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Emotion recognition bias for contempt and anger in body dysmorphic disorder

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Abstract

Body dysmorphic disorder (BDD) patients are preoccupied with imagined defects or flaws in appearance (e.g., size or shape of nose). They are afraid of negative evaluations by others and often suffer significant morbidity including hospitalization and suicide attempts. Many patients experience ideas of reference, e.g., they often believe others take special notice of their "flaw".

Facial expressions play an important role in conveying negative or positive feelings, and sympathy or rejection. In this study, we investigated emotion recognition deficits in 18 BDD patients and 18 healthy controls. Participants were presented with two questionnaires accompanying facial photographs. One questionnaire included self-referent scenarios ("Imagine that the bank teller is looking at you. What is his facial expression like?"), whereas the other one included other-referent scenarios ("Imagine that the bank teller is looking at a friend of yours," etc.), and participants were asked to identify the corresponding emotion (e.g., anger, contempt, neutral, or surprise). Overall, BDD patients, relative to controls, had difficulty identifying emotional expressions in self-referent scenarios. They misinterpreted more expressions as contemptuous and angry in self-referent scenarios than did controls. However, they did not have significantly more difficulties identifying emotional expressions in other-referent scenarios than controls.

Thus, poor insight and ideas of reference, common in BDD, might be related to a bias for misinterpreting other people's emotional expressions as negative. Perceiving others as rejecting might reinforce concerns about one's personal perceived ugliness and social desirability.

Keywords: Body dysmorphic disorder; Emotion recognition; Facial expression; Self-referent; Other-referent; Contempt

1. Introduction

Body Dysmorphic Disorder (BDD) patients are distressed about imagined or slight physical defects in their appearance, most commonly "flaws" in one's own face (American Psychiatric Association [APA], 1994). Associated features are frequent checking in mirrors and other reflective surfaces (e.g., store windows) and excessive grooming behaviors (e.g., hair combing, makeup application, or skin picking). Although classified as a somatoform disorder, BDD patients, like sufferers of other anxiety disorders such as social phobia, are often characterized by fear of negative evaluation by others (e.g., Buhlmann et al., 2002a; Hollander et al., 1992). BDD patients, however, are also characterized by a strong fear of appearance-related negative evaluation.

BDD patients may also experience ideas of reference related to their "flaw" (APA, 1994). That is, they are often convinced that others take special notice of the "flaw" and talk about or mock it. If insight is very poor, patients may qualify for an additional diagnosis of delusional disorder, somatic subtype. However, it is possible

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that both delusional and nondelusional forms of BDD reflect one single disorder with different degrees of insight (Phillips et al., 1994). Moreover, BDD is associated with significant morbidity, including social or occupational impairment, being housebound, hospitalization and suicide attempts (e.g., Phillips et al., 1993).

Previous research has shown that selective information processing might play an important role in the maintenance or etiology of psychological disorders (for review, see Williams et al., 1997). For example, BDD patients, in contrast to healthy controls, selectively attended to BDD-related words such as "attractive" or "ugly". This may explain why BDD patients are so preoccupied with both their beauty ideal and perceived defect (Buhlmann et al., 2002a). Furthermore, compared to OCD patients and healthy controls, BDD patients interpreted a range of ambiguous situations (BDD-related, social, and general) as threatening, whereas OCD patients only exhibited a negative interpretive bias in ambiguous general situations (Buhlmann et al., 2002b). Thus, it may be that selective processing of threat leads to increased anxiety in these situations, and BDD patients might, as a result, avoid them.

Cooper (1997) asked eating-disordered patients and healthy controls to rate ambiguous scenarios that were either self-referent (including themselves in the situation; e.g., "Two friends are giggling and whispering behind you. They're saying something uncomplimentary about you. What do you think they're saying?") or other-referent (including another person in the situation; e.g., "Two friends are giggling and whispering behind your friend..."). Half of the scenarios described negative events and the other half described positive events. Participants were given three possible interpretations, one of which was weight-related (e.g., "that you look fat and unattractive"). Cooper (1997) found that the eating-disordered group exhibited only a negative interpretive bias in self-referent scenarios. However, the reversed pattern was found in other-referent scenarios: They exhibited a positive interpretive bias if they imagined other people in that ambiguous situation.

Most researchers investigating selective information processing used words as stimuli, and there is little research investigating "real life" stimuli such as faces. However, it is advantageous to use more ecologically valid stimuli to investigate information-processing abnormalities (e.g., Lundh and Öst, 1996). Thus, recently, ecological valid stimuli such as pictures, faces or facial expressions have been applied to the field of experimental psychopathology (e.g., Constantine et al., 2001; Foa et al., 2000; Mansell et al., 1999).

Specifically, facial expressions are an important means to express negative or positive thoughts, feelings, and attitudes such as sympathy and rejection, and researchers have investigated the ability to recognize facial expressions in individuals with psychiatric disorders. Given the strong fear of negative evaluation and the frequent presence of ideas of reference (e.g., that other people stare at them), individuals with BDD might be particularly sensitive to facial expressions. For example, they might interpret a person's facial expression as negative when it is actually neutral. Therefore, the ability to recognize facial expressions may play a role in the maintenance, or even etiology, of disorders that are characterized by a strong fear of negative evaluations, such as BDD.

Investigating emotion recognition in BDD, we recently found that BDD patients, overall, performed significantly poorer in recognizing other people's emotional expressions, relative to healthy controls (Buhlmann et al., 2004). Moreover, relative to controls, BDD patients exhibited a recognition bias for angry facial expressions (e.g., they misidentified neutral expressions as angry). These recognition biases for threatening facial expressions might help us understand why psychiatric patients, especially those with an excessive fear of negative evaluation by others such as BDD patients, develop or maintain these fears and consequently tend to avoid social situations.

To our knowledge, emotion recognition biases in self-referent and other-referent scenarios have never been examined in BDD. Thus, in the current study, we investigated whether BDD patients, relative to healthy controls, are characterized by recognition biases for threatening facial expressions. We further investigated whether BDD patients only exhibit this recognition bias in self-referent situations (e.g., *Imagine yourself being in this situation*) or also in other-referent situations (e.g., *Imagine a friend being in this situation*).

2. Methods

2.1. Participants

The BDD group was comprised of 18 outpatients (4 men, 14 women), all of whom were diagnosed with BDD (DSM-IV; APA, 1994). Diagnoses were confirmed by structured clinical interviews (SCID; First et al., 1995). BDD participants were preoccupied with the following body part(s): eyes ($n = 5$), hair ($n = 5$), nose ($n = 5$), teeth ($n = 4$), skin ($n = 4$), stomach ($n = 3$), arms ($n = 2$), breasts ($n = 2$), feet ($n = 2$), chest ($n = 1$), ears ($n = 1$), eyebrows ($n = 1$), lips ($n = 1$), muscle size ($n = 1$), and thighs ($n = 1$). SCID interviews revealed the following comorbid diagnoses: social phobia ($n = 6$), major depression ($n = 4$), OCD ($n = 5$), anorexia nervosa ($n = 3$), generalized anxiety disorder ($n = 3$), specific phobia ($n = 2$), bulimia nervosa ($n = 1$), dysthymia ($n = 1$), panic disorder ($n = 1$), and posttraumatic stress disorder ($n = 1$). If BDD patients had a comorbid diagnosis, BDD had to be the primary concern. The