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Shorter communication

Social-evaluative versus self-evaluative appearance concerns in Body Dysmorphic Disorder

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A B S T R A C T

Body Dysmorphic Disorder (BDD) is characterised by significant preoccupation and distress relating to an imagined or slight defect in appearance. Individuals with BDD frequently report marked concerns relating to perceived negative evaluation of their appearance by others, but research specifically investigating such concerns remains limited. This study investigated the extent and nature of appearance-related social-evaluative and self-evaluative concerns in individuals with BDD and healthy controls. BDD participants, in comparison to controls, reported high levels of importance and anxiety associated with perceptions of others' views of their appearance, in addition to their own view. No differences were observed in the level of importance and anxiety associated with their self-view in comparison to others' views. These findings support existing evidence indicating that appearance-related social-evaluative concerns are a central feature of BDD. Cognitive-behavioural treatment implications are discussed.

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Introduction

Body Dysmorphic Disorder (BDD) is defined as a preoccupation with an imagined or slight defect in appearance which causes clinically significant distress or impairment in functioning (American Psychiatric Association, 2000). The diagnostic criteria for BDD indicate that by definition people with the disorder experience significant concerns relating to their own evaluation of their appearance, and this is supported by extensive research evidence (e.g. Didie, Kuniega-Pietrzak, & Phillips, 2010; Hrabosky et al., 2009; Phillips, McElroy, Keck, Pope, & Hudson, 1993). The diagnostic description also notes that individuals with BDD frequently experience social-evaluative anxiety due to their appearance concerns. Research exploring the specific nature and extent of social-evaluative appearance anxiety and concerns in BDD, on the other hand, remains more limited.

The authors of two recent studies investigating multiple domains of body image in individuals with BDD (Didie et al., 2010; Hrabosky et al., 2009) have emphasised that whilst body image is multidimensional, comprising body image evaluation, satisfaction, attitudes, emotions and behaviours, as well as investment in and importance attached to appearance (e.g. Cash, 2002a), there has been limited research investigating the range of domains of body image in BDD. In terms of self-related body image attitudes and beliefs, Hrabosky et al. (2009) found that BDD patients reported higher levels of overall body dissatisfaction and lower appearance evaluation than clinical controls, with levels being similar to eating disorder groups, and higher levels of self-evaluative and appearance managing investment, and greater body image impairment than individuals with eating disorders. Didie et al. (2010) found that BDD patients reported lower levels of appearance evaluation and greater body dissatisfaction in comparison to published population norms, and males with BDD reported higher levels of appearance investment compared to norms for men.

The studies by Hrabsoky et al. and Didie et al. focused primarily on self-related components of body image. In terms of social-evaluative aspects of appearance concern in BDD, surveys and clinical observations indicate that individuals with the disorder frequently report marked fear of negative evaluation of their appearance by others (e.g. Buhlmann, McNally, Etcoff, Tuschen-Caffier, & Wilhelm, 2004; Fang & Hofmann, 2010; Hollander & Aronowitz, 1999; Phillips et al., 1993). Veale, Boocock, Gournay, and Dryden (1996), in a study that included exploration of the relative degree of appearance-related self-evaluative and social-evaluative concerns, found that fifty-eight percent of BDD patients reported more concern relating to their own perceptions of their appearance, whilst forty-two percent indicated greater

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concern with others' opinions of their appearance. In a further study, Veale, Kinderman, Riley, and Lambrou (2003) found that individuals with BDD showed no discrepancy between how they viewed their appearance, and their perceptions of how the person who knew them best would ideally like them to appear. However, the authors noted the results might have been different if participants had been asked how the public believed they should look.

Three recent studies have set out to specifically investigate social anxiety in BDD. Pinto and Phillips (2005) found that the mean score for BDD patients on the Social Avoidance and Distress Scale (SADS: Watson & Friend, 1969) was 1.3 *SD* units above the mean normative sample score reported by Watson and Friend (1969). However, it was not possible from the SADS to identify the degree to which anxiety relating to social interaction was specifically associated with appearance concerns. Coles et al. (2006) found that the mean score for BDD patients without additional social phobia on the Social Phobia Inventory (SPIN: Connor et al., 2000) was approximately two standard deviations higher than the mean score reported for non-clinical groups (Connor et al., 2000). Kelly, Walters, and Phillips (2010) also found that BDD participants without comorbid social phobia obtained high scores on the SPIN, with the mean score being above the cut-off point indicative of clinically significant social anxiety. The findings from the studies by Coles et al. (2006) and Kelly et al. (2010) provide more direct evidence that individuals with BDD may experience high levels of social anxiety specifically relating to appearance concerns. However, as with the study by Pinto and Phillips (2005), it was not possible from the measures used to establish the specific levels of appearance-related social anxiety experienced by the BDD patients in the studies.

