The COVID-19 Pandemic, Mask-Wearing, and Emotion Recognition in Children

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BACKGROUND

- Emotion recognition is essential to social interaction, empathy, & prosocial behavior
- Facial expressions give clues for accurate emotion recognition
- Different regions of the face cue distinct emotions
- Prior research on partially occluded faces suggests that mask-wearing may negatively impact emotion recognition
- Little is known about the effects of mask-wearing & social isolation due to COVID-19 on children's emotion recognition

STUDY AIMS

1. Investigate whether children are worse at recognizing masked versus unmasked faces
2. Investigate whether children's emotion recognition performance for masked versus unmasked faces differs based on the emotion expressed
3. Investigate whether the pandemic has led to a worsening in emotion recognition skills in children overall
4. Investigate whether the pandemic has led to a worsening in emotion recognition skills specific to certain emotions

METHODS

- N=100 (ages 7-10, 52.5% female), data collected January 2021-May 2021
- N=36, longitudinal subsample, pre-pandemic data also collected November 2019-February 2020
- Participants completed the Dynamic Affect Recognition Task with child and adult faces (masked & unmasked stimuli) **(Fig 1)**
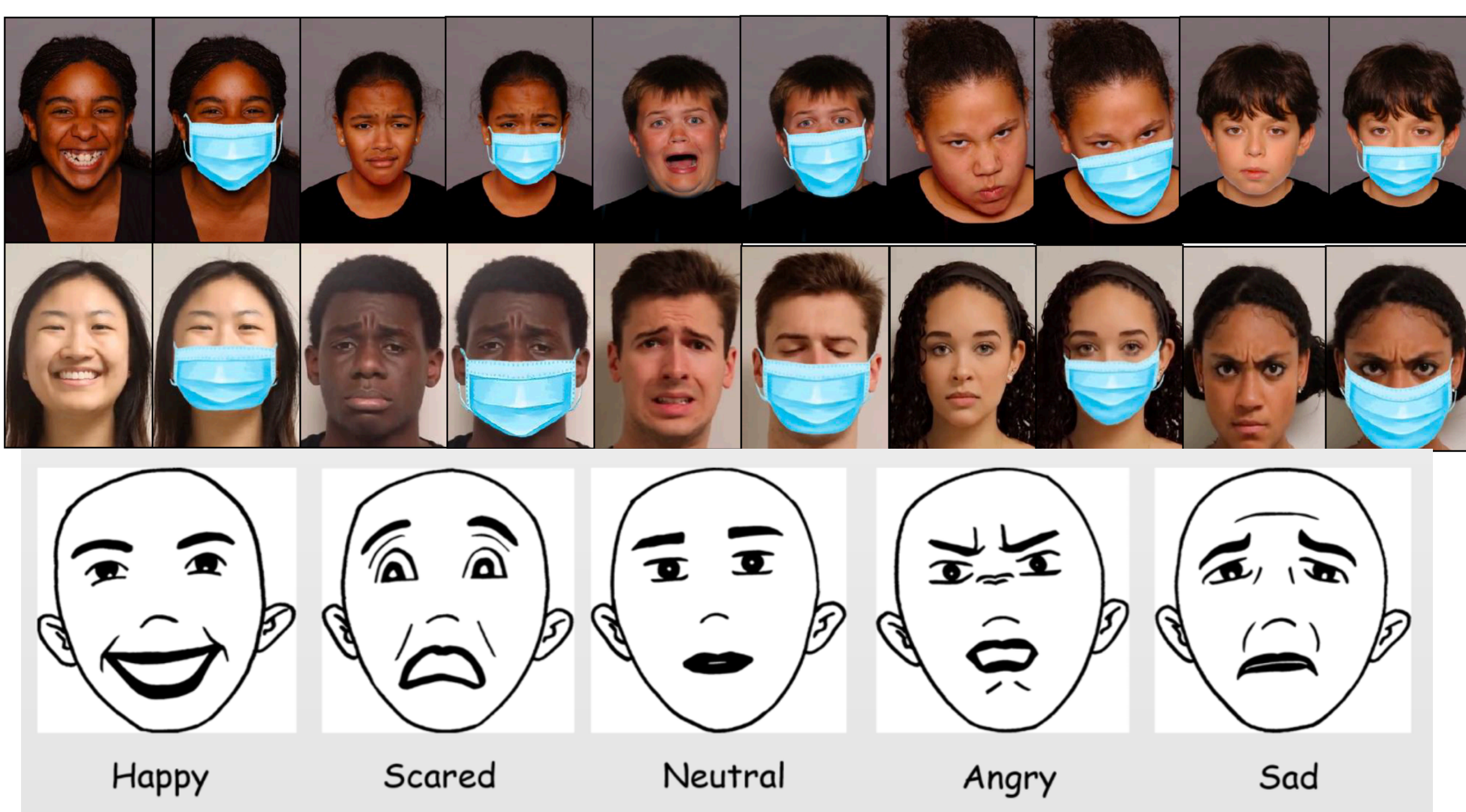

