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Body image in social anxiety disorder, obsessive-compulsive disorder, and panic disorder



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ABSTRACT

Body dysmorphic disorder falls under the category of obsessive–compulsive and related disorders, yet research has suggested it may also be highly associated with social anxiety disorder. The current study examined body image variables among 68 outpatients with primary obsessive–compulsive disorder (OCD; n = 22), social anxiety disorder (SAD; n = 25), and panic disorder (PD; n = 21). Participants filled out self-report measures of body image disturbance, attitudes toward one's appearance, and anxiety. Body image disturbance and attitudes toward appearance did not significantly differ between the groups. However, SAD symptoms predicted body image disturbance, Appearance Evaluation and Body Areas Satisfaction, and OCD symptoms predicted Appearance Orientation. These findings suggest that SAD and OCD may be associated with different facets of body image. Implications for the treatment of anxiety disorders and for future research are discussed.

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Introduction

Body dysmorphic disorder (BDD) falls under the category of obsessive–compulsive and related disorders and is characterized by an excessive preoccupation with a minor or imagined defect in appearance that causes clinically significant distress or impairment (American Psychiatric Association, 2013). Current prevalence rates of BDD are 1.7–1.8% in community samples (Buhlmann et al., 2010; Rief, Buhlmann, Wilhelm, Borkenhagen, & Brähler, 2006) and the disorder has been associated with higher rates of unemployment, lower income, and lower likelihood of living with a partner (Rief et al., 2006). Some individuals with BDD report suicidal ideation and are at increased risk for suicide attempts due to concerns about their physical appearance (Buhlmann et al., 2010; Rief et al., 2006).

Rates of comorbidity between BDD and obsessive–compulsive disorder (OCD) are as high as 30% (Gunstad & Phillips, 2003; Phillips, Menard, Fay, & Weisberg, 2005), and both disorders share similarities in demographics, onset and illness duration (Phillips, Pinto, Menard, Eisen, Mancebo, & Rasmussen, 2007). In addition, research has demonstrated that both disorders share familial and genetic

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components (Bienvenu et al., 2000; Phillips, Gunderson, Mallya, McElroy, & Carter, 1998). OCD and BDD also share similar cognitive patterns characterized by recurrent, persistent and intrusive unwanted thoughts (Phillips, McElroy, Keck, Pope, & Hudson, 1993), and behavioral patterns such as compulsive checking (Phillips, Menard, Fay, & Weisberg, 2005; Phillips et al., 2010). Finally, BDD symptoms are common among individuals with OCD (Phillips et al., 2007). Thus, there is substantial evidence suggesting that the two disorders are related.

At the same time, research has identified some key differences between OCD and BDD. For example, individuals with BDD demonstrate less insight and more delusional beliefs compared to individuals with OCD (Eisen, Phillips, Coles, & Rasmussen, 2004; Phillips et al., 2007). BDD is also associated with higher levels of suicidal ideation, and higher levels of major depressive disorder and substance use disorder compared to OCD (Phillips et al., 2007). Moreover, individuals with BDD have been found to have significantly greater body image impairment compared to individuals with OCD (Hrabosky et al., 2009). Finally, in comparison to OCD, the content of beliefs in BDD seems to focus more on unacceptability of the self (Veale & Riley, 2001).

Recently, there has been growing evidence for the association between BDD and social anxiety disorder (SAD; see Fang & Hofmann, 2010 for a review). Research has shown that among individuals with SAD, 4.8–12% are diagnosed with BDD, and among

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Table 1 Demographic and clinical measures.