The studies investigating social-evaluative components of appearance concern in BDD have mainly focused on anxiety. However, as mentioned above, Cash (2002a) has emphasised that body image is multidimensional, and includes, amongst other domains, body image evaluation and investment. To the authors' knowledge, there are no published studies specifically investigating BDD patients' perception of others' evaluation of their appearance or the importance attached to others' evaluations of their appearance. Furthermore, Cash (2002b) has emphasised the distinction between body image concerns related to overall appearance in comparison to specific features of appearance, and noted that dissatisfaction with a specific body part does not necessarily result in overall body image discontent. However, to the author's knowledge there has been no research in BDD comparing body image relating to individuals' specific feature(s) of concern relative to their overall appearance.

The primary aim of this study was to investigate social-evaluative and self-evaluative appearance concerns in individuals with BDD. In terms of factors representing such concerns, it was decided to investigate the importance as well as the anxiety associated with self and perceived other evaluation of appearance, given that both these factors are considered to be core components of body image disturbance and distress. It was also felt important to explore actual self and perceived other evaluations of appearance, both in terms of providing a reference point for understanding the importance and anxiety associated with body image evaluation, as well as helping to further understand body image evaluation in BDD in itself. A further aim of the study was to investigate the extent of concerns related to overall appearance in comparison to specific disliked features of appearance in BDD, given the emphasis on preoccupation relating to specific features in the diagnostic description of the disorder.

The extent and nature of self and perceived other evaluations of appearance, and the importance and anxiety associated with such evaluations in BDD, were explored using a new self-completion scale, and two standardised self-completion questionnaires, which were administered to BDD patients and healthy controls. This was an exploratory study, and the primary purpose of utilising a new measure was to provide information relating to the concepts under investigation. The main hypotheses were as follows: (1) BDD compared to controls: in comparison to healthy controls, BDD participants would report significantly lower self and perceived other attractiveness ratings, and higher levels of importance and anxiety associated with self and perceived other views of their appearance; (2) Self compared to perceived other scores: for both the BDD and control groups, there would be no within group differences between (a) self and perceived other attractiveness ratings, (b) the importance attached to self and perceived other views of appearance, or (c) the anxiety associated with self and perceived other views of appearance; (3) Overall appearance compared to most disliked feature: (a) for both groups, self and perceived other attractiveness ratings would be lower for the most disliked feature in comparison to overall appearance; and (b) levels of importance and anxiety associated with both self and perceived other ratings of attractiveness would be higher for the most disliked feature in comparison to overall appearance in the BDD group, and lower for the most disliked feature in comparison to overall appearance in the control group.

Method

Participants

Participants comprised 41 individuals (18 men, 23 women) with a DSM-IV diagnosis of BDD (mean age = 29.90, SD = 9.24), and 41 healthy controls (17 men, 24 women; mean age = 32.37, SD = 11.23). The groups did not differ significantly in terms of age, $t(1,80) = -1.08$, $p = 0.281$, or sex, $x^2 = 0.05$, $p = 0.823$. BDD participants consisted of 25 current or former out-patients and/or day-patients who had been assessed and/or treated at an independent psychiatric hospital, 5 current inpatients at this hospital, and 11 individuals attending a monthly support group for people with BDD. Control participants comprised volunteers identified through the university's volunteer database, volunteers responding to circular emails sent to students and staff at the university, people responding to leaflets delivered to properties located near the university, and non-clinical staff at an independent psychiatric hospital.

Inclusion criteria for BDD participants included fulfilling DSM-IV diagnostic criteria, and having primary body image concerns that were not weight or shape related. The Structured Clinical Interview for DSM-IV Axis 1 Disorders, Patient Version (SCID-I/P: First, Spitzer, Gibbon, & Williams, 1996) was conducted with BDD participants to establish a possible comorbid diagnosis of social phobia (by definition unrelated to appearance concerns). The reason for this was that individuals with BDD who have an additional diagnosis of social phobia may be more likely to report higher levels of concern relating to others' views of their appearance, compared to individuals without comorbid social phobia, due to an elevated general tendency towards social-evaluative concerns. It was therefore felt important to establish levels of appearance-related self- and social-evaluative concerns in BDD participants without comorbid social phobia, as well as the total sample of BDD participants.

Five (19%) of the BDD patients who were assessed had current comorbid social phobia. However, it should be noted that comorbidity data is missing for 15 BDD participants as it was only decided to include assessment for social phobia after the data collection had commenced. The rate of comorbid social phobia in the present study is similar to the rate of 18% found by Veale et al. (1996), but

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notably lower than the rate of 69% reported by Zimmerman and Mattia (1998), 43% reported by Phillips et al. (1993), and 32% found by Gunstad and Phillips (2003). Fang and Hofmann (2010) note that differences between studies in the point prevalence of social anxiety disorder/social phobia in people with BDD are likely to result from methodological variations, including differences in recruitment, sample sizes, and assessment.

