



Selective attention to imagined facial ugliness is specific to body dysmorphic disorder

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ARTICLE INFO

Article history:

Received 13 July 2011

Received in revised form 10 January 2012

Accepted 10 January 2012

Keywords:

Body image

Body dysmorphic disorder

Selective visual attention

Eye tracking

ABSTRACT

Cognitive-behavioral models postulate that biases in selective attention are key factors contributing to susceptibility to and maintenance of body dysmorphic disorder (BDD). Visual attention in particular toward the imagined defect in appearance may be a crucial element. The present study therefore examined whether individuals with BDD showed increased visual attention to flaws in their own and in unfamiliar faces. Twenty individuals with BDD, 20 individuals with social phobia, and 20 mentally healthy individuals participated in an eye-tracking experiment. Participants were instructed to gaze at the photographs of 15 pictures of themselves and several unfamiliar faces. Only patients with BDD showed heightened selective visual attention to the imagined defect in their own face, as well to corresponding regions in other, unfamiliar faces. The results support the assumption that there is a specific attentional bias in BDD.

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Introduction

Body dysmorphic disorder (BDD) is characterized by preoccupation with perceived defects in one's appearance (American Psychiatric Association, 2000). Patients are distressed about abnormalities in their appearance that are either imaginary or constitute only minor physical anomalies (Phillips, 2005; Veale & Neziroglu, 2010). Individuals with BDD exhibit fear and avoidance of situations in which they may be exposed to scrutiny and negative evaluation; they have recurrent, intrusive thoughts about their ugliness that are difficult to resist and prompt checking and grooming (Buhlmann, McNally, Wilhelm, & Florin, 2002). Many individuals with BDD also report low self-esteem (Buhlmann, Teachman, Gerbershagen, Kikul, & Rief, 2008; Phillips, 2005). Therefore, BDD shares some essential features with social anxiety disorder, among them fear and/or avoidance of social situations and low self-esteem. Accordingly, the most frequent comorbid disorders (lifetime) found in a study with 293 BDD patients were social phobia, major depression, obsessive–compulsive disorder, and substance use disorders (Gunstadt & Phillips, 2003). The common comorbidity of BDD and social phobia is also emphasized in current treatment manuals for BDD; for example, a range between 16% and 69% (Veale & Neziroglu,

2010). Kelly, Walters, and Phillips (2010) even suggested that social anxiety is a prominent characteristic of body dysmorphic disorder. These authors found that greater social anxiety in individuals with BDD was associated with poorer psychosocial functioning in cross-sectional and prospective analyses, particularly fear and avoidance of social situations (Kelly et al., 2010). They concluded that social anxiety may be a significant contributory factor to functional impairment in individuals with BDD. These results indicate a conceptual overlap between BDD and social phobia, which is also reflected in similarities of assumed information processing.

Cognitive theories postulate that different information processing may contribute to the vulnerability to and maintenance of depression and anxiety disorders (e.g., Clark & Beck, 2010). Many studies have indicated that patients with anxiety disorders exhibit attentional biases favoring the processing of threatening information (Mathews & Mackintosh, 1998; McNally, 1996; Mogg & Bradley, 1998; Williams, Watts, MacLeod, & Mathews, 1997). Selective attention and self-focus specifically are well-known features of social anxiety disorder. In a recent review, Machado-de-Sousa et al. (2010) concluded that the majority of studies with very socially anxious individuals provide converging evidence for abnormal patterns of facial information processing with a bias in favor of negative emotions despite the variety of tasks and stimuli used (Machado-de-Sousa et al., 2010). This review also contained studies that used eye-tracking methodology to assess such biases. One of these showed naturalistic photos of sad, neutral and happy faces to individuals with social phobia and to healthy controls (Horley, Williams, Gonsalvez, & Gordon, 2003). Individuals with SP

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particularly avoided the eye region, and scanned the peripheral regions extensively (Horley et al., 2003). This pattern was most pronounced for negative (sad) faces (Horley et al., 2003).

Similarly, several authors argue that failures in perception and processing of information are also key factors that underlie vulnerability to, and maintenance of, BDD (for example, Stangier, 2002; Veale, 2004). Buhlmann, Etcoff, and Wilhelm (2008) presented individuals with BDD, individuals with obsessive–compulsive disorders and mentally healthy control participants with pictures displaying faces varying in attractiveness and asked them to rate them in terms of their attractiveness. Individuals with BDD perceived their own attractiveness as significantly less than did the independent evaluators, and rated attractive photographs as significantly more attractive than did the other two groups (Buhlmann, Etcoff, et al., 2008). This suggests that information processing in BDD may indeed also be impaired, although little research has focused on attentional or memory biases despite the fact that they are the centerpiece of etiological CBT models for BDD. For example, Veale (2004) suggested that an individual with BDD sees a grossly distorted body image in the mirror and that activation of mental imagery is associated with an increased self-focused attention, again pointing to processes which are also highly relevant to social phobia (Hackmann, Clark, & McManus, 2000). Self-referent information, however, can include images of the self as an esthetic object and to become aware of such information is a non-specific process that can occur in a wide range of disorders from social phobia to schizophrenia. Veale (2004) and others (Woodruff-Borden, Brothers, & Lister, 2001) hypothesized that the degree of self-focused attention is associated with the severity of symptoms and degree of preoccupation. In severe cases of BDD, the attention capacity is supposedly dominated by distorted and negative appraisal (Veale, 2004). Increased self-focused attention specifically targeting aspects of the physical appearance increases the specificity of BDD (Veale, 2004). It remains unclear, however, why BDD patients see distorted images when looking in the mirror: it could be that individuals with BDD may be selectively attending to a distorted body image and may therefore be less accurate in attending to other areas of their body which are less threatening (Veale, 2004).

