The Effects of Intranasal Oxytocin on Contagious Yawning

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Background & Summary

• Contagious yawning is thought to represent a basic form of empathy involved in an action-perception mechanism (Preston & de Waal 2002).

• Despite recent evidence in support of this connection, the neurochemical basis of contagious yawning remains largely unknown.

• Since previous research has shown intranasal oxytocin to enhance empathy (IsHak et al. 2011), we investigated the influence of intranasal oxytocin on contagious yawning.

Methods & Design

• A total of 60 male undergraduate students participated in this study (mean age = 19.20; S.D. = 1.65; range = 18–30).

• Upon entering the lab, participants were instructed by a researcher to self-administer 30 IU of oxytocin intranasally or a placebo spray.

• Following verified administration by a researcher, participants sat in the waiting room for the 45 minute acclimation period. The use of all electronic devices was prohibited.

• To control for a potential increase in spontaneous yawning, the researcher covertly recorded all yawning behavior for a 5-minute period starting at 30 minutes post administration.

• Following the acclimation period, the participants were brought to an individual testing room where they watched a 170s video stimulus presenting a series of randomized clips of people yawning, laughing, and with neutral expressions (Platek et al. 2003). Participants were recorded with a webcam while watching the stimulus.

• When the stimulus was over, the participants came back to the waiting room and answered a short questionnaire to self-report on their yawning-behavior and urge to yawn during the video.

• A researcher who was blind to the condition scored the recording sessions for yawns.

Results

• GLMs were used to examine the effect of treatment condition (oxytocin, placebo) on contagious yawning frequency and the latency to yawn following the presentation of the video stimulus.

• Chi-square tests were also used to compare differences in the proportion of yawners with those self-reporting the urge to yawn within treatment conditions.

• Sign tests to assess differences between treatment conditions in the presence of overt cues associated with yawns (extended arm or body stretching, auditory signs) and attempts to conceal yawns by covering of the mouth or clenching the teeth during the yawn.

Hypothesis

• We hypothesized that intranasal administration of oxytocin would enhance contagious yawning frequency, in comparison to placebo.

Analysis

• GLMs were used to examine the effect of treatment condition (oxytocin, placebo) on contagious yawning frequency and the latency to yawn following the presentation of the video stimulus.

Discussion

• Results fail to demonstrate an increase in contagious yawning following the administration of intranasal oxytocin.

• The expression of contagious yawning was modulated by this treatment, however, whereby participants were less likely to display overt cues accompanying yawns and were more likely to conceal the behavior by covering their mouth during the act.

• It seems that intranasal oxytocin produced an enhanced awareness of the social stigma associated with the behavior.

• Follow-up research could assess the influence of intranasal oxytocin on contagious yawning in mixed sex groups of varying social closeness in more naturalistic settings.

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