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How Emotional Body Expressions Direct an Infant's First Look

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Visual Scanning of Body Emotions in Infancy

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Introduction

Adults' attention to different body parts varies as a function of emotion (Fridin et al., 2009), indicating the signal value of different parts for different emotions. Previous research suggests that 6.5-month-olds are sensitive to expressions of body emotion (Zieber et al., 2014). Consequently, the question arises as to whether infants also differentially scan bodies portraying different emotions. Such scanning may help to efficiently process emotions and also increase the likelihood of learning about the functions of different emotions. In the current study, we investigated whether infants, like adults (Fridin et al., 2009), attend to the head, trunk, arm/hand, and leg regions of body postures differently across emotions.

Methods

Participants:

- 40 6.5-month-olds (M age = 193.9 days; SD = 8.00; 18 males)

Stimuli:

- The stimuli were black and white images of two male and two female actors portraying happy, angry, fearful, and sad expressions (de Gelder & Van den Stock, 2011).
- In order to examine whether information from the face affects body scanning, half of the infants viewed stimuli in which the facial expression of the actor was visible while the other half of infants viewed stimuli in which the facial expressions were blurred out.

Procedure:

- On eight 8-s trials, an emotional stimulus appeared in the center of the screen. Each participant viewed the same actor depicting all four emotions.
- The first body emotion presented was counterbalanced across infants and each subsequent image was randomly presented with the stipulation that the same emotion was not presented on two consecutive trials.
- Infants' visual fixations were recorded using a Tobii Tx300 eye-tracker.
- The dependent measures were the first fixation location, first fixation duration, and latency to first fixation to the different AOIs (i.e., head, upper body, arms/hands, and legs).

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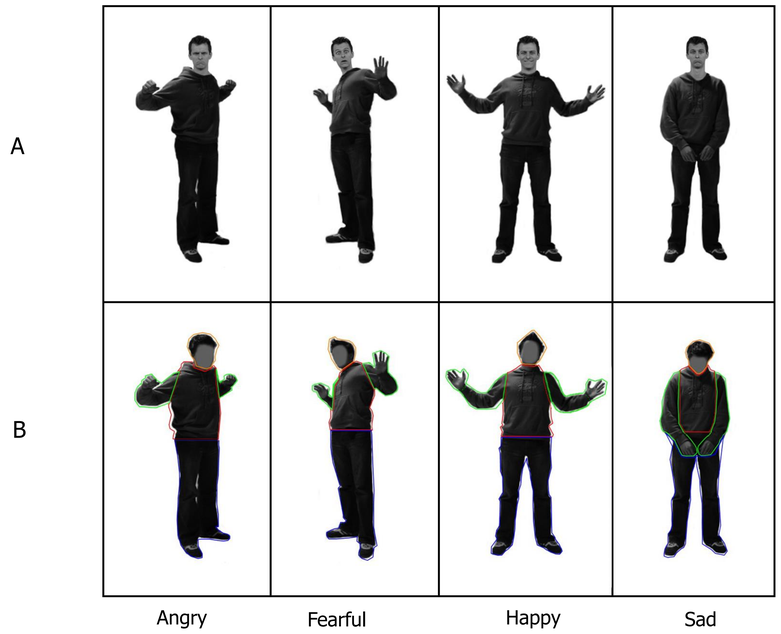

Figure 1. Examples of angry, fearful, happy, and sad stimuli used in face present (A) and blurred face (B) conditions of the current study. The colored outlines are examples of the areas of interest (AOIs) used in data analysis. These lines/colors were not visible to infants during the experiments.

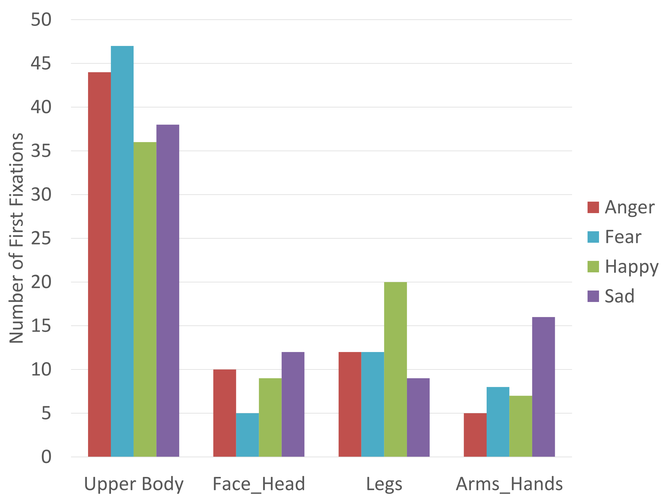

Figure 2. Number of first fixations to each AOI across emotional body expressions.

Results

- An AOI (head, arms/hands, upper body, legs) x Emotion (angry, fearful, happy, sad) x Facial Expression (visible, blurred) RM ANOVA revealed a significant main effects of AOI [$F(3, 342) = 36.40$, $p < .001$, $\eta_P^2 = .49$] and AOI X Emotion interaction [$F(9, 342) = 2.07$, $p = .031$, $\eta_P^2 = .05$]. None of the other main effects nor interactions were significant (all p's $> .26$)
- Infants' first fixation was more often directed toward the arms/hands AOI when the emotion of the body was sad. Additionally, infants' first fixation was more often directed toward the legs AOI when the body expression was happy.
- There was insufficient evidence to suggest differences in infants' first fixation duration or latency of the first fixation to the four AOIs across emotion.

Conclusion & Future Directions

As in the case of adults (Fridin et al., 2009), infants' scanning of body parts varied as a function of emotion. Moreover, infants' performance was not affected by the presence/absence of facial emotion information. These findings suggest that socially relevant features within bodies are differentially attended to by at least 6.5 months of age. This kind of systematic scanning early in life may lay the groundwork for mature knowledge of emotions and appropriate behavioral responses to other people's emotions.

Future research should utilize a procedure that does not overlap the location of the attention-getter with the location of the emotional body expression. Additionally, it would be informative to investigate whether infants' scanning patterns on static body expressions is similar for dynamic stimuli. Finally, future research efforts should use multilevel modeling to analyze the current data.

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