategies in game theory.

As this brief description illustrates, it is difficult to specify the underlying processes that are involved in strategy selection. However, continued efforts to do so are imperative if we are to move from describing behaviors to explaining them.

## A comprehensive theory of human mating must explain between-sex and within-sex differences in mating strategies

April L. Bleske and David M. Buss

Department of Psychology, University of Texas, Austin, TX 78712;  
bleske@mail.utexas.edu

**Abstract:** Gangestad & Simpson make a major contribution by highlighting the importance of mate choice for good genes, the costs of alternative strategies, and tradeoffs inherent in human mating. By downplaying sex differences and ignoring the nongenetic adaptive benefits of short term mating, however, they undermine their goal of "strategic pluralism" by presenting a theory devoid of many documented complexities of human mating.

We concur with Gangestad & Simpson's (G&S's) central claims that good genes are important in human mate selection and that there are tradeoffs in human mating – ideas present in prior theories of human mating, although not as explicitly as they deserve to be. Their work on fluctuating asymmetry is innovative and makes a substantial contribution to knowledge.

Despite our admiration for their work, we found several problems with their current formulation – their distorted presentation of Sexual Strategies Theory (SST), their treatment of sex differences in human mating strategies, and their neglect of potential nongenetic adaptive benefits of short-term mating.

**Sexual strategies theory.** In setting up the foundation and background for their own formulation, G&S appear to downplay the widely documented sex differences in human mating. They do this in part by presenting a distorted and selective depiction of SST (Buss 1994b; 2000; Buss & Schmitt 1993), using a double standard when comparing sex differences to within-sex effects, and failing to acknowledge explicitly the profoundly sex-differentiated nature of their own proposal.

Although G&S occasionally insert a qualifier, most readers will come away from their article believing that SST is all about men pursuing short-term and women pursuing long-term mating strategies. In contrast, SST proposes that both men and women have evolved a complex menu of mating strategies, including both short-term and long-term strategies, and that the combination each individual selects from this menu depends on a variety of contexts, such as operational sex ratio, mate value, physical attractiveness, quality of available alternatives, parental and kin influences, local cultural norms, reputational consequences, and many others (Buss 1994b; 2000; Buss & Schmitt 1993; Greiling & Buss, in press). G&S's version of "strategic pluralism," as we elaborate below, turns out to be considerably narrower than that of SST.

**Double standard of evaluating results.** To set the stage for their theory, G&S attempt to minimize the existence of empirical findings of sex differences. They do this by converting effect sizes into indices of explained variance. To take one concrete example, Buss and Schmitt (1993) found an effect size of 1.00 for sex differences in how much time would elapse before seeking sexual intercourse. Men and women differ by a full standard deviation, which greatly exceeds the magnitude of the vast majority of the "strongest" findings in psychology. In an apparent effort to diminish the importance of sex differences, G&S translate the effect size into a percentage of variance accounted for of 20%. When it comes to their own key findings, however, they choose to report correlations instead, and fail to report the percentage of variance accounted for. For one of their key theoretically predicted findings – the link between FA and attractiveness – they report a mean correlation across studies of  $-.20$ . This translates into merely 4% of the variance accounted for! A key sex difference that the authors take pains to minimize, in other words, accounts for *five times more variance* than does an effect that appears to be a theoretical lynchpin of their theory. We find this "double standard," using one set of statistical indicators for findings they try to downplay and a different set for their own preferred findings, to be of

dubious merit for the goal of a balanced portrayal of the empirical evidence.

**Within-sex and between-sex differences.** Perhaps more important, it is not necessary to minimize the existence of well documented sex differences in human mating to highlight the importance of within-sex variation. Both can be, and are, important. Men have roughly ten times the circulating testosterone as women, for example, but within-sex variation in testosterone is large and covaries with an important suite of psychological variables within each sex (Mazur & Booth 1998). Similarly, men and women differ profoundly in certain mate preferences and in their desires for partner variety, yet there are also substantial within-sex variations in these qualities. It is not necessary to downplay one in order to make an argument for the other.

Minimizing sex differences may play well to a politically correct crowd, but G&S's own proposed theory is in fact highly sex-differentiated. In essence, they propose that women seeking short-term mating pursue men with good genes, whereas men seeking short-term mating are going for increased opportunities to inseminate a variety of women. They further propose that women seeking long-term mating pursue men who will provide parental care, whereas men seeking long-term mating are portrayed as "genetic losers" who lack the genetic fitness to succeed in short-term mating (we concur with the former, but not the latter, contention). Eliding over these and other stark sex differences contained in their own theory may make it more palatable for some, but there is no getting around the fact that one cornerstone of their theory involves sex differences.

