The relationship between body dysmorphic concerns and the effects of image suppression: Implications for models of body dysmorphic disorder

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**Abstract**

A key clinical feature of body dysmorphic disorder (BDD) is the use of avoidance behaviours to minimise discomfort associated with perceived defects in appearance. While overt avoidance, such as avoidance of social situations, has been well-documented (e.g., Phillips, 2005), covert avoidance, such as image suppression, has not been explored. This study investigated the role of suppression of negative self-imagery in the maintenance of dysmorphic concern. Undergraduate participants completed a thought suppression paradigm with an experimentally-constructed negative self-image as the target. Dysmorphic concern was associated with how distressing and vivid an appearance-related intrusion was, although it did not affect whether participants engaged in suppression of the intrusion. Instructions to suppress the image led to reduced intrusion frequency and discomfort but it did not affect the quality (e.g., vividness) of intrusions. In addition, participants high in dysmorphic concern were more likely to internalise distorted appearance-related information and be disgusted by that information. Implications for models of body dysmorphic disorder are discussed.

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1. Introduction

Body dysmorphic disorder (BDD) is a disorder characterised by a distressing or impairing preoccupation with a perceived defect in appearance that is often accompanied by repetitive or compulsive behaviour directed toward the defect. BDD shares many similarities with OCD in clinical features, demographic features, psychiatric comorbidity and similar treatment response to serotonergic medication (e.g., Phillips et al., 2007). For this reason BDD has widely been considered to be an OCD spectrum disorder.

BDD patients have been found to engage in a number of behavioural avoidance strategies intended to reduce anxiety and other negative emotional states associated with negative judgements of their own appearance (e.g., Didie, Kelly, & Phillips, 2010). While these overt avoidance patterns, such as mirror avoidance and social withdrawal, have been well-documented, more covert methods of avoidance have not yet been investigated. Thought suppression is one such method by which individuals with BDD may attempt to avoid internal reminders of their appearance flaws.

BDD patients have been shown to report more vivid and negative intrusive appearance-related images that are viewed from an observer (third-person) perspective compared to controls (Osman, Cooper, Hackmann, & Veale, 2004). In addition, preliminary data from our laboratory suggests that body dysmorphic disorder patients and undergraduates high in dysmorphic concern engage in more suppression of appearance-related imagery than anxious control participants and undergraduates lower in dysmorphic concern (Onden-Lim & Grisham, Unpublished). We posit that suppression of these appearance-related images may contribute to the maintenance of the disorder.

A large body of research on thought suppression suggests that efforts to suppress unwanted cognitions are likely to be ineffective and ultimately maladaptive, since unwanted thoughts can paradoxically increase after a period of suppression (Abramowitz, Tolin, & Street, 2001; Wenzlaff & Wegner, 2000). Furthermore, increases in target thought frequency are often accompanied by negative emotions such as frustration and distress, which in turn fuel further suppression efforts and other avoidance behaviours (Purdon, 1999; Salkovskis & Campbell, 1994). These mechanisms have been shown to play a major role in the maintenance of other disorders (e.g., Purdon, 1999; Purdon, Rowa & Antony, 2005). Much of this previous thought suppression research, however, has failed to distinguish between cognitions that are primarily verbal in nature and those that are imagery-based. Semantic and imagery-based cognitions differ qualitatively (Paivio, 1971) and in their relation with memories and emotions (Holmes & Mathews, 2010; Holmes, Mathews, Mackintosh, & Dalgeish, 2008). The verbal thought-imagery distinction may be particularly important...
in BDD since appraisals about the self are often based on internal perceptual representations of actual and ideal selves (Veale & Neziroglu, 2010). Furthermore, imagery appears to be more closely tied to the affective system than verbal thoughts (Holmes & Mathews, 2010). Thus, the overarching aim of the current study was to conduct a preliminary investigation of the role of suppression of negative self-images in the maintenance of BDD.

In order to accomplish this aim, we induced negative self-images in an undergraduate population using a distorted photograph of each participant. First, we examined the association between level of dysmorphic concern and reaction to the negative self-image prior to any explicit instructions. Second, we investigated the effect of experimental instructions to suppress the induced negative self-imagery.

We hypothesised that dysmorphic concern would predict more frequent intrusions of negative self-imagery, more efforts to suppress that imagery, and more discomfort experienced during intrusions. We also predicted that higher dysmorphic concern would be associated with more vivid, longer intrusions and more use of the observer perspective in line with Osman et al.’s (2004) study, as well as more disgust toward and reportedbelievability of the negative self-imagery. Disgust and believability of an induced negative self-image were introduced as additional variables based on BDD case reports of high levels of reported disgust toward appearance and the tendency for patients to use distorted non-mirror reflecting surfaces for feedback about the appearance (Phillips, 2005; Veale & Riley, 2001). We predicted that the above associations would remain significant controlling for general psychopathology and baseline mood.

Consistent with previous thought suppression research (e.g., Abramowitz et al., 2001), we hypothesised that suppression of negative self-imagery would result in more frequent intrusions in the post-suppression period, and more discomfort experienced during intrusions both during and after the suppression period. We also predicted that suppression would decrease the duration of intrusions, since they would be terminated earlier, but not affect their quality (vividness and perspective).

