

Masks Affect College Students' Ability to Understand Emotions

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Introduction

The communication of emotion states signal important implicit factors affecting teaching and learning, such as engagement, interest, comprehension, and empathy.

For the first time in known Western history, students and teachers had to interact while covering part of their faces with face masks. We investigated whether the use of face masks affected the recognition of five facial expressions considered fundamentally human (Eckman et al. 1987).

Method

Participants

Sixty-two consenting undergraduate college students (76% women, 94% white/Caucasian), mean age was 20.60 years, $SD = 4.65$, participated in this study.

Materials and Procedures

We used Google Forms to collect data. We utilized 40 pictures of human faces from Karolinska Directed Emotional Faces Database (KDEF; Lundqvist et al., 1998).

We created two stimulus sets. The first contained 20 pictures of people showing facial anger, disgust, sadness, fear, and happiness, four faces per emotional states, half men, half women. The second stimulus set was identical to the first, except that all the faces were a black mask (see sample in Figure 1).

As we presented each picture, we asked participants to choose from a forced-choice list what emotion they believed they were seeing, and then asked them to rate how confident they were about their choice using a scale ranging from 1 (not confident) to 10 (very confident). All participants rated the masked set first, followed by the unmasked set. Pictures were shown in randomized order within each set.

Figure 1

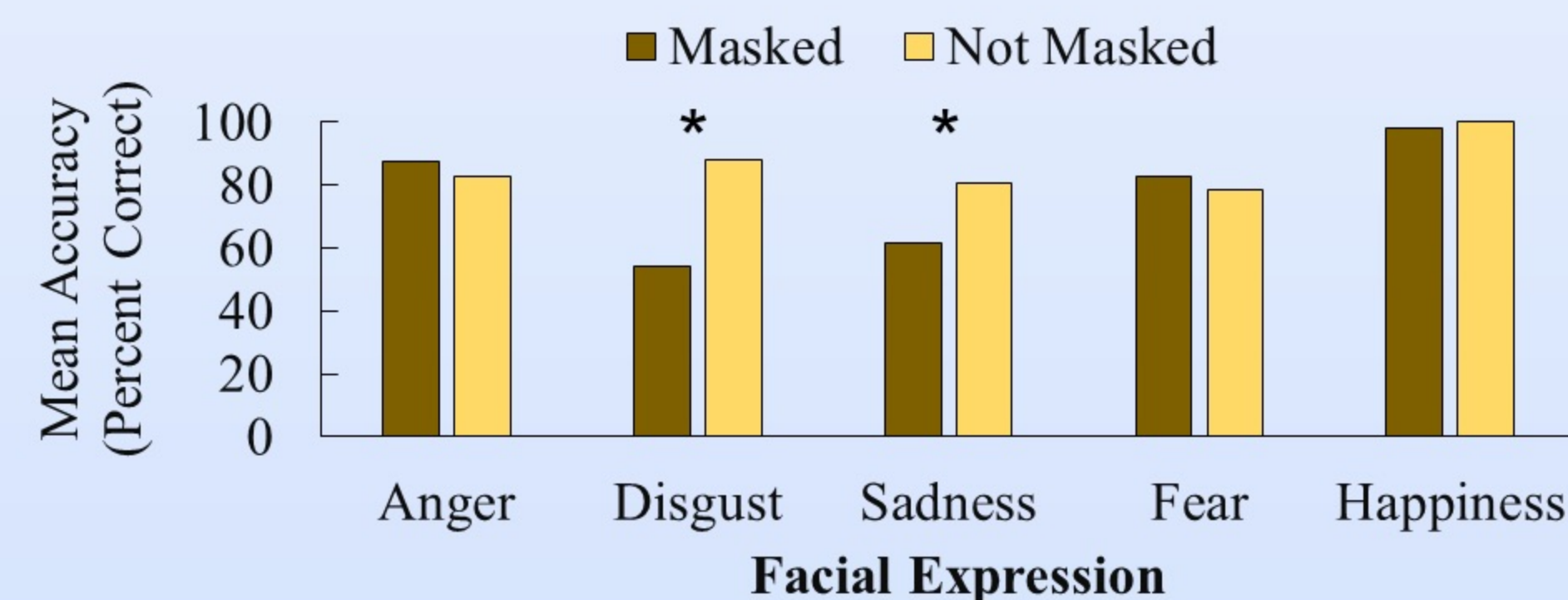
Sample of Masked and Unmasked Face from the Karolinska Directed Emotional Faces Database (code AF02HAS).