The SCID-I/P was not used to establish a diagnosis of other Axis 1 disorders. Inclusion criteria for healthy controls included the absence of a diagnosis of BDD or appearance preoccupation relating to weight concerns, which was screened for using the Body Dysmorphic Disorder Questionnaire (BDD-Q: Phillips, Atala, & Pope, 1995), and no history of other mental health problems, which was screened for by excluding participants who had ever consulted a medical or mental health professional about a personal mental health problem. General inclusion criteria for both groups included being aged 17 or over, and having a sufficient level of English to understand the information and instructions relating to the study, as well as the rating scales and questionnaires.

Measures

Body Dysmorphic Disorder Questionnaire (BDD-Q; Phillips et al., 1995)

The Body Dysmorphic Disorder Questionnaire (BDD-Q) is a brief screening measure for BDD, based on DSM-IV diagnostic criteria, which can be completed either by self-report or by an interviewer. The instrument assesses whether an individual is preoccupied with a particular aspect of their appearance, which they consider especially unattractive, and if so whether this is mainly related to weight-shape concerns. The BDD-Q has been found to have high levels of specificity, and very high levels of sensitivity (Phillips et al., 1995).

Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder (BDD-YBOCS; Phillips et al., 1997)

The Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder (BDD-YBOCS) is a 12-item clinician-administered measure of the severity of BDD symptoms over the past week. Items are rated on a scale from 0 to 4, with higher scores indicating greater BDD symptomatology. Scores range from 0 to 48. The measure has been found to have good levels of inter-rater reliability, test-retest reliability, and internal consistency, and the authors also reported evidence of the scale's convergent and discriminant validity (Phillips et al., 1997). This measure was not administered to individuals in the control group, since the questions are based upon the assumption that an individual experiences a significant preoccupation with some aspect of their appearance, as determined by the BDD-Q.

Multidimensional Body-Self Relations Questionnaire – Appearance Scales (MBSRQ-AS; Cash, 2000)

This is a widely used 34-item self-report measure assessing evaluative, cognitive and behavioural components of body image. The questionnaire contains the following five subscales: appearance evaluation, appearance orientation (relating to investment in, and importance attached to appearance), body areas satisfaction, overweight preoccupation and self-classified weight. Each item is rated on a five-point scale, and a mean rating for each subscale (ranging from 1 to 5) is calculated by dividing the sub-total for each subscale by the number of subscale items. Higher scores on the appearance evaluation and satisfaction subscales indicate greater levels of evaluation and satisfaction associated with appearance, whilst higher scores on the remaining three subscales are indicative of greater investment/importance attached to appearance, greater levels of weight related preoccupation and higher perceptions of being overweight. The subscales have been found to have acceptable levels of internal consistency and test-retest reliability, and the full scale has demonstrated high levels of convergent, discriminant and construct validity (Cash, 2000; Cash, Counts, Hangen, & Huffine, 1989).

Fear of Negative Appearance Evaluation Scale (FNAES; Thomas, Keery, Williams, & Thompson, 1998)

The initial version of the Fear of Negative Appearance Evaluation Scale (FNAES), which was used in this study, is an 8-item self-report questionnaire that assesses concerns relating to negative evaluation of appearance by others. Each item is rated on a scale from 1 to 5, with the total score ranging from 8 to 40. Higher scores indicate greater levels of fear of negative appearance evaluation. A modified 6-item version of the FNAES (Lundgren, Anderson, & Thompson, 2004) was found to have high internal consistency, and was significantly correlated with measures of body image disturbance. The 6-item version of the scale was also shown to predict a unique component of body image not explained by previous measures.

Self-Social Appearance Concerns Scale

The Self-Social Appearance Concerns Scale (SSACS) is a new 12-item questionnaire designed for the present study. The questionnaire is divided into two sections, asking about respondents' *own* view of their physical appearance, and their beliefs about o*ther people's* view of their physical appearance. Each section is divided into two sub-sections, relating to their beliefs about their *overall* physical appearance, and their beliefs relating to the *feature they are least happy with*. For each sub-section, respondents provide ratings of attractiveness, importance and anxiety. All items are rated on seven point Likert scales (range 1-7). The first set of questions is as follows: how would *you* rate your overall physical appearance? (extremely unattractive–extremely attractive); how important is *your view* of your overall physical appearance? (extremely unimportant–extremely important); how much anxiety/worry does *your own view* of your overall physical appearance cause you? (no anxiety/worry–extreme anxiety/worry). The same questions are then repeated asking about the feature the respondent is least happy with. These questions are subsequently repeated asking about other people's views.

In terms of the development of the SSACS, examination of literature indicated that there were no measures that were sufficiently specific to examine the concepts under investigation. To the authors' knowledge, the only measure investigating both self-related and perceived other-related beliefs about appearance as separate components is the modified "Selves" questionnaire, developed by Veale et al. (2003). The design of the SSACS was influenced by number of existing questionnaires developed to investigate self-evaluative and social-evaluative beliefs and concerns relating to a range of non-appearance-related characteristics (Chadwick, Trower, & Dagnan, 1999; Fenigstein, Scheier, & Buss, 1975; Hewitt & Flett, 1991).

