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Empathy costs: Negative emotional bias in high empathisers

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ABSTRACT

Excessive empathy has been associated with compassion fatigue in health professionals and caregivers. We investigated an effect of empathy on emotion processing in 137 healthy individuals of both sexes. We tested a hypothesis that high empathy may underlie increased sensitivity to negative emotion recognition which may interact with gender. Facial emotion stimuli comprised happy, angry, fearful, and sad faces presented at different intensities (mild and prototypical) and different durations (500 ms and 2000 ms). The parameters of emotion processing were represented by discrimination accuracy, response bias and reaction time. We found that higher empathy was associated with better recognition of all emotions. We also demonstrated that higher empathy was associated with response bias towards sad and fearful faces. The reaction time analysis revealed that higher empathy in females was associated with faster (compared with males) recognition of mildly sad faces of brief duration. We conclude that although empathic abilities were providing for advantages in recognition of all facial emotional expressions, the bias towards emotional negativity may potentially carry a risk for empathic distress.

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1. Introduction

Empathy as the ability to share and understand another person's feelings has been known to underlie effective social interactions (Baron-Cohen and Wheelwright, 2004; Singer and Lamm, 2009).

Empathy is a multidimensional construct. Researchers in the field have traditionally described two facets of empathy: emotional empathy and cognitive empathy (for review see Gonzalez-Liencre et al., 2013). Apart from the above aspects of empathy, some authors (Decety and Jackson, 2004; Decety and Lamm, 2006) have outlined the control mechanisms that regulate whether someone's empathic reactions are self or other-oriented.

Zahn-Waxler et al. (2000) emphasised that empathy is a necessary component of emotional health and well-being. The authors postulated that deviations towards either low or excessive empathy are reflected in different forms of psychopathology. In particular, the empathy deficits have been observed in psychiatric disorders that are known for poor interpersonal relationships e.g. Autism spectrum disorders (Sucksmith et al., 2013; Dapretto et al., 2006) and psychopathy (Mullins-Nelson et al., 2006). On the other hand, excessive empathy has been associated with vulnerability to

emotional disorders in health professionals and caregivers. These conditions have been described under different terms—empathic distress, compassion fatigue or burnout, all of which were associated with an intense sharing of the other's negative emotions (Batson et al., 1987; Eisenberg et al., 1989; Gleichgerrcht and Decety, 2012). It has been also found that emotional empathy in caregivers positively correlated with emotional exhaustion (Williams, 1989) or with decreased life satisfaction (Lee et al., 2001).

In order to better understand mechanisms of distress in high empathisers, it would be useful to investigate relationships between empathic abilities and individual characteristics of emotion processing. Facial emotion recognition has been known as reliable tool for emotion research (Leppanen, 2006). Studies in non-clinical populations have demonstrated positive relationships between self-reported emotional empathy and facial emotion recognition. Thus, study of Besel and Yuille (2010) using fearful expressions of varying durations (50 ms and 2000 ms) demonstrated superior facial emotion recognition in high vs. low empathisers. Gery et al. (2009) employed a paradigm with different emotions (anger, disgust, fear, happiness, neutral, sadness, and surprise) of varying intensity and found a main effect of empathy on emotion recognition. A meta-analysis (Marsh and Blair, 2008) showed deficits of fearful facial emotion recognition among antisocial populations. The authors emphasized that lack of empathy was one of the characteristics common for all study samples included – which lends support to the link between empathy and facial affect

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recognition. However, a study of patients with traumatic brain injury vs. control participants (Neumann et al., 2014) reported no significant association between affect recognition and the affective empathy as measured by Empathic Concern subscale of Interpersonal Reactivity Index (Davis, 1983). The authors acknowledged that these results were unexpected, which may have been due to the use of different methods (affect recognition task and empathy measure) compared with other studies. A replication of the above results on larger sample has been proposed. Importantly, the data were not controlled for depression, anxiety and cognitive/neuropsychological status which may have been important covariates with empathy and affect recognition. Therefore, the generalisability of the above findings is limited.

Thus, although there are some indications of positive association between empathy and facial affect recognition, more research on non-clinical populations is warranted.

Importantly, the emotion recognition and empathy have been found to interact with sex. Riggio et al. (1989) employed a paradigm with faces expressing a range of emotions (happiness, sadness, anger, disgust, fear and surprise vs. neutral faces). In the whole sample, emotional empathy index was positively correlated with the ability to recognise emotional expressions. However, if taken separately by male and females, the positive correlations between emotional empathy and the emotion recognition seemed to hold only for female subjects. There was a negative relationship for male subjects between the scores of IRI personal distress and success in emotion recognition task. The interaction of sex and empathy during facial affect recognition was demonstrated in neuroimaging study (Rueckert and Naybar, 2008) adding to the notion of neurobiological mechanisms of empathy.

