Maternal social skills found to play a factor in infanticide in capuchin monkeys

February 7 2017, by Bob Yirka

Wild Capuchin monkey (Cebus capucinus), on a tree near a river bank in the jungles of Guanacaste, Costa Rica. Image: David M. Jensen/Wikipedia.

(Phys.org)—A team of researchers with members from Canada, Japan and the U.S. has found that social skills in capuchin monkey mothers plays a role in the survivability of her offspring. In their paper published in *Proceedings of the National Academy of Sciences*, the researchers describe their study of the monkeys in their native Costa Rica and behavioral traits they observed that might be translatable to humans.

To learn more about capuchin behavior, the research team studied data collected over the years 2005 and 2011 by researchers studying the monkeys in their native Costa Rica. They found that adult females that are more sociable tended to have babies with higher survival rates than less social mothers during times of stability. But, they also found that the situation was reversed when the dominant male in the group was either threatened or replaced—offspring of more social mothers were more likely to become the victims of infanticide by the new leader. Interestingly, they also found that maternal sociability came out even in the end—the team found no evidence of differences in offspring survivability rates overall.

Capuchin monkeys are well known throughout the world as both companions (or organ-grinders) and care-givers for humans. Their small size and childlike demeanor are considered assets and because of that, they have often been used in television and movies. In the wild, they are very different, of course—they inhabit areas from as far north as Central America to as far south as Argentina. Their behavior in groups as large as 35 has been extensively studied due to their social nature, which in some ways mimics that seen in humans.

In this latest study, the researchers suggest sociability plays a factor in offspring survivability because of the physical location they both occupy within the group—generally in the social nucleus. During times of stability, living in the middle of the group can provide protection for offspring from predators. Unfortunately, it can also make them the first

to be targeted when a new lead male is looking to mate with those females closest in proximity. It is thought that new males kill infants to relieve the mothers from responsibility for them, making them available for mating.

More information: Urs Kalbitzer et al. Female sociality and sexual conflict shape offspring survival in a Neotropical primate, *Proceedings of the National Academy of Sciences* (2017). DOI: 10.1073/pnas.1608625114

Abstract

Most mammals live in social groups in which members form differentiated social relationships. Individuals may vary in their degree of sociality, and this variation can be associated with differential fitness. In some species, for example, female sociality has a positive effect on infant survival. However, investigations of such cases are still rare, and no previous study has considered how male infanticide might constrain effects of female sociality on infant survival. Infanticide is part of the male reproductive strategy in many mammals, and it has the potential to override, or even reverse, effects of female reproductive strategies, including sociality. Therefore, we investigated the relationships between female sociality, offspring survival, and infanticide risk in wild white-faced capuchin monkeys using long-term data from Santa Rosa, Costa Rica. Female capuchins formed differentiated bonds, and bond strength was predicted by kin relationship, rank difference, and the presence of female infants. Most females formed stable bonds with their top social partners, although bond stability varied considerably. Offspring of highly social females, who were often high-ranking females, exhibited higher survivorship during stable periods compared with offspring of less social females. However, offspring of highly social females were more likely to die or disappear during periods of alpha male replacements, probably because new alpha males are central to the group, and therefore more likely to target the infants of highly social, central females. This study

shows that female sociality in mammals can have negative fitness consequences that are imposed by male behavior.