

The Evolutionary Psychology of Extrapair Sex: The Role of Fluctuating Asymmetry

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Aim of Study: This study explored evolutionary hypotheses concerning extrapair sex (or EPCs: extrapair copulations).

INTRODUCTION: EPC's are significant in our lives

- Sexual relationships evoke emotions distinct both in intensity and kind.
- The most common cause of spousal homicide is male suspicion of his mate's infidelity.
- "Large surveys of married women in the U.S. estimate that between 15% (Laumann et al. 1994) and 70% (Hite 1987) have had extramarital sex, with the median estimate being about 30%."pg. 70
- "Typically, 25%—50% of married U.S. men surveyed report having had extramarital sex (Thompson 1983; Laumann et al. 1994). And, 6% of a sample of British women with one main partner reported their last act of sexual intercourse to be an EPC." Pg. 70
- In this research they wanted to look at college students in romantic relationships because they are convenient, college relationships can bring about many of the same disruptive consequences that extrapair sex in marriages brings about, and student relationships may shed light on evolutionary hypotheses.

EVOLUTIONARY PSYCHOLOGY AND EPCs

- "From an adaptationist perspective, why do EPCs occur? Because the roles that men and women play in reproduction differ, the functional significance of EPCs should partly differ for the sexes. Whereas men can potentially have many offspring within a short time frame, women can conceive and successfully bear a child at most once a year or so. For this reason, men's EPCs historically may have increased their quantity of offspring, whereas women's EPCs probably affected only offspring quality. With this notion in mind, they derived and tested specific evolutionary hypotheses about EPCs rooted in ideas about the differential developmental quality of male partners." Pg.70

Key Words: Development; Developmental Stability; Extrapair sex; Fluctuating asymmetry; Mate Choice; Sexual Selection

Factors Affecting Men's EPC Opportunities

- EPC's are short-term matings where there is very small effort put into the relationship.
- Males success with short term mating depends on a) the function of women's evolved psychological design and b) the conditions under which women would accept mates who invest little into their relationships.
- "Good Genes" could have forged women's psychological design, so they decided to study the "good genes" sexual selection process.
- **Good Genes sexual selection-** women will accept men for short-term matings to the extent that their genes confer viability fitness to offspring, that is, to the extent that they possess "good genes".
Based on two assumptions:
 1. the selective environment is constant.
 2. new genetic variants enter the population at a negligible rate.
- "Biologists have attempted to identify markers of pathogen resistance and lack of mildly harmful, relatively new genetic variants in a variety of species. The most successful of these attempts probably concerns **fluctuating asymmetry**. **Fluctuating asymmetry** is absolute asymmetry of the two sides of bilateral characters (e.g., wings, fins, hands, feet, ears) for which the signed differences between the two sides have a population mean of zero and are normally distributed."pg. 72
- Low fluctuating asymmetry is associated with high male mating success (or with sexually selected characters associated with mating success) in a variety of species.
- Therefore, the more symmetric a males face is, the better chance he will be successful in short term mating.
- Men who possess low fluctuating asymmetry tend to be judged as more attractive than other men (Gangestad et al. 1994; Thornhill and Gangestad 1994).

HYPOTHESIS

Short-term mating outside of a long-term relationship has obvious potential costs(dissolution of relationship, Sexually transmitted diseases, etc). One factor that leads men to be preferred by females as sexual partners (in absence of a long-term relationship) is their developmental quality, a marker of which is fluctuating asymmetry. The following prediction can hence be made concerning men's EPCs: **Men's number of EPC partners will correlate positively with men's developmental quality and thus negatively with men's fluctuating asymmetry.**

Factors Affecting Women's EPC Partnerships

- “Women can conceive only once every year or so and, hence, multiple mates in a short period of time do not convert into multiple conceptions. In light of this fact, what potential benefits of extrapair sexual relations could have forged an evolved design disposing women to pursue them under certain conditions? One benefit is once again based on notions about "good genes" sexual selection” pg. 73
- Women may have been able to achieve genetic benefits as well as investment by obtaining genetic benefits from one male and investment from another, that is, by engaging in extrapair sex.

Hypothesis: Women's EPC partners will tend to exhibit developmental quality, as revealed by low fluctuating asymmetry. Hence, men's fluctuating asymmetry should negatively correlate with the number of times they have been a woman's EPC partner.

Overview of the Study:

- Heterosexual college students involved in romantic relationships completed questionnaires about relationships involving:
 1. Number of EPC partners: Whether they had ever had sex with a person of the opposite sex other than a relationship partner during a romantic relationship and, if so, with how many persons had they had such sex;
 2. Number of Times an EPC Partner: Whether they had ever had sex with a person of the opposite sex they knew was involved romantically with another person at that time and, if so, with how many such persons.
- Symmetries were measured and summed to an index.
- Also examined romantic relationship styles: (a) an avoidant (distant, nonintimate) to secure (open to intimacy) dimension, and (b) an anxious (fearful of abandonment) to nonanxious (not fearful of abandonment). *Looked at associations between attachment styles and EPC's.