In terms of the psychometric properties of the SSACS, between group comparisons of attractiveness, importance and anxiety scores (see Results Section) provide evidence for the construct validity of the SSACS. In terms of the criterion (concurrent) validity of the content of the scale, Pearson product moment correlations of each item with the FNAES and the appearance evaluation, appearance orientation and body areas satisfaction subscales of the MBSRQ-AS for participants as a whole (see Table 1) indicated that the SSACS subscales were relatively highly correlated with the MBSRQ-AS subscales, and the FNAES in terms of specific items measuring a similar construct/dimension. Internal consistency for

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Table 1
Pearson product moment correlations of Self-Social Appearance Concerns Scale (SSACS) items with the FNAES, and subscales of the MBSRQ-AS.

Item type	Body perspective	Viewpoint	FNAES	MBSRQ-AS		
				Eval.	Orient.	Satis.
Attractiveness	Overall	Self	**−.765****	**.798****	**−.451****	**.715****
		Perceived other	**−.522****	**.666****	−0.203	**.577****
	Specific	Self	**−.469****	**.441****	−0.206	**.408****
		Perceived other	**−.340****	**.366****	−0.158	**.351****
Importance	Overall	Self	**.500****	**−.286***	**.530****	−0.219
		Perceived other	**.720****	**−.454****	**.518****	**−.424****
	Specific	Self	**.700****	**−.572****	**.550****	**−.488****
		Perceived other	**.775****	**−.639****	**.450****	**−.583****
Anxiety	Overall	Self	**.762****	**−.688****	**.590****	**−.609****
		Perceived other	**.828****	**−.694****	**.558****	**−.642****
	Specific	Self	**.804****	**−.649****	**.534****	−0.590
		Perceived other	**.869****	**−.689****	**.556****	**−.662***

Note. MBSRQ-AS: Eval.: Appearance evaluation; Orient.: Appearance orientation; Satis.: Body areas satisfaction; Significance levels: *<0.01; **<0.001; Significant *p* values are highlighted.

SSACS items as a whole was measured for all participants using Cronbach's alpha. Scores for importance and anxiety items were reversed to make the direction of scoring consistent with scores for attractiveness items. The SSACS appeared to have a good level of internal consistency, $\alpha = 0.934$. All items showed a good degree of correlation with the total scale (lower $r = 0.481$). Only two items would lead to an increase in alpha if deleted, and removal of each of these items would increase alpha by only 0.001.

Procedure

Ethical approval for the study was obtained from the Ethics Committees of the local NHS mental health foundation trust and the independent psychiatric hospital from where clinical participants were recruited. Participants provided informed consent once they had been given full explanation of the procedures. BDD participants were seen in person by the first author, prior to self-completion of the questionnaires to administer the BDD-YBOCS and the SCID-I/P for diagnosis of social phobia, with the exception of two individuals, who were unavailable to meet face to face. These two BDD participants who were not seen in person had been recently diagnosed and were receiving treatment from the second author. Control participants were also initially seen in person by the first author to administer the BDD-Q and the screening questions to exclude other mental health problems, with the exception of two participants who were unavailable to meet face to face. The questionnaire pack was then given to BDD and control participants who were seen in person, and sent to the participants who were unavailable to meet. In the case of control patients who were not seen in person, the questionnaire pack contained self-completion versions of the BDD-Q and the mental health screening questions.

Results

Data was analysed using SPSS Version 17.0. Alpha was set at $p < 0.05$. Mean scores for the Yale-Brown Obsessive Compulsive Scale for Body Dysmorphic Disorder (BDD-YBOCS), Fear of Negative Appearance Evaluation Scale (FNAES), and Multidimensional Body-Self Relations Questionnaire–Appearance Scales (MBSRQ-AS), and statistical tests of group differences on the FNAES and MBSRQ-AS are shown in Table 2. Mean scores for male and female BDD and control participants and mean normative scores for adult males and females reported by Cash (2000) on the MBSRQ-AS are shown in Table 3. Mean scores for BDD and control participants on all items of the Self-Social Appearance Concerns Scale (SSACS) are shown in Table 4.

MBSRQ-AS and FNAES

In terms of the MBSRQ-AS, BDD participants, as expected, reported significantly lower levels of appearance evaluation and body areas satisfaction, and higher levels of appearance orientation than controls. Looking at comparisons to MBSRQ-AS normative data (see Table 3) males and females with BDD reported considerably lower levels of appearance evaluation and body areas satisfaction, and higher levels of appearance orientation in comparison to norms found for adult males and females respectively. On the FNAES, BDD participants, in comparison to controls, as expected reported significantly higher fear of negative evaluation of their appearance by others. To the authors' knowledge, there are no published adult norms for the FNAES. However, the mean score for BDD participants on the FNAES was 37.02, which is approaching the maximum score (range 8–40). The mean FNAES score for BDD patients excluding those with, or not assessed for, a diagnosis of social phobia was only slightly lower at 36.05.