Figure 1: Example stimuli for each condition with Eugenies rating scale

Happy   Scared   Neutral   Angry   Sad

Mask-Wearing and Social Isolation due to COVID-19 Associated with Worse Emotion Recognition Performance in Children

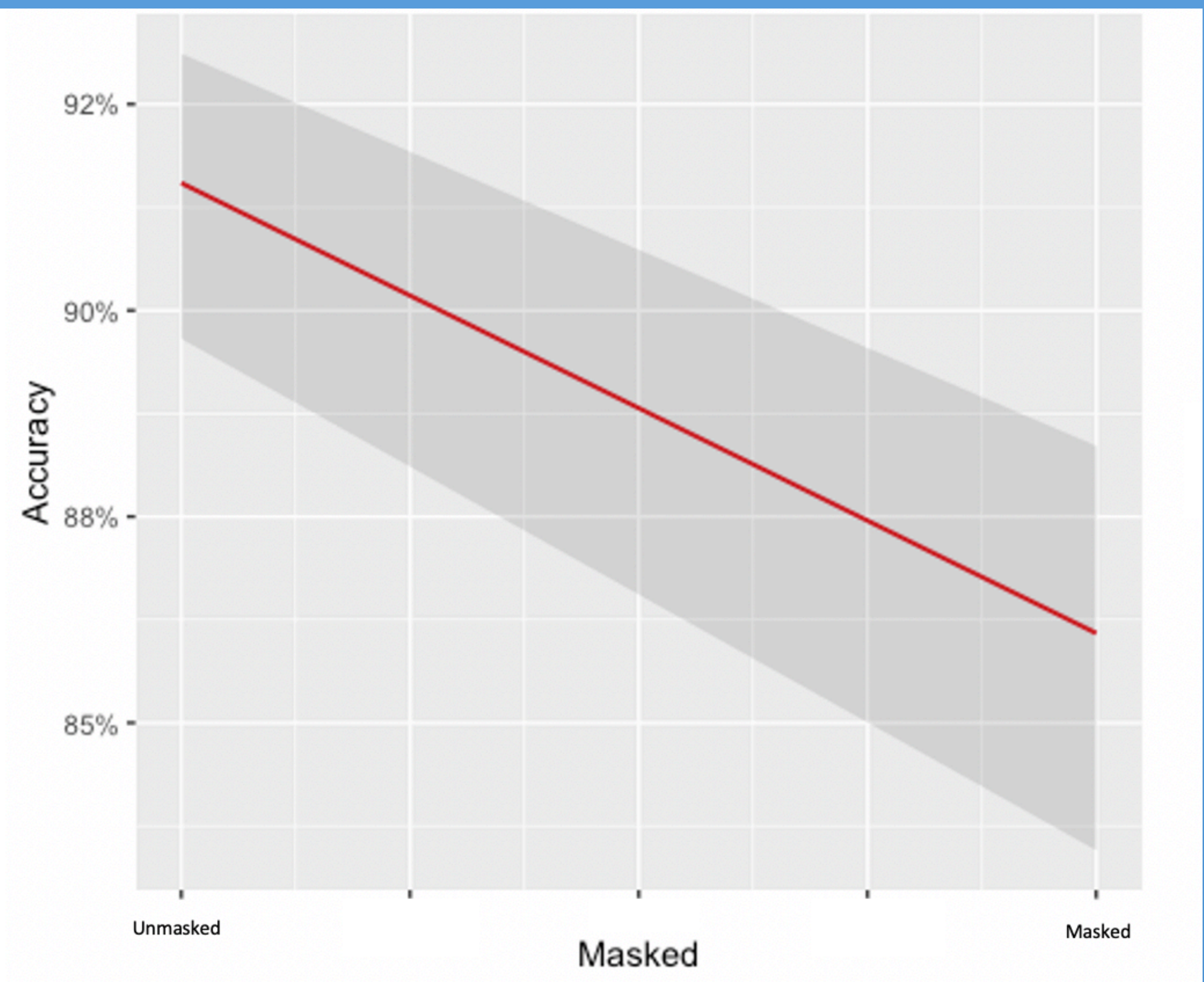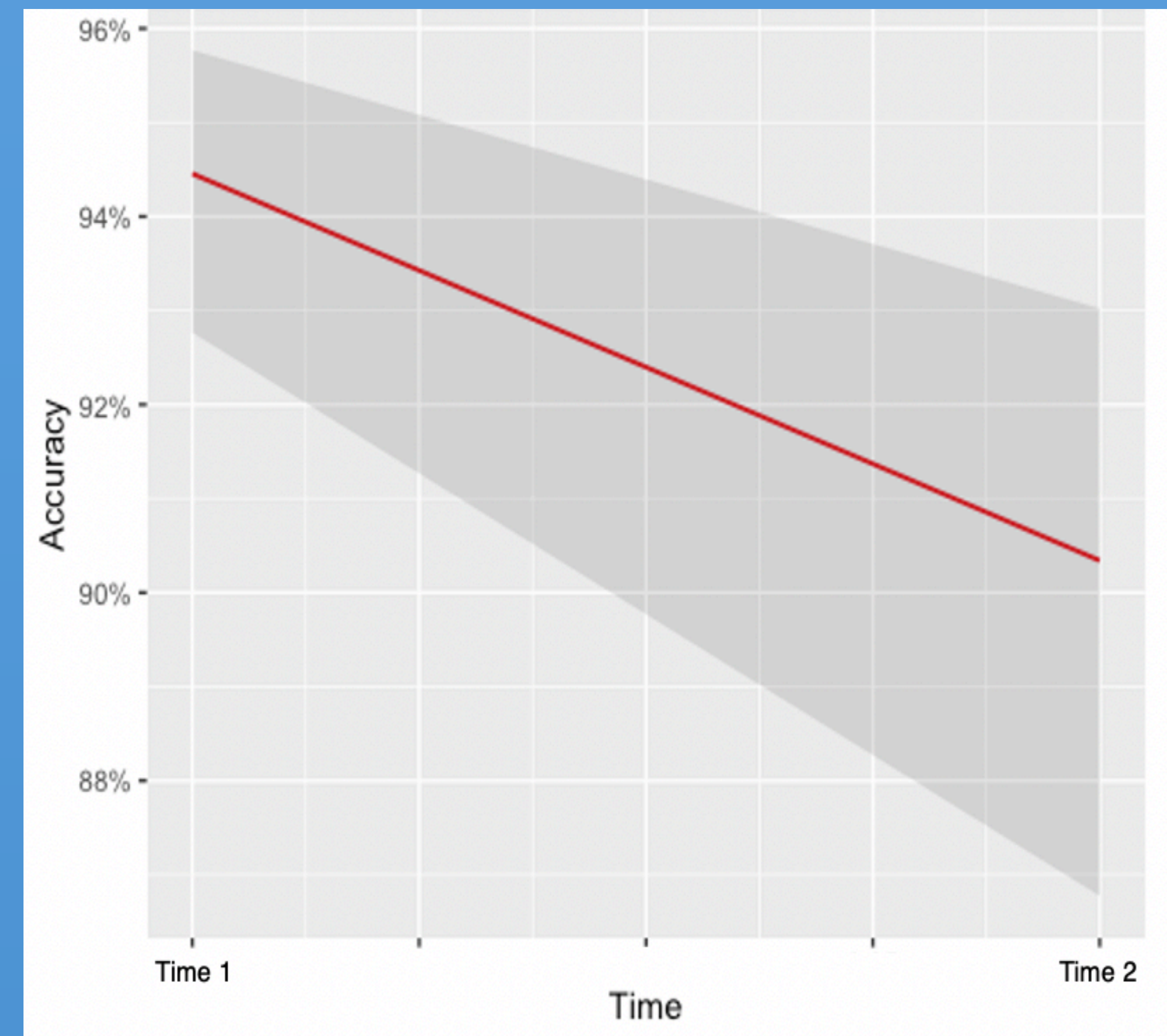**Fig 2.** Emotion recognition accuracy lower for masked faces

