

An Investigation of Sex Differences in the Decoding of Emotional Displays

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Abstract

The purpose of this research was to consider sex differences in decoding emotions. After rating their own ability to decode emotion and the perceived ability of males and females in general, 101 online participants were shown faces and were asked to select which emotion was displayed. Males thought males would be more accurate than females thought males would be. Females decoded anger more accurately than males and were marginally better than males at decoding fear.

Introduction

Nonverbal behavior permeates almost all of our interpersonal interactions, which is why researchers have delved into it to gain more insight. One area of investigation is a consideration of whether males and females decode nonverbal behavior differently. For example, Hall (1984) conducted a meta-analysis and found overall that females both expressed and decoded nonverbal behaviors more accurately than men.

One type of nonverbal cue that has been considered is emotion. For example, in one early study, Ekman (1970) had participants from different countries view faces and indicate which emotion they thought the faces were expressing. He concluded that emotions can be universally decoded. More recently, Wingenbach et al. (2018) presented participants with images of emotive faces and then gave them a choice of ten emotions to choose from. They found that females read emotions more quickly and accurately than males.

The purpose of the present research is to consider how males and females rate themselves with regard to decoding nonverbal behavior as well as how they rate other males and females. Based on previous research, we expected that females would both rate themselves and perform better than males. After rating their own ability to decode emotion and the perceived ability of males in general and females in general, online participants were shown faces from the RadBoud face database (Langner et al., 2010) and were asked to select the emotion displayed.

Method

Participants

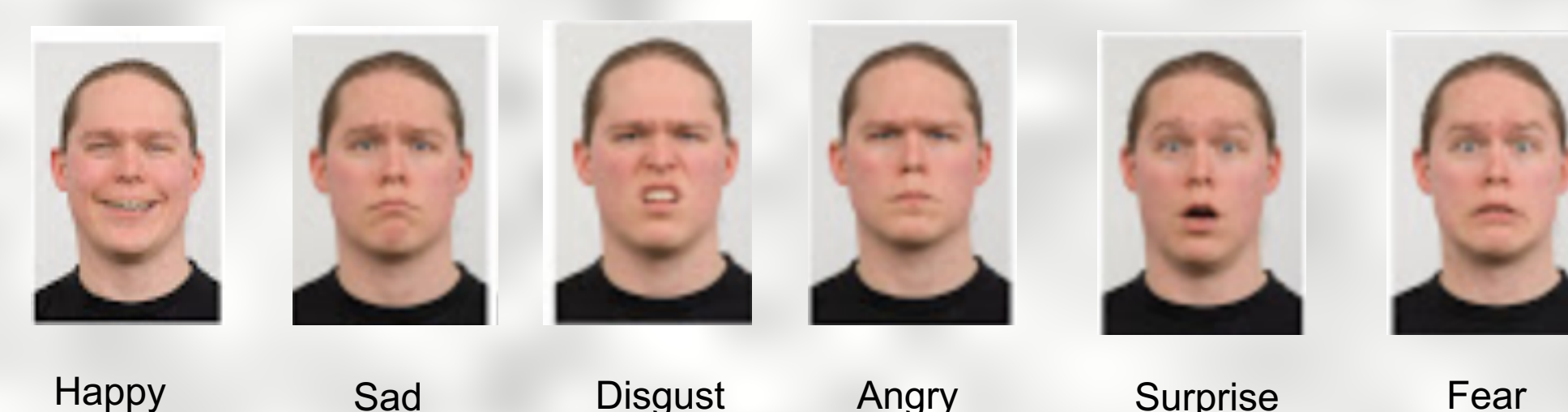
Participants were 101 adults (61 males, 38 females, 1 non-binary, 1 did not provide a gender identity), 18 years or older ($M = 36.35$ years, $SD = 10.69$) who were recruited through Amazon's online marketplace, Mechanical Turk. Each participant was paid \$1.00. Approximately 81% were White, 8% African American, 4% Latinx, 4% Asian, 1%, Native American, and 2% "other."

Materials and Procedure

We utilized the RadBoud face database (Langner et al., 2010) using faces displaying happiness, sadness, anger, fear, disgust, and surprise (see Figure 1) to be consistent with Ekman's (1970) past research using those six emotions. We used 24 images (4 showing each of the 6 emotions) that were front facing and we only used images for which Langner et al. (2010) obtained accuracy that fell between 60-90%.

After providing informed consent, participants were asked to indicate how accurately they thought they would decode emotion in others (on a 100 point scale), and how accurately males in general and females in general would be. We then presented 24 photographs of faces; for each face, participants had to choose which one of six emotions was displayed. Upon completion of the decoding task, participants answered demographic questions and were debriefed.

Figure 1. Faces From the RadBoud Database



Results

Participants were asked how accurate they would be, how accurate males and how accurate females in general would be in decoding emotions. Each accuracy rating was on a 100-point scale. A t-test was used to investigate whether females and males had different expectations. **Males and females rated themselves similarly** (males: $M = 65.71$, $SD = 27.24$; females: $M = 68.61$, $SD = 25.79$), $t(95) = -.52$, $p = .60$.

When participants were asked to rate males in general, males received a mean rating of 58.04 ($SD = 24.13$). We then compared how males versus females rated the anticipated accuracy of males. Males thought males, in general, would be more accurate ($M = 62.57$, $SD = 23.90$) than females thought males would be ($M = 50.29$, $SD = 23.32$), $t(97) = 2.51$, $p = .01$.

When participants were asked to rate females in general, females received a mean rating of 73.43 ($SD = 20.56$). We then compared how males versus females rated the expected accuracy of females. Males and females rated females similarly in accuracy (males: $M = 74.70$, $SD = 21.02$; females: $M = 71.66$, $SD = 20.15$), $t(97) = .71$, $p = .48$.

Participants were presented with 24 images (4 showing each of the 6 emotions). Each image had a correct response (happiness, sadness, anger, fear, disgust, surprise) and the accuracy rates for each of the 24 faces, for both males and females, were calculated. In addition, an overall rate of accuracy for each of the emotions (averaged across 4 faces) was calculated.

Males and females were similarly accurate when decoding happy faces, sad faces, and faces showing disgust and surprise. Males and females did not perform similarly when presented with faces showing fear or anger.

Females more accurately identified anger (90%) in one of the four faces than males did (69%), $t(97) = -2.41$, $p = .02$. Overall females (49.50%) decoded all 4 anger faces more accurately than males (27.90%), $t(96) = -2.04$, $p = .04$.

Females were marginally more accurate in identifying fear (79%) in one of the four faces than males (62%), $t(97) = -1.75$, $p = .08$. Overall females were marginally more accurate at correctly decoding all four anger faces (42%) than males (25%), $t(97) = -1.89$, $p = .06$.

Discussion

We hypothesized that females would both rate themselves and perform better than males. While females and males rated themselves similarly in terms of expected performance, females, with regard to anger (and marginally with regard to fear), did decode emotion significantly better than male participants. This is generally consistent with past research that has found females to decode emotion more accurately across multiple studies (e.g., Wingenbach et al., 2018).

One limitation of this work is that the faces in Langner et al.'s database are all White, thus the external validity of this work may be limited. Researchers may wish to consider replicating the present research with more diverse facial stimuli. More research on sex differences in decoding abilities is needed before definitive conclusions can be made.

The Take-Home Message

While females and males rated themselves similarly in terms of expected performance in decoding emotion, females with regard to anger (and marginally with regard to fear), decoded emotion significantly better than males.

References

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