Table 2
Standardised measures: mean scores for BDD and control participants, and statistical tests of group differences.

		BDD		Controls*		*t*	*p*
		Mean	SD	Mean	SD		
BDD-YBOCS		**30.62**	**6.12**	–	–	–	–
FNAES		37.02	4.46	21.11	7.06	12.02	<**.001**
MBSRQ-AS*	Appearance evaluation	2.10	0.79	3.43	0.78	−7.43	<**.001**
	Appearance orientation	4.26	0.47	3.38	0.79	5.96	<**.001**
	Body areas satisfaction	2.42	0.73	3.40	0.68	−6.08	<**.001**
	Overweight preoccupation	2.59	1.22	2.63	1.19	−0.14	0.886
	Self-classified weight	3.18	0.80	3.31	0.70	−0.71	0.481

Note. Significant *p* values are highlighted.
BDD-YBOCS: Range 0–48; MBSRQ-AS: Range for each subscale 1–5; FNAES: Range 8–40; *Data for the MBSRQ-AS are missing for five healthy controls.

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Table 3
MBSRQ-AS: mean scores for male and female BDD and control participants and mean normative scores for adult males and females reported by Cash (2000).

MBSRQ-AS:	Males						Females					
	Norm		BDD ($n = 18$)		Controls* ($n = 14$)		Norm		BDD ($n = 23$)		Controls* ($n = 22$)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Evaluation	3.49	0.83	2.32	0.71	3.49	0.55	3.36	0.87	1.93	0.81	3.39	0.91
Orientation	3.60	0.68	4.07	0.44	2.75	0.69	3.91	0.60	4.40	0.45	3.78	0.56
Satisfaction	3.50	0.63	2.59	0.69	3.50	0.49	3.23	0.74	2.29	0.74	3.33	0.78

Range for each subscale 1–5; *Data for healthy controls are missing for three males and two females.

Self-Social Appearance Concerns Scale (SSACS)

Ratings of attractiveness, importance and anxiety were analysed separately. For each type of rating, the main analysis was a three-way repeated measures ANOVA, with group as the between groups factor, and body perspective (overall appearance/most disliked feature) and viewpoint (self/perceived other) as the within group factors. The three-way repeated measures ANOVAS were carried out with the total sample, and were then repeated excluding BDD participants with, or not assessed for, a diagnosis of social phobia (by definition unrelated to appearance concerns), given the possibility that such a diagnosis may have had an additional influence on individuals' concerns relating to others' opinions of their appearance. In the Results section, perceptions of others' ratings are referred to as 'other', and the most disliked feature is referred to as 'specific'. Significant interactions were investigated using Hochberg Improved Bonferroni post hoc pairwise comparisons (adjusted for multiple tests).

Attractiveness ratings

The three way repeated measures (body perspective (overall/specific) × viewpoint (self/other) × group) ANOVA showed a main effect of group, $F(1,79) = 53.31$, $p < 0.001$. There were also main effects of body perspective (overall/specific), $F(1,79) = 104.79$, $p < 0.001$, and viewpoint (self/other), $F(1,79) = 24.30$, $p < 0.001$, as well as significant interactions between body perspective and group, $F(1,79) = 9.51$, $p = 0.003$, and viewpoint and group, $F(1,79) = 20.44$, $p < 0.001$. There was no significant interaction between body perspective and viewpoint, $F(1,79) = 1.83$, $p = 0.180$, but the interaction between body perspective, viewpoint and group was significant, $F(1,79) = 7.05$, $p = 0.010$. In order to explore the interaction between body perspective, viewpoint and group, Hochberg Improved-Bonferroni post hoc pairwise tests were performed. Pairwise tests comparing attractiveness ratings by group revealed that, as hypothesised, and as would be expected based on the diagnostic description of BDD, self and other ratings for both overall and specific appearance were significantly lower in BDD participants than controls ($p < 0.005$ for all comparisons). Pairwise tests comparing attractiveness ratings by body perspective (overall/specific) revealed that, as predicted, self and other ratings of overall appearance were significantly higher than ratings of specific appearance in both the BDD and control groups ($p = 0.001$ for all comparisons). Post hoc pairwise tests comparing attractiveness ratings by viewpoint (self/other) showed that for the BDD group, in contrast to the hypotheses, self-ratings were significantly lower than other ratings for both overall ($p = 0.003$) and specific appearance ($p = 0.003$). For the control group, as hypothesised, there were no significant differences between self and other ratings, for either overall ($p = 0.111$) or specific appearance ($p = 0.111$).

