Sex differences in pain recognition accuracy of pain-communicative body postures

Background

Communicating pain effectively is important in eliciting help from others. Facial expressions, vocalisations, and body posture, are the main channels of nonverbal pain communication. However, individual differences exist in our ability to recognise and respond to nonverbal cues.

There is strong evidence demonstrating sex differences in pain perception, as well as recognition of nonverbal social cues such as emotional facial expressions. Little research has considered this in the context of body expressions of pain. We therefore aimed to investigating sex differences in recognition of pain communicated through body posture.

Method

45 participants (22 male) were presented with a series of affective body posture stimuli, each presenting one of four emotions (pain, fear, anger, and happiness).

The image quality of the stimuli was manipulated to three levels of clarity (see figure 2, right) in order to reduce the ceiling effect frequently reported in emotion recognition, and enable the investigation of individual differences.

Participants rated each stimulus for emotion intensity in all emotions on a Likert scale of 1 to 7, with 1 being “none at all” and 7 being “a lot”. Recognition accuracy was calculated based on hit rates, where a hit was defined as the target emotion being rated as the most intense by observers.

Results

Analysis showed a significant main effect of emotion ($F(3,114)= 7.36, p<0.05$) and image deterioration ($F(2,76)= 39.43, p<0.01$) on recognition accuracy, and a significant interaction between expression and image degradation ($F(6,228)= 12.30, p<0.05$), which showed that for pain, anger, and fear expressions, recognition accuracy reduced at each stage of image degradation, whilst accuracy for happy expressions remained constant.

Interactions were found between expression and actor sex ($F(3,114)= 9.19, p<0.05$), and image degradation and actor sex ($F(2,76)= 3.90, p<0.05$). Males were recognised with greater accuracy than females across all levels of image degradation and expression.

Analysis of expression intensity showed a significant main interaction between expression and actor sex ($F(3,114)= 13.56, p<0.05$), which showed that for all expressions (except happiness), females were rated as communicating significantly higher intensity than males.

Conclusion

By deteriorating image quality, we were able to identify individual differences in pain body posture recognition. As image quality deteriorates, recognition accuracy is reduced. Male actors are recognised with a greater overall accuracy across expressions, including pain, whilst female actors are rated as communicating higher affective intensity.

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