



Aggression in male chimpanzees leads to mating success

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In the animal kingdom, the battle of the sexes often truly becomes a battle. Among chimpanzees, males may violently attack females, sometimes resulting in serious wounds. While unpleasant to watch, the frequent occurrence of such violence at several East African field sites suggests that aggression toward females functions as a form of sexual coercion.

Previous research from the Kanyawara chimpanzee community in Kibale National Park, Uganda, has supported the sexual coercion hypothesis. Males who directed aggression at certain females mated more often with those females than did other males. Moreover, these aggressive males were actively solicited for mating by those females at the time of peak fertility. Critically, aggression over the long term had a greater effect than violence in the immediate context of mating.



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However, until now, it has been unclear whether aggression toward females increases male chimpanzee reproductive success.

A new study published this week in *Current Biology* by Feldblum et al., including ASU scientist **Ian Gilby**, (<https://webapp4.asu.edu/directory/person/2199742>) a senior author on the study, provides strong evidence that male aggression toward females is indeed adaptive. The authors analyzed 17

years of observations of the Kasekela chimpanzee community in Gombe National Park, Tanzania.

Researchers used DNA obtained from fecal material to determine the paternity of 31 infants born during the study period. This is the first study to present genetic evidence of long-term sexual coercion as an adaptive strategy in a social mammal.

The rate at which a male directed aggression at a female not only increased the pair's mating frequency, but also significantly increased the probability that he sired her offspring. This strategy was most effective for high-ranking males, and aggression toward females outside of their periods of sexual receptivity was the best predictor of paternity. Male aggression was not used to force sexual encounters either during or immediately following aggression.

"This indicates that males, particularly those of high rank, successfully employ a strategy of long-term sexual intimidation," says Ian Gilby, an assistant professor in the **School of Human Evolution and Social Change** (<http://shesc.asu.edu>) and research affiliate with the **Institute of Human Origins** (<http://iho.asu.edu>) at Arizona State University.

Although there could be female preference for dominant males, the fact that aggression increased paternity likelihood for high-ranking males indicates that the patterns of paternity did not arise as a result of female choice but rather from mate guarding by strong alpha males.

Gilby cautions that while these results may provide clues about the origins of sexual violence in humans, he says, "We should be careful not to jump to conclusions. Chimpanzees are one of our closest living relatives, but 7 million years of evolution separate us, and our mating systems are very different. Nevertheless, recognizing the adaptive value of male-female aggression in chimpanzees may ultimately help us to understand, and hopefully prevent, similar behavior among humans."



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