Females in general have been known to outperform the males in recognising others' facial expressions, especially negative ones (Hampson et al., 2006; Thompson and Voyer, 2014).

On the other hand, women have been consistently found to score higher in empathy, compared with men (Hoffman, 1977; Rueckert and Naybar, 2008; Baron-Cohen, 2010; Perry et al., 2013). The gender effect is observable as early as the age 5–7 (Hastings et al., 2000) and has been demonstrated not only in Western but also in Asian populations (Shashikumar et al., 2014). The authors of recent review argued that these gender differences in empathy have phylogenetic and ontogenetic roots in biology and are not merely cultural by-products driven by socialisation (Christov-Moore et al., 2014).

Taken together, the studies suggest that empathy either on its own or in interaction with sex could contribute to individual differences in emotion processing. It is less clear, whether the empathy improves recognition of all emotions or there is a valence – specific effect, e.g. better recognition of positive or negative emotions.

We have designed our study with the aim to examine the effects of empathy and sex on emotion processing in healthy individuals.

We employed an experimental task involving facial affect recognition of four emotional expressions – fearful, angry, happy and sad. This neuropsychological paradigm differed from the above mentioned affect recognition tasks (Besel and Yuille, 2010; Gery et al., 2009) in that it combined three different factors: there were four types of emotions, presented at various degrees of intensity and at different durations. The expressions were either of mild (50%) or prototypical (100%) degree and were presented at two different durations – 500 ms and 2000 ms. By employing rapid stimuli of mild degree we attempted to bring the experimental conditions closer to everyday life where the emotional signals are far less intense than are the prototypical facial expressions that are contained in standardized picture sets (LeMoult et al., 2009). In terms of presentation timing, it has been proposed that testing

accuracy to briefly presented expressions presumably isolates an important early component of the empathy process, accessing a more automatic level of emotion processing (Besel and Yuille, 2010).

We set out to experimentally test the following hypotheses:

1. Based on the reports of excessive sharing of negative affect by high empathisers, and the evidence of empathisers' superiority in facial emotion recognition, we predicted that high empathisers will outperform low empathisers in processing of emotionally negative faces.
2. Based on females' superiority in recognising negative emotions and their greater ability to empathise (compared with males), we predicted that females with high levels of empathy will perform better than males in identifying negative facial emotions.

2. Methods

2.1. Participants

The sample comprised 137 students and staff (92 females) of Ilia State University in Tbilisi, Georgia, who were recruited by advertising via the website.

All participants were White Caucasians, neuro-psychiatrically healthy, with normal or corrected to normal vision, and no reported history of mental illnesses. The SCID screen (First et al., 2007) was used to exclude any mental illness, organic brain injury or substance abuse. Each participant signed an informed consent form. The study was approved by the Academic Committee of the Ilia State University. The experimental procedure was in accordance with the ethical standards of the World Medical Organization (1996). The demographical and psychometric data are detailed in Table 1.

2.2. Instruments

Wechsler Adult Intelligence Scale (WAIS-III, Wechsler, 1997) subtests of Block design and Matrix reasoning were administered and composite pro-rated scores and full-scale IQ were derived.

The following self-administered questionnaires were employed:

Empathy Quotient EQ (Baron-Cohen and Wheelwright, 2004). This instrument provides for measurement of trait Empathy. It has been demonstrated that EQ appears to be picking up considerable individual, sex, and group differences, in both a general population sample and a clinical sample. The questionnaire comprises 60 statements (40 tapping on empathy and 20 filler statements). Responses are given on a 4-point Likert scale. Scores can range from 0 to 80. The original version of the EQ showed acceptable internal consistency, concurrent and convergent validity, and good

Table 1
Demographic and psychometric data.

	Females (92)	Males (45)	t(df)	Significance (p)
Age (SD)	29.9 (9.6)	24.9 (6.5)	t(134)=3.6	0.000
IQ (SD)	104.6 (11.3)	106.6 (11.6)	t(135)=0.96	0.34
Education years (SD)	12.2 (3.1)	12.0 (4.1)	t(135)=0.33	0.74
EQ (SD)	45.2 (10.1)	40.53 (10.0)	t(134)=2.5	0.011
STAI trait (SD)	39.34 (9.48)	35.47 (7.59)	t(134)=2.3	0.018
STAI state (SD)	37.7 (11.9)	35.1 (8.3)	t(135)=1.3	0.20

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