Results

Figure 2

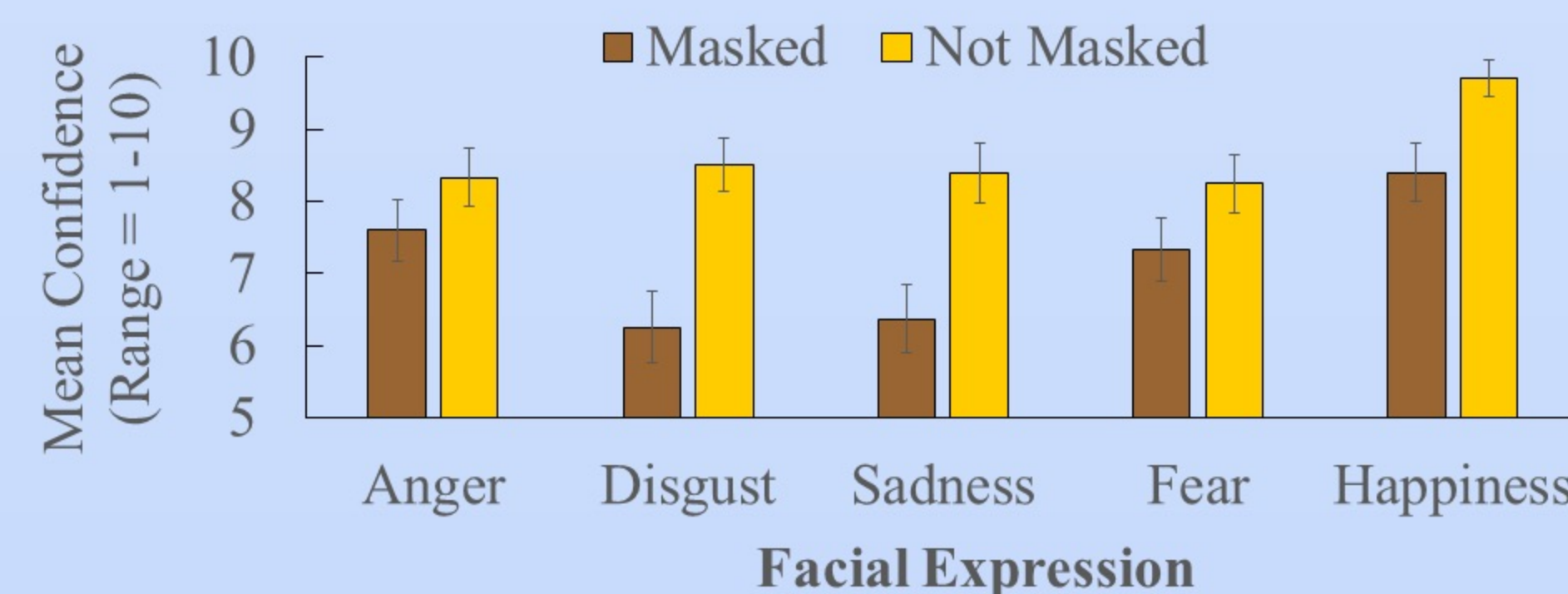
Mean Accuracy for Recognition of Masked vs. Not Masked Facial Expressions Differed for Expressions of Disgust and Sadness.



Note. * Differences statistically significant at the $p < .001$ using the Wilcoxon Signed Ranks Test.

Figure 3

Mean Confidence Ratings for Recognition of Masked vs. Not Masked Facial Expressions Differed for All Emotional Expressions.



Note. All differences were statistically significant at the $p < .001$, using paired-sample t -Tests with Bonferroni correction. Error bars represent 99% C.I.

Conclusions & Implications

Our study demonstrated the participants were accurate in rating faces of anger, fear, and happiness, but they were not accurate when rating faces expressing disgust and sadness.

However, people were significantly less confident identifying all emotions when the faces were masked versus unmasked.

These results suggest that the emotional components of teaching and learning may have been disrupted during the COVID-19 pandemic.

One of these effects could be the disturbance in facial feedback, which may predict deficits such as diminished comprehension, disruption in the quality of interactions, or response misinterpretations, such as lack of interest and veiled disengagement.

One implication of these findings is that students who experienced mask restrictions may benefit from remediation regarding content as well as learning skills relative to the period of mask requirement.

Future studies could investigate more specifically the potential effects of experiencing emotional uncertainty in the classroom.

References

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