

Contagious yawning more closely associated with perceptual sensitivity than empathy

September 5 2017



Participants of the study were asked to judge whether the people in the photos were yawning or not. Credit: Chia-huei Tseng

Contagious yawning is a universal phenomenon, but why it happens

remains a mystery.

A new study out of Tohoku University suggests that contrary to common belief that the yawning contagion is associated with [empathy](#), it is in fact, more likely that perceptual sensitivity is to blame.

In the study, healthy volunteers were shown photos and videos of [people](#) yawning. The intention was to induce [contagious yawning](#). The participants were observed through hidden cameras, which recorded their reactions, and an eye-tracking machine, which registered their gazing patterns.

To test the participants' sensitivity towards yawning expressions, they were later given 60 photos containing four intensity levels of yawning, and asked to judge (yes/no) if the person in each photo was yawning.

For control comparisons, participants were also shown 60 happy and 60 angry photos with four intensity levels, after which they were asked if the people in the photos looked happy/angry.

Researchers found that those who were more likely to detect yawning from a face were also more likely to be induced to [yawn](#). However, [sensitivity](#) to happy or angry faces appeared to have little relation to the frequency of contagious yawning.

To study whether contagious yawning relates to empathy in healthy people, the participants' autistic tendency (or AQ, autistic quotient measured by an autism-spectrum quotient questionnaire) was measured but showed little effect. However, female participants in the study registered a significantly higher susceptibility towards catching a yawn contagiously.

The study, titled "Yawning Detection Sensitivity and Yawning

Contagion" was published in *i-Perception* on August 25, 2017. It is the first study to investigate the perceptual limitations on yawning contagion behavior in a non-clinical population.

"Recent clinical observations showed that individuals diagnosed with Autism or Schizophrenia did not yawn contagiously like typical individuals. This has led many to think that impaired social ability (e.g. empathy) might contribute to a person's inability to yawn contagiously," said lead researcher, Dr. Chia-huei Tseng, an associate professor at the Research Institute of Electrical Communication (RIEC) at Tohoku University. However, it is unknown if the clinical speculations also apply to the general population.

"We find that for non-clinical population, perceptual ability is more closely related to contagious yawning than empathy is," said Tseng. "Since it's been documented that people with autism tend to suffer from impaired perception such as an atypical eye gazing on faces and a difficulty in judging facial emotions, it's possible that their perceptual limitation causes them to be unable to detect someone else's yawning expression. This is a possible explanation for their lack of contagious yawning."

More information: Meingold H. M. Chan et al, Yawning Detection Sensitivity and Yawning Contagion, *i-Perception* (2017). [DOI: 10.1177/2041669517726797](https://doi.org/10.1177/2041669517726797)

Provided by Tohoku University

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