METHODS

Participants:

- Participants were 203 heterosexual couples (203 men, 203 women) involved in a romantic relationship for at least 1 month.
- The mean age of the men was 21.06 years (SD = 3.55, range = 17-40); the average age of the women was 19.95 years (SD = 3.24, range 17—39).

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- 53% of participants reported themselves as Caucasian, 36% as Hispanic, 5% Native American, 3% African American, 1% Asian, and 2% other.
- Twenty couples were married. Nine had children together, and another six men and eight women had children with previous partners. The mean length of the couples' current relationships at the time of the study was 20.6 months (SD = 18.6, range 1-10)

Procedure

Questionnaires included:

1. A brief basic information sheet, including age, height, weight, ethnicity, SES of home of origin (upper class, upper-middle class, middle class, lower-middle class, or lower class), marital status, duration of current relationship, number of offspring, and number of offspring with the current partner.
 2. Extrapair Sex, Current Relationship: Participants were asked whether they had had sex with someone other than their partner while involved with their current partner and, if so, with how many partners.
 3. Extrapair Sex, Ever: Participants were also asked whether they had had sex outside of a relationship with any partner prior to the current relationship and, if so, with how many partners.
 4. Number of Times an EPC Partner: Participants were asked whether they had had sex with a person who they knew was seriously involved in a relationship with another person or married and, if so, with how many such partners.
 5. Self- and Partner-Estimated Earnings: Participants were asked to estimate the yearly earnings they and their partners would achieve in 10 years (median values: male self-reported, \$55K; male partner-reported, \$50K; female self-reported, \$40K; female partner-reported, \$50K).
 6. Attachment Indices (Simpson et al. 1992): Two factor-analytically derived scales constructed from items based on Hazan and Shaver's (1987) paragraph descriptions of attachment types: avoidant versus secure attachment (which we refer to as avoidant attachment here; eight items) and anxious attachment (five items). Sample items for each scale are: for avoidant attachment, "I am nervous whenever anyone gets too close to me"; for anxious attachment, "I often worry that my partner(s) doesn't really love me.
- Fluctuating asymmetry measures. After putting individuals in their separate rooms to fill out the questionnaires, the experimenters (2) interrupted each, one at a time, to measure fluctuating asymmetry.
 - For these measurements, the participant was escorted to a separate room reserved for measurements alone. One of the two experimenters then measured the participant's

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left and right sides of seven bilateral characters: foot width, ankle width, hand width, wrist width, elbow width, ear length, and ear width.

- Measurements were made with steel calipers to the nearest 0.1 mm (0.01 mm for the last 99 participants of each sex). Because measurements may involve some measurement error, remeasurements were taken when the left and right sides differed by more than 3 mm (determined on the basis of previous studies to be relatively extreme asymmetry).
- In total, about 10% of the measurements met this criterion. On such characters, the two measurements were averaged. For the 99 couples run during our second semester of data collection, we added two characters: index (second) finger length and fifth finger length.
- A total fluctuating asymmetry index (FA) was calculated for each participant by taking the absolute difference between the two sides on each character, dividing by the mean size of the character for the participant, and summing these values across all characters (Palmer and Strobeck 1986).
- Photographs and physical attractiveness ratings. After measuring a participant's fluctuating asymmetry, an experimenter took two black-and-white, head-on facial photographs of the participant. For these photos, participants were asked to retain a neutral expression. After processing, one of the two photos of each individual was selected for rating (the one that was most clearly head-on, in which the participant did not close his or her eyes or smile, and for which the focus was best). On the basis of these photos, the physical attractiveness of participants was rated by eight raters (second semester) or 10 raters (first semester) on a scale of 1 (least attractive) to 10 (most attractive).

RESULTS

1. Number of EPC Partners

- What was included? Physical Attractiveness because it influences romantic relationships and Expected salary and SES because they may be expected to affect attractiveness in a short-term relationship.
- FA (Fluctuating Asymmetry) (beta .17, $t[168] = 2.22$, $p < .02$). As expected, low FA men reported having more EPC partners than high FA men.

Table 1. Multiple Regression Analyses Predicting EPC Partners From FA, Age, SES, Expected Income, and Facial Attractiveness

Men			
Predictor variable	Beta	$t(168)$	p

Key Words: Development; Developmental Stability; Extrapair sex; Fluctuating asymmetry; Mate Choice; Sexual Selection

FA	-.17	-2.22	<.02
Age	.01	19	ns
SES	.06	.82	ns
Expected income	.02	.20	ns
Facial attractiveness	-.02	.21	ns
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Women	Beta	t(164)	
Predictor variable			
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FA	.03	-.40	ns
Age	.11	1.37	ns
SES	-.05	.68	ns
Expected income	-.07	-.92	ns
Facial attractiveness	-.09	1.21	ms