	Panic disorder (n = 21)	Social anxiety disorder $(n = 25)$	Obsessive–compulsive disorder $(n=22)$	Statistic	p
Age, M (SD)	38.67 (13.67) _a	30.24 (5.97) _b	40.05 (11.97) _a	$F_{(2,65)} = 5.27$	<.01
Gender, n %				$\chi^2_{(2)} = 0.35$.84
Female	11(52.38%)	11(44.00%)	11 (50.00%)	,	
Male	10(47.62%)	14(56.00%)	11 (50.00%)		
Education (years), M (SD)	12.57 (2.18)	13.72 (2.01)	12.82 (1.87)	$F_{(2.65)} = 2.10$.13
Marital status, n %				Fisher's exact test statistic = 19.33	<.001
Single	5 (23.81%)	21 (84.00%)	13 (59.09%)		
Married	14(66.67%)	4(16.00%)	7(31.81%)		
Divorced	1 (4.76%)	0(0.00%)	2(9.10%)		
Widowed	1 (4.76%)	0(0.00%)	0(0.00%)		
LSAS, M (SD)	16.29 (13.12) _b	68.29 (28.49) _a	25.36 (20.70) _b	$F_{(2, 64)} = 36.46$	<.001
OCI, M (SD)	14.71 (9.12) _b	19.06 (14.12) _b	36.86 (12.01) _a	$F_{(2.57)} = 21.22$	<.001
BIDQ, $M(SD)$	1.72 (0.50)	2.22 (0.82)	2.07 (1.17)	$F_{(2,63)} = 1.86$.16
MBSRQ-AS, $M(SD)$					
Appearance Evaluation	3.48 (0.73)	3.40 (0.79)	3.65 (0.81)	$F_{(2, 64)} = 0.56$.58
Appearance Orientation	3.41 (0.60)	3.70 (0.55)	3.67 (0.59)	$F_{(2, 64)} = 1.63$.21
Body Areas Satisfaction	3.43 (0.63)	3.22 (0.61)	3.45 (0.81)	$F_{(2, 64)} = 0.77$.47

Note. Subscripts indicate significant differences: a > b. Post hoc tests were Dunnett T3 tests that do not assume variance equality across the groups. LSAS = Liebowitz Social Anxiety Scale, OCI = Obsessive Compulsive Inventory, BIDQ = Body Image Disturbance Questionnaire, MBSRQ-AS = Multidimensional Body-Self Relations Questionnaire—Appearance Scales.

individuals with BDD, 12-68.8% have SAD (Fang & Hofmann, 2010). Research on BDD and SAD has highlighted several commonalities including high social anxiety and social avoidance (Coles et al., 2006; Kelly, Walters, & Phillips, 2010; Pinto & Phillips, 2005), low extraversion (Naragon-Gainey, Watson, & Markon, 2009; Phillips & McElroy, 2000), and high levels of embarrassment and shame (Buhlmann & Wilhelm, 2004; Conroy, Menard, Fleming-Ives, Modha, Cerullo, & Phillips, 2008; Fuchs, 2002). Other shared characteristics include elevated rates of suicidal ideation (Cougle, Keough, Riccardi, & Sachs-Ericsson, 2009; Phillips & Menard, 2006; Phillips et al., 2007), negative interpretation bias for ambiguous social information (Amir, Foa, & Coles, 1998; Buhlmann, Wilhelm, McNally, Tuschen-Caffier, Baer, & Jenike, 2002; Heinrichs & Hofmann, 2001; Hofmann, 2007), and a typical age of onset in childhood to early adulthood (Phillips, Menard, Fay, & Weisberg, 2005; Wittchen & Fehm, 2003).

Most studies have examined the relationship between BDD and either OCD or SAD. To our knowledge, only a single study has examined BDD among individuals with both disorders. Lochner and Stein (2010) compared rates of BDD among individuals with OCD, SAD, and panic disorder (PD) and found no significant differences between the three groups. However, the rate of BDD in the SAD group (12.2%) was approximately twice the rate of BDD in the OCD group (6.5%) and the PD group (5.4%) despite being a non-significant difference. In the present study we sought to extend these findings by examining continuous levels of body image disturbance and attitudes toward one's appearance (as opposed to a dichotomous diagnosis of BDD) among individuals with SAD, OCD and PD. Body image disturbance and attitudes toward one's appearance are on a continuum and are related to BDD such that individuals with the disorder have higher levels of body image disturbance and more dysfunctional attitudes toward their appearance compared to individuals without the disorder. Using continuous rather than dichotomous variables can help assess non-clinical levels of body image variables that may be found in the anxiety disorders and can complicate their treatment. The examination of continuous body image variables in the anxiety disorders is also important as it can shed light on whether body image disturbance and attitudes toward one's appearance are specifically related to one or more of these anxiety disorders, and on the relative strength of the associations.

