ELSEVIER

Evolution and Human Behavior 24 (2003) 113–117

Evolution and Human Behavior

Fluctuating asymmetry and romantic jealousy☆

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Received 1 October 2001; received in revised form 21 October 2002

Abstract

We investigated whether fluctuating asymmetry (FA) is related to the expression of romantic jealousy. The mate retention hypothesis suggests that romantic jealousy functions to prevent philandering, so one's mate value, relative to rivals, may be a factor modulating jealousy. FA was used as a measure of mate value, and we found, as predicted, that asymmetrical individuals are significantly more jealous in mating contexts, but not in nonromantic contexts.

Keywords: Developmental stability; Fluctuating asymmetry; Mate value; Mate guarding; Romantic jealousy

1. Introduction

Fluctuating asymmetry (FA) refers to deviations from perfect bilateral symmetry in morphological traits (Van Valen, 1962). Random errors in development can cause disturbances in cell division, differentiation, and growth, resulting in asymmetries in bilateral structures. "Developmental stability" (DS) refers to the capacity to withstand such developmental noise and attain the phenotypic "design" that selection has favoured, so low FA can be considered an index of high DS. FA has been linked to various measures of phenotypic quality and fitness (see Møller & Swaddle, 1997 for review), and is exacerbated by

☆ Evolution and human behavior (accepted for publication Oct. 24th, 2001).

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1090-5138/03/$ – see front matter
PII: S1090-5138(02)00148-4

developmental stressors including pathogens, mutagens, and homozygosity (but see Kark, Safriel, Tabarroni, & Randi, 2001). In humans, low levels of FA are reportedly associated with attractiveness (Grammer & Thornhill, 1994; Hume & Montgomerie, 2001; Rikowski & Grammer, 1999; Scheib, Gangestad, & Thornhill, 1999) and good health (Reilly et al., 2001; Shackelford & Larsen, 1997, 1999; Waynforth, 1998; but see Rhodes et al., 2001), so mating with low-FA individuals may provide both phenotypic and genetic benefits.

Some studies indicate that low-FA men have more sexual partners (Gangestad, Bennett, & Thornhill, 2001; Gangestad & Thornhill, 1997; Thornhill & Gangestad, 1994), including extra-pair (adulterous) partners, and more offspring (Waynforth, 1998) than high-FA men. It follows that high-FA men may be relatively vulnerable to infidelity on the part of their mates, and hence have reason for high levels of romantic jealousy, which presumably functions to deter infidelity (e.g., Buss, 2000; Daly, Wilson, & Weghorst, 1982). High-quality (low-FA) individuals should be less jealous, since jealousy is costly and, in the case of men, since their partners have relatively little incentive to seek good genes through clandestine infidelity. Pines and Aronson's (1983) finding that people who self-report poorer physical condition also self-report significantly higher levels of romantic jealousy can be interpreted in this light.

An alternative to the adaptationist hypothesis that high-FA people "strategically" express higher levels of romantic jealousy than low-FA people because of genuine differences in the risk of partner infidelity is that FA will be correlated with jealousy and self-esteem problems due to a general pathology. If this were so, we might expect high FA to be a marker of a maladaptive generalized jealousy. On the basis of the adaptationist hypothesis, we predicted instead that FA would be predictive of specifically romantic jealousy.

2. Methods

2.1. Subjects and procedure

Subjects were university undergraduates, 25 men and 25 women, mean ± S.D. age = 20.29 ± 4.60. Their FA was assessed, using 6-in. digital calipers, in 11 bilaterally symmetrical traits: foot width, ankle width, knee width, hand width, finger length for four digits, wrist width, elbow width, and ear length. Left and right sides of these features were measured independently to 0.01-mm accuracy. Each trait was measured twice for reliability, by two individuals blind to the researchers' hypothesis. Average reliability according to the Spearman–Brown formula (Anastasi, 1988) was $r = .71$ ($F = 18.25$, $P = .0003$), a value comparable to those found in previous studies (Furlow, Gangestad, & Armijo-Prewitt, 1998; Waynforth, 1998).

A composite FA index that weights each trait equally was computed for each subject as [CFA = (| L − R|/average | L − R|)] because such composite indices are superior in terms of power and reliability to single trait analyses (Gangestad et al., 2001; Leung, Forbes, & Houle, 2000). In 9 of 11 traits, there was no evidence of directional asymmetry: mean unsigned asymmetry did not significantly deviate from zero and was distributed normally (all Kolmogorov–Smirnov test statistics < 1.00, $P > .05$). However, both ankle and hand width