Importance attached to appearance

In terms of importance scores the three way repeated measures (body perspective (overall/specific) × viewpoint (self/other) × group) ANOVA showed a main effect of group, $F(1,79) = 95.45$, $p < 0.001$. There was no main effect of body perspective (overall/specific), but there was a significant interaction effect between body perspective and group, $F(1,79) = 8.33$, $p = 0.005$. In order to explore the interaction between body perspective and group, Hochberg Improved-Bonferroni post hoc pairwise tests were performed. Pairwise tests comparing importance scores by group revealed that, as hypothesised, across the two viewpoints (self/other), scores were significantly higher for the BDD group compared to the control group in terms of both overall ($p = 0.001$) and specific appearance ($p = 0.001$). Pairwise tests comparing importance scores by body perspective (overall/specific) revealed that there were no significant differences between importance scores for overall and specific appearance in the BDD group across viewpoints (self/other; $p = 0.142$), which is contrary to predictions. Controls on the other hand, consistent with predictions, attached significantly less importance to self and other views of specific appearance in comparison to self and perceived other views of their overall appearance ($p = 0.022$). As hypothesised, there was no main effect of viewpoint (self/other) for importance scores, and the interaction effect between viewpoint and group was also non-significant. This indicates that, as predicted, the level of importance associated with participants' own view of their appearance did not differ significantly from the level of importance relating to perceptions of others' views in either BDD

Table 4
Self-Social Appearance Concerns Scale (SSACS): Mean scores for self- and perceived other ratings of attractiveness, importance and anxiety for overall and specific aspects of appearance.

	Viewpoint	BDD				Controls			
		Overall appearance		Most disliked feature		Overall appearance		Most disliked feature	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Attractiveness	Self	2.51	1.34	1.73	1.20	4.93	0.91	3.00	0.91
	Perceived Other	3.46	1.42	2.51	1.42	4.68	0.93	3.30	0.82
Importance	Self	6.61	0.83	6.76	0.86	5.27	1.25	4.65	1.19
	Perceived Other	6.29	1.08	6.59	0.87	4.68	1.52	4.55	1.55
Anxiety*	Self	5.92	1.32	6.44	1.03	2.83	1.34	3.28	1.60
	Perceived Other	6.06	1.24	6.39	1.05	3.14	1.59	3.17	1.66

Note. All items were rated on seven point Likert scales (range 1-7). *Data for anxiety scores are missing for five BDD participants and five healthy controls.

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or control participants for either overall or specific appearance. There was no significant interaction between body perspective (overall/specific) and viewpoint, or between body perspective, viewpoint and group.

Anxiety associated with appearance

For anxiety scores the three way repeated measures (body perspective (overall/specific) × viewpoint (self/other) × group) ANOVA showed a main effect of group, $F(1,70) = 118.04$, $p < 0.001$. There was a main effect of body perspective (overall/specific), $F(1,70) = 11.13$, $p = 0.001$, but the interaction between body perspective and group was not significant. As hypothesised there was no main effect of viewpoint (self/other), and the interaction effect between viewpoint and group was also non-significant. This indicates that, as predicted, the level of anxiety associated with participants' own view of their appearance did not differ significantly from the level of anxiety relating to perceptions of others' views in either BDD or control participants for either overall or specific appearance. There was a significant interaction between body perspective and viewpoint, $F(1,70) = 7.31$, $p < 0.01$. In order to explore this interaction, Hochberg Improved-Bonferroni post hoc pairwise tests were performed. Pairwise tests comparing anxiety scores by body perspective (overall/specific) revealed that across the sample as a whole (BDD and controls) anxiety scores for specific appearance were significantly higher than scores for overall appearance for the self viewpoint ($p = 0.002$), which is consistent with the hypotheses for BDD participants, but not for controls. There was no significant difference between anxiety scores for overall and specific appearance for the other viewpoint for the sample as a whole ($p = 0.110$), which is in contrast to predictions for both groups. The interaction between body perspective, viewpoint and group was not significant.

Further analysis excluding BDD participants with/not assessed for a diagnosis of social phobia

Further analysis was performed excluding BDD participants with, or not assessed for, a diagnosis of social phobia. Since the main aim of conducting this analysis was to establish the possible effect of an additional diagnosis of social phobia on scores for viewpoint (i.e. self/other), post hoc pairwise tests will only be reported for significant interactions involving viewpoint, and within these tests the results will only be reported for comparisons of scores by viewpoint.

