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## **Is empathy in humans and apes actually different?**

*An answer from the first direct comparison of yawn contagion in humans and bonobos.*

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* (<http://peerj.com>).

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.

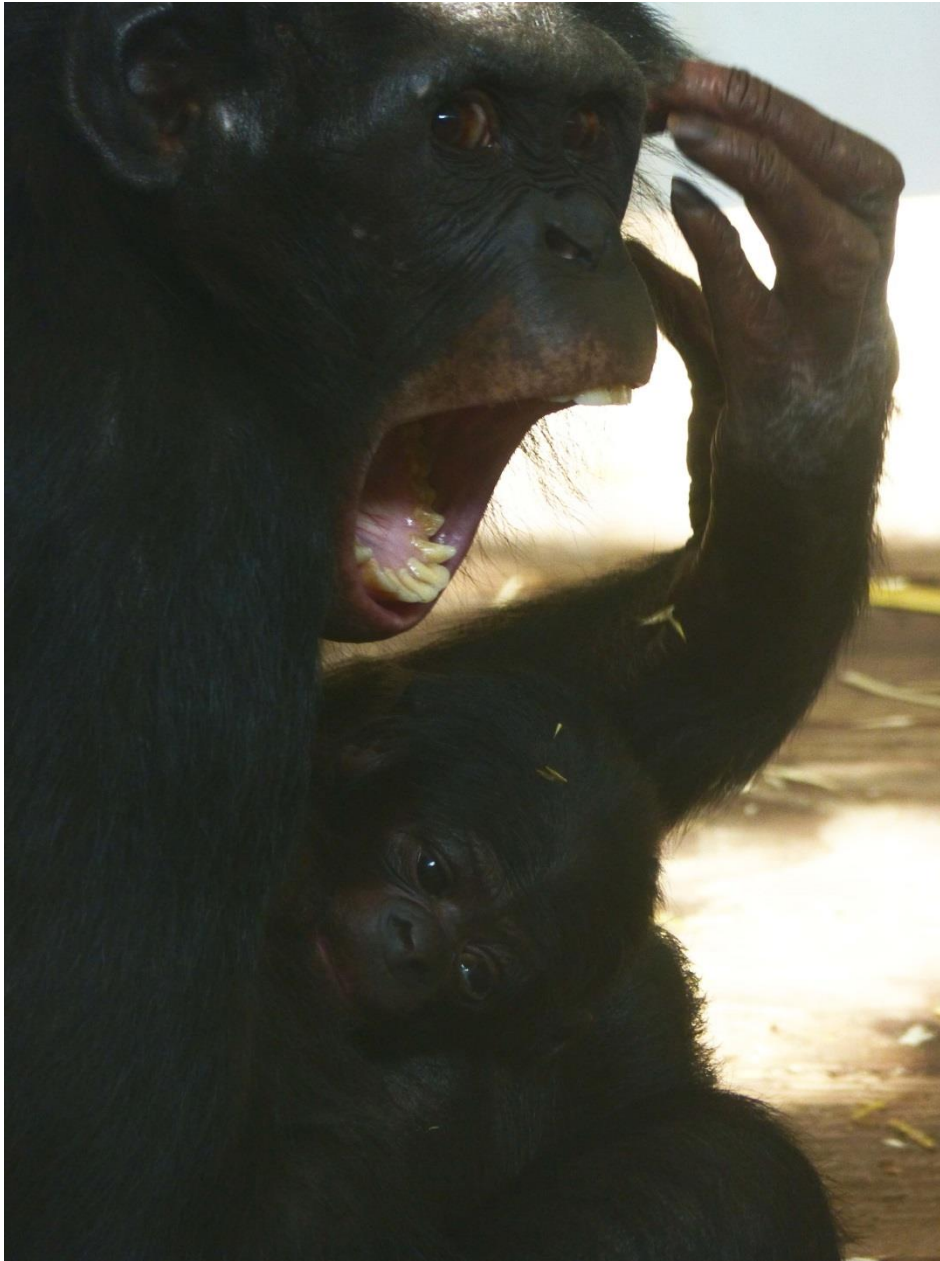
However, humans did respond more frequently and more promptly than bonobos when friends and kin were involved, probably because strong relationships between humans are built upon complex and sophisticated emotional foundations linked to cognition, memory, and memories. In this case, the positive feedback 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.

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**IMAGE:**



**Title:** Female bonobo yawning

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

**Photographer:** Elisa Demuru, CC BY SA

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**Abstract (from the article):**

In humans and apes, yawn contagion echoes emotional contagion, the basal layer of empathy. Hence, yawn contagion is a unique tool to compare empathy across species. If humans are the most empathic animal species, they should show the highest empathic response also at the level of emotional contagion. We gathered data on yawn contagion in humans (*Homo sapiens*) and bonobos (*Pan paniscus*) by applying the same observational paradigm and identical operational definitions. We selected a naturalistic approach because experimental management practices can produce different psychological and behavioural biases in the two species, and differential attention to artificial stimuli. Within species, yawn contagion was highest between strongly bonded subjects. Between species, sensitivity to others' yawns was higher in humans than in bonobos when involving kin and friends but was similar when considering weakly-bonded subjects. Thus, emotional contagion is not always highest in humans. The cognitive components concur in awakening and nourishing emotional affinity between individuals. Yet, when they are not in play, humans climb down from the empathic podium to return to the "understory" which our species shares with apes.