A group with PD was chosen as the clinical control group for several reasons. First, as mentioned above, the literature on BDD

ties the disorder, its symptoms and its etiology to OCD and SAD but not to other anxiety disorders such as PD. Second, a PD group can help determine whether body image variables are specifically related to OCD and SAD or rather to anxiety disorders in general. Third, a PD group can facilitate comparison of the results with the only previous study that explicitly examined the presence of BDD in individuals with primary OCD, SAD and PD (Lochner & Stein, 2010).

We expected that body image disturbance and dysfunctional attitudes toward one's appearance would be elevated in both the OCD group and the SAD group compared to the PD group, as both OCD and SAD have been previously found to be associated with BDD (e.g., Fang & Hofmann, 2010; Mataix-Cols, Pertusa, & Leckman, 2007). In addition, we also expected obsessive-compulsive and social anxiety symptoms to be significantly associated with body image variables across the three groups. We included individuals in the PD group because individuals with primary PD may experience non-clinical levels of OCD and SAD symptoms that may in turn be associated with body image variables. Finally, we explored whether body image variables would be more strongly related to obsessive-compulsive symptoms or social anxiety symptoms.

Method

Participants

Participants were 68 consecutive outpatients who sought treatment at a large public health center. Of the total sample, 21 individuals were diagnosed with primary panic disorder, 25 were diagnosed with primary social anxiety disorder, and 22 were diagnosed with primary obsessive-compulsive disorder. Participants' mean age was 36.01 (SD = 11.97), and 48.50% were female. Most participants were single (57.40%), 36.80% were married, 4.40% were divorced, and 1.50% were widowed. The average participant had a mean of 13.07 (SD = 2.05) years of education. Table 1 provides demographic and clinical measures for each of three groups separately. Participants were excluded from the present study if they: (a) received a primary diagnosis other than panic disorder, social anxiety disorder, or obsessive-compulsive disorder, (b) received a secondary diagnosis of panic disorder, social anxiety disorder, or obsessive-compulsive disorder, or (c) if they received a past or present diagnosis of psychotic episode or schizophrenia. Thus, participants in the OCD group did not have comorbid SAD or PD, participants in the SAD group did not have comorbid OCD or PD, and participants in the PD group did not have comorbid SAD or OCD.

Individuals in the PD group had secondary diagnoses of major depressive disorder (n=7; 33.33%) and generalized anxiety disorder (n=4; 19.05%). Individuals in the SAD group had secondary diagnoses of major depressive disorder (n=9; 36.00%), generalized anxiety disorder (n=2; 8.00%), and posttraumatic stress disorder (n=1; 4.00%). Individuals in the OCD group had secondary diagnoses of major depressive disorder (n=7; 31.81%), generalized anxiety disorder (n=2; 9.09%), and specific phobia (n=2; 9.09%).

Procedures and Treatment

The study received IRB approval from the center's ethics committee which abides by the guidelines of the Declaration of Helsinki policy statement. To establish diagnoses, patients were interviewed using the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). Interviews were conducted by PhD-level clinical psychologists, or experienced graduate psychology students who received training in the MINI prior to the study. The diagnoses made by graduate students in the center have been found to be reliable and valid in a pilot study comparing them to those of a senior psychologist and a senior psychiatrist (κ = .92; Marom, Gilboa-Schechtman, Aderka, Weizman, & Hermesh, 2009). Following the interview, participants were approached by a research assistant and offered to take part in the study. Those opting to participate filled out an informed consent form and were then given a battery of self-report questionnaires to complete.

Measures

Body Image Disturbance Questionnaire (BIDQ: Cash, Phillips, Santos, & Hrabosky, 2004). The BIDQ is a continuous self-report measure of distress and impairment in daily functioning related to appearance concerns. Specifically, the BIDQ assesses concern or dissatisfaction with an aspect of one's appearance, preoccupation with this concern, ensuing distress, functional impairment in major life domains due to this concern, and avoidance of activities, places, or situations due to this concern. The questionnaire's 7 items are scored from 1 to 5 with higher scores indicating greater disturbance. The total score is the mean of all items. The BIDQ is internally consistent and has good convergent and discriminant validity (Cash, Melnyk, & Hrabosky, 2004; Cash, Phillips, et al., 2004). In the present sample, internal consistency for the BIDQ was high (Cronbach's α = .92).

