

Is empathy in humans and apes actually different?

August 12 2014



Scientists have found that differences in levels of emotional contagion between humans and bonobos are attributable to the quality of relationships shared by individuals. Credit: Elisa Demuru

Whether or not humans are the only empathic beings is still under debate. In a new study, researchers directly compared the 'yawn

contagion' effect between humans and bonobos (our closest evolutionary cousins). By doing so they were able to directly compare the empathic abilities of ourselves with another species, and found that a close relationship between individuals is more important to their empathic response than the fact that individuals might be from the same species.

The ability to experience others' emotions is hard to quantify in any species, and, as a result, it is difficult to measure empathy in an objective way. The transmission of a feeling from one individual to another, something known as 'emotional contagion,' is the most basic form of empathy. Feelings are disclosed by facial expressions (for example sorrow, pain, happiness or tiredness), and these feelings can travel from an "emitting face" to a "receiving face." Upon receipt, the mirroring of facial expressions evokes in the receiver an emotion similar to the emotion experienced by the sender.

Yawn contagion is one of the most pervasive and apparently trivial forms of emotional contagion. Who hasn't been infected at least once by another person's yawn (especially over dinner)? Humans and [bonobos](#) are the only two species in which it has been demonstrated that [yawn contagion](#) follows an empathic trend, being more frequent between individuals who share a strong emotional bond, such as friends, kin, and mates. Because of this similarity, researchers sought to directly compare the two species. Over the course of five years, they observed both humans and bonobos during their everyday activities and gathered data on yawn contagion by applying the same ethological approach and operational definitions. The results of their research are published today in the peer-reviewed journal *PeerJ*.

Two features of yawn contagion were compared: how many times the individuals responded to others' yawns and how quickly. Intriguingly, when the yawner and the responder were not friends or kin, bonobos responded to others' yawns just as frequently and promptly as humans

did. This means that the assumption that emotional contagion is more prominent in humans than in other species is not necessarily the case.

However, humans did respond more frequently and more promptly than bonobos when friends and kin were involved, probably because strong relationships between humans are built upon complex and sophisticated emotional foundations linked to cognition, memory, and memories. In this case, the positive feedback linking emotional affinity and the mirroring process seems to spin faster in humans than in bonobos. In humans, such over-activation may explain the potentiated yawning response and also other kinds of unconscious mimicry response, such as happy, pained, or angry [facial expressions](#).

In conclusion, this study suggests that differences in levels of [emotional contagion](#) between humans and bonobos are attributable to the quality of relationships shared by individuals. When the complexity of social bonds, typical of humans, is not in play, *Homo sapiens* climb down the tree of empathy to go back to the understory which we share with our ape cousins.

More information: Palagi et al. (2014), Yawn contagion in humans and bonobos: emotional affinity more than species matters. *PeerJ* 2:e519; [DOI: 10.7717/peerj.519](https://doi.org/10.7717/peerj.519)

Provided by PeerJ

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