**Women's short-term mating.** Although G&S present their theory as one of "strategic pluralism," we find their proposal to be narrower or less pluralistic than is warranted. While focusing exclusively on the "genetic" benefits to women of short-term mating, they effectively ignore a host of other plausible hypotheses about the adaptive benefits to women. Studies of women's desires in short-term mating, women's perceptions of the benefits of short-term mating, and the contexts in which women pursue short-term mating lend plausibility to several hypothesized functions: to acquire immediate economic benefits, enact mate switching, cultivate a potential back-up ("mate insurance"), or to evaluate potential long-term mates (Buss 2000; Greiling & Buss, in press). These studies, of course, are limited in a variety of ways and are by no means definitive. Nonetheless, we believe that a comprehensive theory of strategic pluralism must include these neglected components of women's short-term sexual strategies rather than focus narrowly on genetic benefits.

**Conclusion.** In sum, a theory that accounts for within-sex variation need not, and cannot, ignore the large and well-documented sex differences in sexual strategies. It must explicitly acknowledge the sex-differentiated functions of short-term and long-term mating contained in the theory. And it should not focus narrowly on good-genes benefits to the exclusion of a range of other plausible functions of short-term mating.

## The trade-off between frequency of intercourse and sexual partner accumulation may reflect evolutionary adaptations

Stuart Brody and Caterina Breitenstein

Center for Psychobiological and Psychosomatic Research, University of Trier, 54290 Trier, Germany. brody@fpp.uni-trier.de  
members.xoom.com/stuartbrody

**Abstract:** The adaptive trade-offs between long- and short-term matings may be mediated or at least reflected partially by the trade-offs between the relative reinforcement obtained through a greater frequency of intercourse (typically greater among cohabitants) versus a greater frequency of partner change. The differing correlates of each approach and meshing with the Sexual Strategies Theory of Gangestad & Simpson are discussed.

One means by which trade-offs between short- and long-term matings may be guided is through individual differences in the relative reinforcement value of a greater long-term frequency of intercourse (FSI; reportedly most easily obtained through relatively long-term cohabitation; Brody 1997) versus an accumulation of a greater lifetime number of sexual partners (LNSP) through a series of short-term matings. Mixed strategies are not uncommon, but for the purposes of this exposition the LNSP and FSI focussed approaches will be contrasted. Although FSI and LNSP were correlated in some studies (especially those using young samples in which age at first intercourse is an important factor), they have stronger associations with separate clusters of variables. LNSP is associated with novelty seeking, habituation or boredom proneness, and impulsiveness. FSI is associated with measures of physical sensitivity (consistent with a simple operant model of greater frequency of enjoyed activities), pairbonding, health, consistency of female orgasm, and hormonal/autonomic factors (reviewed in Brody 1997). Another factor is the individual relative appeal (or aversiveness) of the intimacy or social propriety associated with longer-term relationships. Thus, individual differences in personality and related psychophysiology may affect the relative behavioral reward of LNSP and FSI focussed strategies.

Gangestad & Simpson (G&S) found that women in their samples were more likely to report desiring men with low fluctuating asymmetry, and that those men were characterized by being more muscular, violent (and given the results of the Gangestad & Thornhill 1998b study, perhaps more redolent). One might conjecture that those women who are more attracted to pairings with such men might be less sensitive or cultivated (or more attuned to the dramatic and impulsive) and less inclined to the long-term FSI approach. Given that women who use oral contraception have greater mean FSI than those who do not, excluding pill users from Gangestad and Thornhill's (1998b) study of women's olfactory appraisal of the shirts of men of varying fluctuating asymmetry (though understandable given the endocrinologic variables that were utilized) may have biased the sample toward those women more inclined to a short-term relationship niche.

The one published study cited by G&S examining the relationship between sexual reward (orgasm) and fluctuating asymmetry (Thornhill et al. 1995) also gives rise to methodological concerns. The possibility of a bias in the direction of over-reporting (rather than actually experiencing) a greater rate of orgasm by the women with more symmetrical (more violent) partners must be considered, especially given that the correlation between partners reported FSI was quite modest. However, it is also possible a greater FSI (as noted above, FSI is associated with greater female orgasm consistency, at least in nonprostitute women) is experienced by women with more aggressive partners. Apt and Hurlbert (1993) found that abusive relationships involved a greater FSI than controls, an exception to the general association of greater FSI with better partnership (Brody 1997).

G&S posit that environments with a high level of pathogens may increase the drive to seek indicators of good genes and also encourage short-term mating strategies, whereas venues with low levels of pathogens favor long-term mating. When environments are compared at an international level, FSI is associated with life expectancy ( $r = .61$ ), per capita gross domestic product ( $r = .83$ ), and an index of political freedom ( $r = .75$ ; all  $p < .01$ ; Brody 1997). At least life expectancy is inversely related to pathogen prevalence (perhaps the pathogenic influences of a repressive regime or barren economy should be considered in addition to threats posed by microorganisms). There are many possible explanations for such correlations (such as the same strengths that make for superior technological development also facilitate a more enduring sexuality). However, the associations between FSI and measures of a less threatening environment are largely consistent with FSI being a proximal influence on the trade-offs predicted by the Sexual Strategies Theory of Gangestad & Simpson.