Multidimensional Body-Self Relations Questionnaire—Appearance Scales (MBSRQ-AS; Brown, Cash, & Mikulka, 1990; Cash, 2008). The MBSRQ-AS consists of 34 items that measure attitudes toward one's appearance on a 5-point scale. The scale has been found to have excellent psychometric properties (Brown et al., 1990) and to be comprised of five scales, each assessing a unique facet of attitudinal body image. In the present study we used the Appearance Evaluation, Appearance Orientation, and Body Areas Satisfaction scales. Total scores were calculated as average of the items for each scale after correcting for reverse-scored items (Cash, 2008). In the present study, internal consistency (Cronbach's α) was .88, .76, and .80, for Appearance Evaluation, Appearance Orientation, and Body Areas Satisfaction respectively.

The Appearance Evaluation scale assesses feelings of attractiveness and satisfaction with one's looks. Individuals scoring high on this scale feel attractive and satisfied with their appearance whereas individuals scoring low feel unattractive and are dissatisfied with their appearance (Cash, 2008). The Appearance Orientation scale assesses the extent of investment in one's appearance. Individuals scoring high on this scale think that their

appearance is very important and thus monitor their appearance closely. They may also engage in extensive grooming behaviors. Individuals scoring low on this scale do not think their looks and appearance are important and devote little effort to improving their appearance (Cash, 2008). Importantly, the Appearance Orientation scale does not reflect a pathological investment in one's appearance, and closely resembles the Motivational Salience scale of the Revised Appearance Schemas Inventory (Cash, Melnyk, et al., 2004) which has been found to have a weak association with pathological body image disturbance (e.g., Cash, Melnyk, et al., 2004; Cash, Phillips, et al., 2004). The Body Areas Satisfaction scale assesses satisfaction with specific aspects of one's appearance. Individuals scoring high are satisfied with most areas of their body whereas individuals scoring low are dissatisfied with the size or appearance of several areas of their body (Cash, 2008).

Obsessive–Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998). The OCI is a 42-item self-report measure that taps OCD symptoms in seven categories: Washing, Checking, Doubting, Ordering, Obsessing, Hoarding, and Mental Neutralizing. Each item is rated on a 5-point (0-4) Likert scale of symptom frequency and associated distress. The total score was calculated as the sum of all items (Foa et al., 1998). The scale has been shown to evidence good psychometric properties (Foa et al., 1998). In the present study, internal consistency was high (Cronbach's α = .89).

Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987). The LSAS is a clinician-administered instrument consisting of 24 items to assess anxiety, and 24 items that assess avoidance in interpersonal and performance situations on a 0–3 scale. We administered the self-report version, which has been shown to have high internal consistency, strong convergent and discriminant validity, and high test–retest reliability (Baker, Heinrichs, Kim, & Hofmann, 2002; Fresco et al., 2001). The total score is calculated by summing all item responses. In the present study, internal consistency was high (Cronbach's α = .86).

Analytic Strategy

A series of ANOVAs was employed to examine our first hypothesis regarding group differences in body image variables. To examine the associations between OCD and SAD symptoms on one hand and body image variables on the other, hierarchical regressions were conducted on the entire sample. In all regression analyses, OCD symptoms were entered in the first step and SAD symptoms were entered in the second step.¹

Results

Differences Between Groups

To examine differences between the groups in body image variables, we conducted ANCOVAs with group as the independent variable (3-level between-subjects variable: PD vs. SAD vs. OCD) and age and marital status as the covariates. We used age and marital status as covariates due to significant differences between the groups that were found for these variables (see Table 1). Specifically, individuals in the SAD group were significantly younger and more likely to be single compared to individuals in the PD and OCD groups. Dependent variables were the BIDQ score the three MBSRQ-AS scales (Appearance Evaluation, Appearance

¹ We also conducted hierarchical regressions that included demographic measures in the first step and clinical measures in the second. Demographic measures were not significantly related to the BIDQ or to any of the MBSRQ-AS subscales and thus we only report analyses with clinical measures.