For attractiveness ratings, as with the results for the total sample, the three way repeated measures (body perspective (overall/specific) × viewpoint (self/other) × group) ANOVA excluding those with, or not assessed for, a diagnosis of social phobia, showed a main effect of group, $F(1,59) = 36.07$, $p < 0.001$. As with the total sample, there were also main effects of body perspective (overall/specific), $F(1,59) = 102.76$, $p < 0.001$, and viewpoint (self/other), $F(1,59) = 24.60$, $p < 0.001$, as well as significant interactions between body perspective and group, $F(1,59) = 6.21$, $p = 0.016$, and viewpoint and group, $F(1,59) = 21.10$, $p < 0.001$. Unlike the total sample, there was a significant interaction between body perspective and viewpoint, $F(1,59) = 6.41$, $p = 0.014$, but no significant interaction between body perspective, viewpoint and group. In order to explore the interaction between viewpoint and group, Hochberg Improved-Bonferroni post hoc pairwise tests were performed. As with the total sample, pairwise tests comparing attractiveness ratings by viewpoint (self/other), across body perspectives (overall/specific), showed that for the BDD group, self-ratings were significantly lower than other ratings ($p = 0.002$), whilst for the control group, there were no significant differences between self and other ratings ($p = 0.756$). Looking at the interaction between body perspective (overall/specific) and viewpoint (self/other), across groups, pairwise tests comparing attractiveness ratings by viewpoint showed that self-ratings were significantly lower than other ratings for both overall ($p = 0.002$) and specific appearance ($p = 0.001$).

In terms of importance ratings, as with the total sample, the three way repeated measures (body perspective (overall/specific) × viewpoint (self/other) × group) ANOVA excluding those with, or not assessed for, a diagnosis of social phobia showed a main effect of group, $F(1,59) = 44.74$, $p < 0.001$. As with the total sample, there was no main effect of body perspective (overall/specific), but like the total sample there was a significant interaction effect between body perspective and group, $F(1,59) = 5.85$, $p = 0.019$. As with the total sample, there was no main effect of viewpoint (self/other) for importance scores, and there was no significant interaction effect between viewpoint and group. However, unlike the total sample, there was a significant interaction between body perspective and viewpoint, $F(1,59) = 5.93$, $p = 0.018$. In order to explore the interaction between body perspective (overall/specific) and viewpoint (self/other), Hochberg Improved-Bonferroni post hoc pairwise tests were performed. Pairwise tests comparing importance scores by viewpoint (across groups) showed that scores for the self viewpoint were significantly higher than for the other viewpoint for overall appearance ($p = 0.030$), but not specific appearance ($p = 0.676$). As with the total sample, there was no significant interaction between body perspective, viewpoint and group for importance scores.

For anxiety ratings, as with the total sample, the three way repeated measures (body perspective (overall/specific) × viewpoint (self/other) × group) ANOVA excluding those with, or not assessed for, a diagnosis of social phobia showed a main effect of group, $F(1,54) = 70.12$, $p < 0.001$. As with the total sample, there was a main effect of body perspective (overall/specific), $F(1,54) = 7.39$, $p = 0.09$, but the interaction between body perspective and group was not significant. In addition, as with the total sample, there was no main effect of viewpoint (self/other), and no significant interaction between viewpoint and group. Unlike the total sample there was no significant interaction between body perspective and viewpoint. As with the total sample, the interaction between body perspective, viewpoint and group was not significant.

In summary, looking at the results when BDD patients with/not assessed for a diagnosis of social phobia were excluded, there were a small number of main effects and interactions which were significant in this subsample and not in the total sample and vice versa. However, the main findings in terms of viewpoint (self/other) remain unchanged.

Discussion

Looking firstly at self-evaluative versus social-evaluative appearance concerns (across body perspectives, i.e. overall appearance and specific disliked feature), the results of the Self-Social Appearance Concerns Scale (SSACS) show that BDD patients, as hypothesised, reported equally high levels of importance and anxiety associated with their own and perceptions of others' opinions of their appearance (see Table 4). This finding remained unchanged when BDD participants with, or not assessed for a diagnosis of social phobia were excluded from the analysis. BDD participants also reported high levels of anxiety regarding negative evaluation of their appearance by the others on the Fear of Negative Appearance Evaluation Scale (FNAES; see Table 2), and this was also the case when BDD patients with/not assessed for a diagnosis of social phobia were excluded. These findings are consistent with research indicating that people with BDD frequently report

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significant appearance-related anxiety in social or public situations (e.g. Coles et al., 2006; Kelly et al., 2010; Pinto & Phillips, 2005). The present findings suggest that, in addition to self-evaluative concerns relating to appearance (e.g. Didie et al., 2010; Hrabosky et al., 2009), appearance-related social evaluative anxiety and concerns are a central feature of the disorder. In terms of self and perceived other evaluation of appearance (across body perspectives, i.e. overall and specific disliked feature), BDD participants reported markedly negative perceptions of others' evaluation of their appearance, but in contrast to the hypotheses, their own attractiveness ratings were significantly lower than perceptions of ratings by others. This finding was unchanged when BDD participants with/not assessed for a diagnosis of social phobia were excluded.

It is suggested that the discrepancy between self and perceived other attractiveness ratings in BDD participants may be a reflection of the varying degree of insight shown by BDD patients relating to their appearance beliefs. Some individuals with BDD recognise that others do not view their appearance as negatively as they themselves do, and acknowledge that their view may be associated with an overly-negative internal felt impression of their appearance (e.g. Osman, Cooper, Hackmann, & Veale, 2004; Veale & Neziroglu, 2010).

