Social tolerance allows bonobos to outperform chimpanzees on a cooperative task

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In experiments designed to deepen our understanding of how cooperative behavior evolves, researchers have found that bonobos, a particularly sociable relative of the chimpanzee, are more successful than chimpanzees at cooperating to retrieve food, even though chimpanzees exhibit strong cooperative hunting behavior in the wild.

The work suggests that some social tendencies or emotions that are adaptive under certain circumstances—such as aggression during competition for mates—can hinder the potential for problem solving under other circumstances, such as sharing of a food resource. The findings appear online in the journal *Current Biology*, published by Cell Press, on March 8th and are reported by a team led by Brian Hare of the Max Planck Institute for Evolutionary Anthropology and Duke University.

By comparing the ability of bonobos and chimpanzees to cooperate in retrieving food, the researchers addressed two hypotheses. The first, the so-called "emotional reactivity hypothesis," predicts that bonobos will cooperate more successfully, because past observations have indicated that they are more tolerant of other individuals than are chimpanzees. In contrast, the second hypothesis, the "hunting hypothesis," predicts that chimpanzees will cooperate more successfully, thanks to their known ability to cooperatively hunt in the wild.

The researchers found that, consistent with the first hypothesis, bonobos were more tolerant in their behavior toward other bonobos, and they did indeed exhibit more skill in cooperative feeding than did chimpanzees. For example, two bonobos were more likely to both eat when presented with food in a single dish (rather than two separate dishes) than were chimpanzees faced with a similar feeding scenario. Bonobos also exhibited significantly more sociosexual behavior and play than did chimpanzees under these circumstances. In a related set of experiments, bonobos were found to be better than chimpanzees at cooperating (e.g., by simultaneously pulling a rope) to retrieve food that was not easily divisible—that is, food that might be easily monopolized by one of the two individuals.

These observations were consistent with the "emotional reactivity hypothesis" because they potentially reflect the ability of bonobos to tolerate the presence of one another in feeding contexts. The findings also run counter to the "hunting hypothesis," which predicts that chimpanzees—owing to their cooperative hunting skills—would outperform bonobos in cooperative feeding even when food wasn't easily divisible.

The authors report that the new work is of particular value because it provides an experimental comparison of social tolerance and cooperation in bonobos and chimpanzees—two closely related species that help inform our understanding of how social behavior evolved in the primate lineage. The findings suggest that one way in which the skill of social problem solving can arise is through evolutionary selection on emotional systems, such as those controlling fear and aggression.

Source: Cell Press