Fig 4: Emotion recognition accuracy lower post-pandemic vs. pre-pandemic

RESULTS

Aim 1: Overall masked vs. unmasked faces

- Masking negatively affected emotion recognition accuracy **(b = -0.56, z = -5.35, p < .001; Fig 2).**
- Child age positively affected emotion recognition accuracy **(b = 0.21, z = 2.64, p < 0.01).**
- Site and child sex were not significant predictors

Aim 2: Masked vs. unmasked faces & specific emotions

- Interaction between masked x emotion type x accuracy **(x^2 (4) = 263.25, p < .001).**
- Masking negatively affected emotion recognition accuracy more for happy vs. neutral faces, **t(89) = 5.57, p < .001.**
- Masking negatively affected emotion recognition accuracy more for sad vs. neutral faces, **t(89) = 3.90, p < .01.**
- Masking negatively affected emotion recognition accuracy more for fear vs. neutral faces, **t(89) = 5.49, p < .001.**
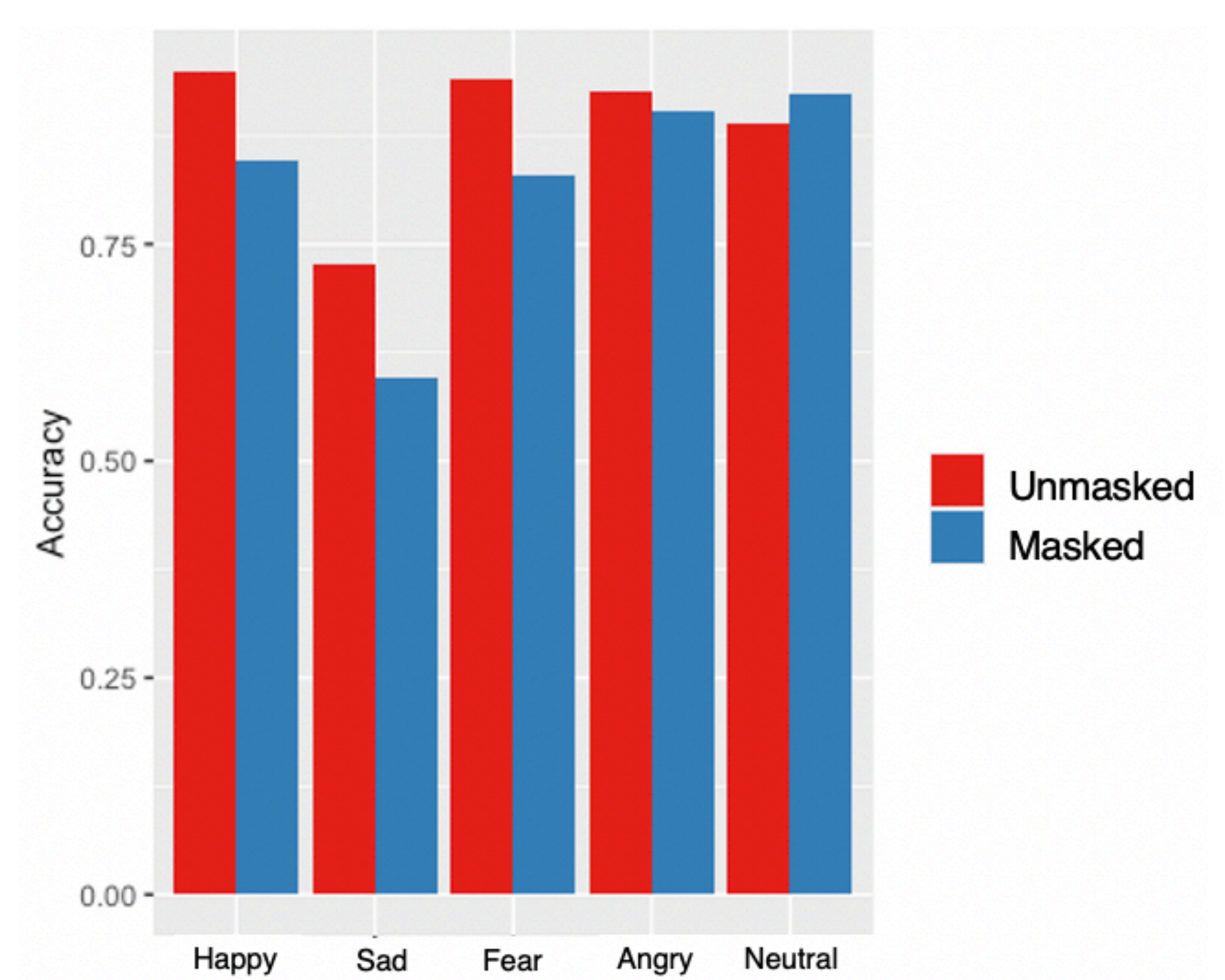

Fig 3: Effect of masking on emotion recognition for specific emotions

Aim 3: Emotion recognition pre- vs. post-pandemic

- Emotion recognition accuracy was higher pre- vs. post-pandemic **(b = -0.60, z = -2.99, p <.01; Fig 4).**

Aim 4: Specific emotions pre- vs. post-pandemic

- Emotion recognition for sad faces pre- and post-pandemic was specifically impaired **(b= -1.26, z = -3.6, p < .001).**
- Effect of the pandemic was not significant for accurate recognition of happy, fear, angry, or neutral emotions.

DISCUSSION

- Critical implications since deficits in emotion recognition are linked to problematic psychological & social outcomes
- Study limited by lack of racial and SES diversity; virtual format; reliance on static stimuli; lack of comparison between emotion recognition performance for adult vs. child stimuli
- Future research should focus on interventions to minimize the observed deficits in the context of the pandemic

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