Table 2Hierarchical regression analyses predicting body image variables.

Dependent variable	Step	Independent variable	β	t	р	Semi-partialr ²
Body Image Disturbance	I	OCI	.22	1.70	.09	.05
(BIDQ)	II	OCI	.20	1.61	.11	.04
		LSAS	.31	2.50	<.05	.10
Appearance Evaluation	I	OCI	.01	0.04	.97	.00
(MBSRQ-AS)	II	OCI	.03	0.21	.84	.00
		LSAS	31	2.41	<.05	.10
Appearance Orientation (MBSRQ-AS)	I	OCI	.27	2.11	<.05	.07
	II	OCI	.27	2.07	<.05	.07
		LSAS	.04	0.29	.77	.00
Body Areas Satisfaction (MBSRQ-AS)	I	OCI	06	0.45	.65	.00
	II	OCI	04	0.29	.77	.00
		LSAS	34	2.70	<.01	.12

Note. BIDQ = Body Image Disturbance Questionnaire, MBSRQ-AS = Multidimensional Body-Self Relations Questionnaire—Appearance Scales, OCI = Obsessive Compulsive Inventory. LSAS = Liebowitz Social Anxiety Scale.

Orientation, and Body Areas Satisfaction). No significant effects were found for any of the dependent variables (all *ps* > .05). In addition, since the covariates were not significantly related to the dependent variables, we reran the analyses without the covariates (i.e., as ANOVAs). Similarly, no significant effects emerged (all *ps* > .05; see Table 1). Thus, severity of body image disturbance and attitudes toward appearance did not significantly differ between the diagnostic groups.

Regression Analyses Predicting Body Image Variables

Our second hypothesis was that significant associations between obsessive–compulsive and social anxiety symptoms on one hand and body image variables on the other would be found. To examine this hypothesis we conducted a series of hierarchical regression analyses predicting BIDQ scores and MBSRQ-AS subscale scores using OCD and SAD symptoms. In all regression analyses, OCD symptoms were entered in the first step and SAD symptoms were entered in the second step. These analyses were conducted using the total sample (n = 68) and results appear in Table 2. The results indicated that OCD symptoms (but not SAD symptoms) significantly predicted body image disturbance, Appearance Evaluation, and Body Areas Satisfaction. OCD symptoms (but not SAD symptoms) significantly predicted Appearance Orientation.

To ensure that the relationships observed in the previous analyses were not moderated by participants' primary disorder, we reran all regression analyses while including three additional terms. A disorder variable (i.e., the main effect of disorder) and the interaction between disorder on the one hand and OCD and SAD symptoms on the other. Neither the main effect of disorder nor its interaction with OCD and SAD were significantly associated with the dependent variables in all analyses.

Discussion

The current study examined body image among individuals with OCD, SAD, and PD. We found no differences in body image disturbance and attitudes toward appearance between the groups, suggesting that body image may be similar across these anxiety disorders. We also found that SAD symptoms significantly predicted body image disturbance, Appearance Evaluation, and Body Areas Satisfaction, and OCD symptoms predicted Appearance Orientation. Our results suggest that overall, SAD symptoms are associated with body image disturbance and attitudes toward one's appearance to a greater extent than OCD symptoms.

The levels of body image disturbance found in the present study were similar to those found in individuals with mood and anxiety disorders but lower than those found in individuals with BDD (Hrabosky et al., 2009). Similarly, Appearance Evaluation scores were comparable to those found in individuals with mood and anxiety disorders but greater than those found in individuals with BDD (Hrabosky et al., 2009). In addition, the average level of body image disturbance found in the present study is higher than the level reported among unselected college students (Cash, Melnyk, et al., 2004; Cash, Phillips, et al., 2004). This suggests that levels of body image variables found in the present study may be elevated compared to the general population but still do not reach clinical BDD levels.