2. Method

2.1. Participants

Ninety-two first year undergraduate students (67 female) were recruited from the University of New South Wales and participated in exchange for course credit. Mean age of the students was 19.92 (SD = 2.61) years and mean years in education was 14.19 (SD = 1.41). The majority of the sample was Asian (n = 39) or Anglo-saxon (n = 32), with the remaining participants describing themselves as mixed or other race (n = 22). Two participants who met diagnostic criteria for BDD were excluded for ethical reasons.

2.2. Materials

2.2.1. Distorted photograph

A portrait photograph of the participant displaying a neutral expression was digitally altered to include a prominent dry white wart in the nasal region of the face using the Paint.net programme. This procedure has been adopted in previous studies (e.g. Holmes, Mathews, Dalgeish, & Mackintosh, 2006). Afterward, the researcher asked participants to rate their current mood (10-point scale), discomfort experienced when the intrusions occurred (11-point scale), and effort to suppress intrusions when the intrusions occurred; and to report the vividness (10-point scale), perspective (as if from one’s own eyes vs. as if from a third person point of view; 7-point scale), average duration of intrusions (s), believability of the modified photo (10-point scale), and how disgusting they found the modified photo (10-point scale).

2.2.2. Body Dysmorphic Disorder Diagnostic Module for Adults (BDD Diagnostic Module; Phillips, 2005)

This is a brief semi-structured clinician-administered diagnostic measure that maps onto the DSM-IV diagnostic criteria for BDD. The BDD Diagnostic Module has excellent interrater reliability (kappa = .96; Phillips, 2005).

2.2.3. Body Image Concern Inventory (BICI; Littleton, Axsom & Perry, 2005)

The BICI is a 19-item self-report measure of dysmorphic concern. That is, concern about, and preoccupation with, a perceived defect in appearance, excessive checking or camouflaging of the defect, social avoidance and reassurance seeking. It has good internal consistency in college and multietnic community samples (Cronbach’s alpha = .93 – .94), good concurrent validity (r = .83, BDDE-SR; r = .60, BDD-Y-BOCS), reasonable convergent validity with eating disorder measures (r = .52), and has excellent sensitivity (96%) (Littleton et al., 2005; Littleton & Breitkopf, 2008). The BICI was also selected because it was developed using an undergraduate population (Littleton et al., 2005). In the current study Cronbach’s alpha was .91.

2.2.4. 21-Item Depression Anxiety Stress Scales (DASS21; Lovibond & Lovibond, 1995)

The DASS21 consists of three 7-item self report scales taken from the full version of the Depression Anxiety Stress Scales. The subscales show good concurrent validity, excellent construct validity and excellent reliability (Cronbach’s alphas = .94 for depression, .87 for anxiety, and .91 for stress; Antony, Bieling, Cox, Enns, & Swinson, 1998; Clara, Cox, & Enns, 2001). Furthermore, each of these subscales have been shown to tap a more general dimension of psychological distress (Henry & Crawford, 2005). In this study Cronbach’s alphas for the depression, anxiety and stress subscales were .83, .78, and .83, respectively.

2.3. Procedure

Fig. 1 shows the flow of participants through each stage of the experiment. Participants signed statements of informed consent and were tested individually by one female graduate level researcher. The experimenter first administered the BDD Diagnostic Module. If participants met criteria for BDD they were debriefed and the experiment was terminated. The remaining participants stood next to a white backdrop and the experimenter took a picture of the participant’s face and neck (neutral expression). Participants then completed the BICI and reported their demographic information. BICI scores were collected at the start of the experiment for matching purposes. Meanwhile, the researcher uploaded and digitally altered the image to include a prominent crusty wart on nasal region of the face using the programme Paint.net. Next, the researcher guided participants through a brief practice visualisation task of cutting a lemon to engage participants in the use of imagery. This procedure has been adopted in previous studies (e.g. Holmes, Mathews, Dalgeish, & Mackintosh, 2006). Afterward, the researcher asked participants to take part in another visualisation task that they should “try to imagine the scenario as vividly as possible”. The researcher read aloud the following passage:

“Imagine you are entering the university food court. You are on your way to a group meeting over lunch with 4 other students. You feel quite hot and flustered because you’ve been hurrying in order to get there on time. As you enter you notice that it is very crowded and noisy with the sound of people chatting away. The wonderful smells of food in the air make your stomach rumble and your mouth water. After a short look around you spot your group members sitting at a table at the back. You head over to greet them. As you say hi, you notice two of them looking at you strangely. One of them asks you, ‘What’s that on your nose?’ You run your hand across your face and feel a large pea-sized lump. It feels dry, rough and bumpy. Hurriedly, you head to the bathroom. You look into the mirror and this is what you see…”

The researcher immediately presented the participants’ own modified images (target image) back to the participants on a computer screen for 10 s, a period intended to be sufficient for participants to engage with the image without becoming bored. If a participant looked away from the screen during this time, the researcher gently directed his or her gaze back to the image. At the end of the viewing time, all participants were instructed to monitor their thoughts for 3 min and press the space bar if they experienced a thought about the story or target image during this time (Baseline, see Fig. 1). The key press procedure was utilised in this study because it is less intrusive than other means (e.g., verbalising one’s stream of consciousness) and may therefore be less likely to affect response rates and incur problems of participants wanting to appear compliant with the instructions (Purdon, 2004).

Monitor instructions. “During the next three minutes, you will be asked to monitor your thoughts. During this time you may think about anything you like,
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