- In Table 2. As can be seen, men's FA remained a significant predictor of their number of EPC partners, beta = .17, (164) = 2.27, $p < .05$
- Women's number of EPC partners was significantly predicted by both attachment variables. Their anxious attachment positively predicted their number of EPC partners, beta .20, (161) = 2.60, $p < .01$. Their avoidant attachment negatively predicted their number of EPC partners, beta = -2.69, $p < .01$

2. Number of Times an EPC Partner

- As expected men of lower FA tended to have been an EPC partner more times than did men of high FA, beta = .27, (80) = 2.67, $p < .005$.
- Older men had been an EPC partner more often than younger men, beta = .24, (80) = 2.30, $p < .05$.
- More facially attractive men had been an EPC partner more often than less facially attractive men, beta = .27, (80) = 2.52, $p < .02$.
- The number of times women had been an EPC partner was predicted only by their age, beta .66, (72) = 7.14, $p < .001$.

Table 2. Multiple Regression Analyses Predicting EPC Partners From FA, Age, SES, Expected Income, Facial Attractiveness, and Attachment Styles

Men

Predictor variable

Key Words: Development; Developmental Stability; Extrapair sex; Fluctuating asymmetry; Mate Choice; Sexual Selection

FA	.17	2.27	< .02
Age	.01	.09	
SES	.07	.87	
Expected income	.02	.24	ns
Facial attractiveness	.02	-.22	ms
Anxious attachment	.09	1.11	ns
Avoidant attachment	.13	1.71	< .10
Women			
Predictor variable			p
FA	.04	-.58	< .10
Age	.13	1.73	
SES	-.06	-.71	ns
Expected income	-.05	.64	< .01
Facial attractiveness	.07	-.87	< .01
Anxious attachment	.20	2.60	
Avoidant attachment	-.21	-2.69	

Controlling for Number of Sex Partners

- Was men's FA correlated in the current sample with their number of EPC partners and the number of times they had been an EPC partner simply because low FA men have more partners overall than high FA men?
- No!
- Independent of men's number of partners other than EPC partners, men's FA continued to significantly predict their number of EPC partners, $\beta = .13$, (159) $t = .83$, $p < .05$.
- Man's FA significantly predicted the number of times he had been an EPC partner, independent of the number of sex partners other than those for whom the man was an EPC partner, $\beta = .24$, (73) $t = 2.49$, $p < .01$.
- Men's physical attractiveness predicted the number of times they had been EPC partners at a marginally significant level, $\beta = .17$, (73) $t = 1.73$, $p < .09$.
- Independent of women's number of sex partners other than EPC partners, their avoidant attachment and anxious attachment continued to significantly predict their number of EPC partners, β s $= -.21$ and $.19$, respectively, (159) $t = -.01$ and 2.45 , $p < .05$.

DISCUSSION

“Both hypotheses received support. As predicted, low FA men have more EPC partners compared to high FA men. Moreover, this association existed when the potential confounding variables of age, SES of family of origin, expected future salary, physical attractiveness, and attachment style were statistically controlled.”

Implications for Sexual Selection Theory Applied to Humans

- These findings suggest that men who show evidence of developmental stability are relatively likely to pursue extrapair sexual relations and be chosen as EPC partners by women, perhaps because of women's greater willingness to have sex with them in the absence of investment in a relationship.
- Moreover, men who have low fluctuating asymmetry tend to sexualize (e.g., flirt with) women other than their partners more than do men with relatively high fluctuating asymmetry (Gangestad and Thornhill 1996b).

However!!,

- “This research cannot rule out all other explanations for our findings. Perhaps low FA men provide nongenetic benefits as EPC partners and to their own EPC partners. For instance, low FA men are seen as more able to provide physical protection to their partners than high FA men. Perhaps, because nonpaternal men were a threat to a woman's offspring, women's evolved EPC preferences favor men who could provide benefits of physical protection against other men's threats (cf. Hrdy 1981). Future research should attempt to tease apart alternative explanations.” Pg. 84

This research raises two questions:

1. What are the observed phenotypic features that account for these findings? Men's body mass, muscularity, and social dominance are related to fluctuating asymmetry and may function as cues, Do these cues mediate the relationships between men's FA and their EPC behavior?
2. How does men's fluctuating asymmetry and increased probability of extrapair sex affect their relationships?

Women's Attachment Styles and Sexual History

- Two variables did predict women's number of EPC partners in multiple regression analyses: their anxious and avoidant attachment styles.

Possibly, these women have been exposed during development to cues of noninvestment by men (cf. Belsky et al. 1991; Cashden 1993), which lead them to engage in EPCs as hedges against abandonment.

Summary

“This research demonstrated that a heritable indicator of men's developmental health, FA, predicted the number of EPC partners they had as well as the number of times they reported having been EPC partners. This finding is consistent with the notion that men's and women's mating psychologies have evolved partly in response to the presence of genetic variation in fitness and viability. Additional research should address whether low FA men might also provide nongenetic benefits to EPC partners.”