In sum, body dysmorphic disorder and social anxiety disorder share a number of similar features, among them self-focus and increased levels of social anxiety, but they also differ in some ways. In the current classification systems, the disorders are differently classified and conceptualized, with BDD assigned to the somatoform disorders and social phobia assigned to the anxiety disorders. This conceptualization of BDD has been controversial in the past (Stangier, 2002), but there is some research on BDD and its relation to other disorders wherein BDD is often conceptualized as an OC-spectrum disorder (Phillips et al., 2010). Identifying similarities and differences in biased information processing may enhance our etiological understanding of BDD and may also help us to tailor effective treatments. In sum, many predisposing factors have been discussed in the literature. Many of these are hypothesized, however, and still need to be established.

Accordingly, the aim of the present study was to extend knowledge about attentional processes in individuals with BDD. We assumed BDD patients to exhibit specific patterns of visual attention, i.e., a heightened awareness of disliked features of their own face and consequently significantly more interest in these features when they viewed their own face. We expected more frequent fixations and longer fixation durations for these regions when the face was examined compared with a sample of age- and gender-matched adults without a present mental disorder (nonclinical control group) or a clinical sample with an anxiety disorder (individuals with SP). Furthermore, we also assumed a heightened awareness of the corresponding facial regions in unfamiliar faces.

This assumption is based on the fact that appearance-related comparisons between oneself and others are among the most common BDD-related behaviors of all (Phillips, 2005): Individuals suffering from BDD frequently compare their misshapen body part with the corresponding body part of others. Furthermore, these biases should be unique to BDD. In contrast, both individuals with BDD and individuals with social phobia were expected to show avoidance of the eye region when scanning unfamiliar faces. This is based on the fact that high levels of social anxiety (e.g., in analog samples) seem to be adequate for facial processing abnormalities (Machado-de-Sousa et al., 2010) and individuals with BDD often also report increased levels of social anxiety in the absence of a comorbid social phobia diagnosis. In addition, individuals with BDD may show a bias toward misinterpreting emotional expressions of unfamiliar individuals as negative (Buhlmann, Etcoff, & Wilhelm, 2004), so that their attention when gazing at the eyes of unfamiliar people is affected (Buhlmann et al., 2004). In line with Horley et al. (2003) and Buhlmann et al. (2004), it is assumed that facial expression will influence eye avoidance with the pattern being most pronounced when both SP and BDD participants scan sad faces. Moreover, we expected individuals with BDD or SP to be more depressed, more socially anxious, and more concerned about their appearance than mentally healthy individuals. Whereas individuals with BDD should show the highest standard for appearance concerns and obsessive–compulsive symptoms, individuals with SP should report the highest level of social anxiety. Finally, individuals without a mental disorder were expected to yield the lowest scores on all measures.

Method

Participants and Sampling Procedure

We compared (a) 20 individuals with BDD with (b) 20 individuals with social phobia, and (c) 20 mentally healthy controls (total sample size: $N=60$) in visual inspection of unfamiliar faces and their own face. For the BDD sample, we only included individuals with facial concerns. This was because (1) useful knowledge is available about the general information processes occurring in face recognition, (2) the face is among the areas of the body which are comparatively easy to standardize and (3) individuals with BDD often report being concerned about facial abnormalities.

We excluded patients with psychosis or with drug or alcohol abuse or dependence. The present study required a primary diagnosis of BDD (which may include social anxiety symptoms as well) or social phobia (which may include appearance concerns). Social anxiety in BDD is common, and individuals often report that they feel uncomfortable or have a fear of rejection caused by their (perceived) poor social performance. Participants who met the diagnostic criteria for social phobia, e.g., by being clinically significantly distressed by their social concerns, were excluded. In our sample, individuals diagnosed with BDD did not therefore meet these diagnostic criteria. Similarly, individuals with social phobia who met the diagnostic criteria for BDD were excluded. Again, this group of individuals may have reported isolated appearance concerns, but these were not acceptable for the study if they provoked clinical distress by themselves. Individuals who met the criteria for both disorders were excluded from the present study. In contrast, we did not exclude individuals with major depression because it is such a frequent comorbid disorder in both BDD (Gunstadt & Phillips, 2003) and social phobia (Wittchen & Fehm, 2003) that (1) it would be difficult otherwise to recruit a sufficient number of participants and (2) the validity of this sample would consequently have been very limited. Also, depressive disorders have been shown rather biases in post-attentive elaborative processes which facilitate recall

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