

Evolution of human sex roles more complex than described by universal theory

24 April 2009

A new study challenges long-standing expectations that men are promiscuous and women tend to be more particular when it comes to choosing a mate. The research, published by Cell Press in the April issue of the journal *Trends in Ecology and Evolution*, suggests that human mating strategies are not likely to conform to a single universal pattern and provides important insights that may impact future investigations of human mating behaviors.

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Dr Gillian Brown, from the School of Psychology, and Professor Kevin Laland, from the School of Biology, examined the evolution of human sex roles, assessing the universal applicability of the now famous research in 1948 by Angus J Bateman on fruit flies.

Bateman showed that male fruit flies have greater variance in mating success (the number of sexual partners) and in reproductive success (the number of offspring) compared to female fruit flies. In addition, Bateman demonstrated that there is a stronger relationship between mating success and reproductive success in males than females.

Dr Brown explained, "The conventional view of promiscuous, indiscriminating males and coy, choosy females has also been applied to our own species.

"We sought to make a comprehensive review of sexual selection theory and examine data on

mating behaviour and reproductive success in current and historic human populations in order to further our understanding of human sex roles."

Bateman concluded that, because a single egg is more costly to produce than a single sperm, the number of offspring produced by female animals is limited by the number of eggs that she can produce, while the number of offspring produced by male animals is limited by the number of mating partners. This study supported the conventional assumption that male animals are competitive and promiscuous while female animals are non-competitive and choosy.

In collaboration with Professor Monique Borgerhoff Mulder from the Department of Anthropology at the University of California, Davis, Dr Brown and Professor Laland examined the general universal applicability of Bateman's principles. To test one of Bateman's assumptions, they collated data on the variance in male and female reproductive success in 18 human populations, mostly from Europe, Africa and South America.

Dr Brown said, "While male reproductive success varied more than female reproductive success overall, huge variability was found between populations; for instance, in monogamous societies, variances in male and female reproductive success were very similar."

The researchers argue that evolutionary theory can help us to understand this variability between populations.

"Recent advances in evolutionary theory suggest that factors such as sex-biased mortality, sex-ratio, population density and variation in mate quality, are likely to impact mating behaviour in humans," said Dr Brown.

Dr Brown and colleagues concluded that the diversity in human mating strategies suggests that

a single universal principle is unlikely to fully describe human behaviour.

She commented, "We should not expect human mating strategies to be explained by the simple rules derived from Bateman's experiments.

"Taking a new perspective on what evolutionary theory predicts about mating strategies will have important implications for how we think about male and female sex roles. We're entering an exciting new era in which evolutionary theory can help us to understand the diversity of human mating strategies."

More information: Brown et al.: "Bateman's principles and human sex roles." Researchers include Gillian R. Brown, University of St Andrews, U.K.; Kevin N. Laland, University of St Andrews, U.K.; and Monique Borgerhoff Mulder, University of California at Davis, CA.

Source: Cell Press ([news](#) : [web](#)), University of St Andrews

APA citation: Evolution of human sex roles more complex than described by universal theory (2009, April 24) retrieved 23 October 2019 from <https://phys.org/news/2009-04-evolution-human-sex-roles-complex.html>

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