In terms of importance scores across viewpoints (i.e. self and perceived other), and body perspectives (overall/specific disliked feature) on the SSACS, BDD participants, as predicted, reported very high levels of importance associated with their appearance (see Table 4). They also reported high levels of appearance orientation on the Multidimensional Body-Self Relations Questionnaire – Appearance Scales (MBSRQ-AS; see Tables 2 and 3) This supports the findings of Didie et al. (2010) and Hrabosky et al. (2009), as well as existing theories proposed by BDD researchers (e.g. Buhlmann, Teachman, Gerbershagen, Kikul, & Rief, 2008; Veale, 2004; Veale et al., 1996; Wilhelm, 2006). However, it is argued that the finding that healthy controls attached a relatively high degree of importance to self and perceived other opinions of their overall appearance suggests that the valuing of appearance as a whole is not necessarily a dysfunctional process, unless it is (1) very excessive, (2) to the exclusion of other characteristics, and/or (3) associated with negative appearance evaluation.

Looking at within group comparisons of scores for overall appearance compared to specific disliked feature across viewpoints (self/other), there were no significant differences between importance scores for overall compared to specific appearance in the BDD group across viewpoints (self/other) which is contrary to predictions. In contrast, controls, as hypothesised attached significantly less importance to self and perceived other views of their most disliked body part in comparison to their overall appearance, even though their attractiveness ratings for the specific disliked feature were relatively low. Although it had been predicted that levels of importance would be higher for the most disliked feature in comparison to overall appearance in the BDD group, the finding that importance scores were equally high for overall versus specific appearance in BDD participants is in line with clinical observations in the literature (Phillips, 1991; Phillips et al., 1993; Veale et al., 1996), and suggests that in addition to the over-valuing of appearance as a whole, a crucial feature of BDD is the disproportionately high level of importance attached to specific body parts in defining overall appearance. In terms of anxiety scores, BDD participants' anxiety scores were significantly higher for the specific disliked feature in comparison to overall appearance for the self viewpoint (which is consistent with the hypotheses), but not for the other viewpoint (which is in contrast to predictions). This suggests that BDD patients' anxiety about their most disliked feature might be particularly associated with their internal view of their appearance.

Treatment implications

The evidence base for cognitive-behavioural therapy (CBT) in BDD is limited. However the recommendations of two recent meta-analyses have found that CBT is more effective than waiting list control (National Institute for Health and Clinical Excellence, 2005; Williams, Hadjistavropoulos, & Sharpe, 2006). It is suggested on the basis of the present findings, in conjunction with existing CBT models of BDD (e.g. Buhlmann & Wilhelm, 2004; Neziroglu, Khemlani-Patel, & Veale, 2008; Veale, 2004; Wilhelm, 2006) that in addition to addressing overly negative self and perceived other appraisals of overall and specific aspects of appearance, the cognitive component of CBT should focus on the following: the disproportionate emphasis placed on (1) the importance of specific features in terms of self and perceived other views of overall physical attractiveness, and (2) the importance of appearance in terms of self and perceived others views of the self as a whole.

Limitations

One of the main limitations of the present study was the failure to include a relevant clinical control group, as it is likely that that negative self and perceived other evaluations of appearance are a feature of a variety of emotional disorders. It would therefore have been of benefit to include a clinical comparison group consisting of individuals who frequently experience negative self and perceived other evaluations, such as patients with depressive disorder, in order to determine the extent to which the findings were specific to individuals with BDD. A further significant limitation of the studies was the failure to assess BDD participants for comorbid diagnoses other than social phobia. It is possible that for some participants, differences from controls in any of the dependent variables being investigated may have been influenced by comorbid diagnoses, in particular depressive disorder or anxiety, as these disorders are most commonly co-occurring with BDD. Another weakness of the study was that 15 BDD participants were not assessed for a diagnosis of social phobia. This is of relevance, since BDD patients with an additional diagnosis of social phobia may be more likely to report greater concern relating to others' views of their appearance, due to an elevated general tendency towards social-evaluative concerns. It is therefore important to assess levels of appearance-related self and social evaluative concerns in BDD patients without comorbid social phobia, as well in BDD patients as a whole. In addition, the failure to conduct structured assessment of control participants using the SCID-P was a significant limitation of the study. A further limitation of the study was that a number of the BDD participants in the study had received psychological treatment for their BDD, and this may have had an impact on their levels of self- and social-evaluative appearance concerns. However, all BDD participants met DSM-IV diagnostic criteria for BDD, and the majority of those who had received treatment were in the early stages of current therapy. In terms of the SSACS, which was a new questionnaire designed for the present study, an additional limitation of the research was the fact that the re-test reliability of this scale was not established, and that factor analysis to examine its factor structure and factorial validity was not conducted.

Further research

It is suggested that future studies using multiple regression methodology would be of benefit in further investigating appearance-related self- and social-evaluative anxiety and concerns in BDD.

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