Contrary to our hypothesis, no differences in severity of body image disturbance and dysfunctional attitudes toward one's appearance were found between the three groups included in this study. This is somewhat puzzling considering previous studies indicating that BDD symptoms are elevated among individuals with OCD and SAD, and that BDD is specifically related to these two disorders (e.g., Coles et al., 2006; Fang & Hofmann, 2010; Phillips et al., 2007). However, our findings are consistent with those reported by Lochner and Stein (2010), who compared rates of BDD diagnoses among individuals with OCD, SAD, and panic disorder (PD) and found no significant differences between the three groups. Taken together with the findings of the present study, these data suggest that elevated body image disturbance and dysfunctional attitudes toward one's appearance may not be specifically associated with a single anxiety disorder but rather present across the spectrum of anxiety disorders. However, this finding remains preliminary and much research needs to be done in order to draw more definite conclusions. Future studies can examine body image variables in additional anxiety disorders to increase our knowledge regarding these associations.

Across the three groups, SAD symptoms (but not OCD symptoms) were significantly associated with body image disturbance. This mirrors findings demonstrating an association between SAD and BDD (Coles et al., 2006) and suggests that SAD symptoms may be more closely linked to body image disturbance compared to OCD symptoms. SAD symptoms were also significantly associated with Appearance Evaluation, and Body Areas Satisfaction. Thus, higher levels of SAD symptoms were associated with reduced satisfaction with one's appearance, and reduced feelings of attractiveness.

OCD symptoms (but not SAD symptoms) were significantly associated with Appearance Orientation. Importantly, Appearance Orientation is not a measure of dysfunctional appearance investment, but is instead a measure of non-pathological investment in one's looks and appearance. Thus, while this association may reflect compulsive appearance management behaviors, it may also be interpreted as reflecting a benign tendency to maintain one's

positive appearance which is associated with OCD symptoms. Much future research is required in order to draw firm conclusions regarding the possible relationship between OCD and Appearance Orientation and to increase our understanding of this relationship.

A possible interpretation of the present study's findings is that SAD symptoms are associated with the cognitive aspects of negative body image that include negative self-perception. This is consistent with models of SAD (Clark, 2005; Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997) and models of BDD (Feusner, Neziroglu, Wilhelm, Mancusi, & Bohon, 2010; Veale, 2004), which stress the importance of negative self-perception in maintaining both disorders. Conversely, OCD may be associated with behavioral consequences of body image, such as dieting or grooming. This is in line with models of OCD which stress the importance of action tendencies as well as the desire to resist or control thoughts by engaging in compulsions (e.g., Veale, 2007). Thus, individuals with SAD may have a propensity to display cognitive patterns related to negative body image which are closely related to those found in SAD (e.g., distorted and negative views of the self; Moscovitch, 2009; Moscovitch, Orr, Rowa, Reimer, & Antony, 2009), whereas individuals with OCD may be inclined to engage in behavioral patterns which are similar to those found in OCD (e.g., behaviors aimed at controlling undesired thoughts or states). Further research is needed to elucidate the relationship between aspects of body image on one hand and SAD and OCD on the other.

The findings presented here have important treatment implications. We found body image disturbance and dysfunctional attitudes toward one's appearance in individuals with SAD, OCD and PD, and these can result in significant impairment (e.g., Phillips, Menard, Fay, & Pagano, 2005). Thus, it may be beneficial to routinely assess for body image variables among individuals with these anxiety disorders (see Veale, Boocock, Gournay, & Dryden, 1996; Wilhelm, Otto, Zucker, & Pollack, 1997 for similar suggestions), and when appropriate to target them in treatment. Applying interventions targeting body image disturbance and dysfunctional attitudes toward one's appearance during treatments for SAD and OCD may improve outcome for individuals with elevated levels of these body image variables. Moreover, knowledge about specific aspects of body image associated with different anxiety disorders may guide such interventions and increase their effectiveness.

The present study has several limitations. First, we did not include a diagnosis of BDD, but rather investigated continuous levels of body image disturbance and attitudes toward one's appearance. Second, our sample included only treatment-seekers, and it is important to replicate the findings among non-treatment-seeking individuals. Third, we did not assess BMI or conduct an objective assessment of appearance defects in our sample. Despite these limitations, the present study represents an important juxtaposition of body image disturbance and attitudes toward appearance among individuals with SAD and OCD. Our findings suggest that SAD and OCD may be associated with different aspects of body image, and that overall, SAD symptoms may be associated with body image disturbance and dysfunctional attitudes toward one's appearance to a greater extent than OCD symptoms.

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