



Published in final edited form as:

J Psychiatr Res. 2012 October ; 46(10): 1293–1299. doi:10.1016/j.jpsychires.2012.05.016.

A Comparison of Insight in Body Dysmorphic Disorder and Obsessive Compulsive Disorder

Katharine A. Phillips, M.D.^{a,b,c,*}, Anthony Pinto, Ph.D.^{d,e}, Ashley S. Hart, Ph.D.^{a,c}, Meredith E. Coles, Ph.D.^f, Jane L. Eisen, M.D.^{b,c}, William Menard, B.A.^{a,b}, and Steven A. Rasmussen, M.D.^{b,c}

^aRhode Island Hospital, Providence, RI, USA

^bButler Hospital, Providence, RI, USA

^cDepartment of Psychiatry and Human Behavior, Alpert Medical School of Brown University, Providence, RI, USA

^dNew York State Psychiatric Institute, New York, NY, USA

^eDepartment of Psychiatry, Columbia University, New York, NY, USA

^fDepartment of Psychology, Binghamton University, Binghamton, NY, USA

Abstract

Insight/delusionalism of beliefs is an important dimension of psychopathology across psychiatric disorders. This construct is of increasing interest in obsessive-compulsive and related disorders, including obsessive-compulsive disorder (OCD) and body dysmorphic disorder (BDD). Even though OCD and BDD are considered closely related, no prior study has compared these disorders across a range of categories of global insight (excellent, good, fair, poor, absent/delusional), and only one study has compared these disorders on individual components of insight. Using the reliable and valid Brown Assessment of Beliefs Scale (BABS), this study examined insight/delusionalism of OCD- or BDD-related beliefs in 211 individuals with primary OCD versus 68 individuals with primary BDD. In both disorders, levels of insight spanned the full range, from excellent to absent (i.e., delusional beliefs). However, the distribution of BABS scores across insight categories differed significantly by disorder, with the majority of OCD subjects showing excellent or good insight, and the majority of BDD subjects showing poor or absent insight. Compared to OCD subjects, BDD subjects had significantly poorer insight both overall (total BABS score) and on all individual BABS items. BABS score was significantly correlated with

© 2012 Elsevier Ltd. All rights reserved.

*Corresponding author: Katharine A. Phillips, M.D., Rhode Island Hospital, Coro Center West, Suite 2.030, 1 Hoppin Street, Providence, RI, 02903 USA; Katharine_Phillips@brown.edu. Phone: (401) 444-1646; Fax: (401) 444-1645.

Conflict of Interest: The authors have no known conflicts of interest.

Contributors: Dr. Phillips designed the BDD study and wrote the protocol; oversaw the conduct of the BDD study; participated in conceptualization of the present report; and wrote substantial portions of manuscript drafts. Dr. Pinto participated in the conduct of the OCD study, contributed to conceptualization of the present report, contributed to manuscript drafts, and conducted analyses. Dr. Hart contributed to manuscript drafts and conducted the literature search. Dr. Coles contributed to manuscript drafts and participated in conceptualization of this report. Dr. Eisen wrote the protocol and participated in the conduct of the OCD study; she also participated in conceptualization of the present report. Mr. Menard participated in the conduct of the BDD study and contributed to data analyses. Dr. Rasmussen designed the OCD study, wrote the study protocol, and oversaw the conduct of the OCD study. All authors contributed to and have approved the final manuscript.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

BDD and OCD severity, but in regressions it accounted for only 21% of the variance in OCD and 28% in BDD. In summary, both global insight and its individual components are poorer in BDD than in OCD, which has implications for research and clinical care, as well as understanding of the relationship between these disorders. Disorder severity is associated with but not equivalent to insight/delusionality.

Keywords

obsessive-compulsive disorder; body dysmorphic disorder; delusional disorder; insight; delusions

1. Introduction

Insight/delusionality of beliefs is an important dimension of psychopathology across psychiatric disorders. This construct is important not only in psychotic disorders (Kaplan et al., 2006; Lincoln et al., 2007) but also in mood disorders (Keller et al., 2007) and eating disorders (Konstantakopoulos et al., 2011; Steinglass et al., 2007), as well as obsessive-compulsive disorder (OCD) (Eisen et al., 2001; Kozak & Foa, 1994) and related disorders like body dysmorphic disorder (BDD), a distressing or impairing preoccupation with nonexistent or slight defects in appearance (Phillips, 2004). For example, in DSM-IV, OCD has a “poor insight” specifier, and for the upcoming DSM-5 a broader “insight specifier” is proposed for inclusion within the diagnostic criteria of OCD, BDD, and several other disorders (Feusner et al., 2010b; Leckman et al., 2010; Mataix-Cols et al., 2010; Phillips et al., 2010b). Research on insight in OCD and BDD, in particular, has increased in recent years (Aigner et al., 2005; Alonso et al., 2008; Bellino et al., 2005; Catapano et al., 2010; Mancuso et al., 2010; Matsunaga et al., 2002; Phillips et al., 2006). However, no study has compared these disorders across categories of global insight/delusionality (excellent, good, fair, poor, absent/delusional), and only one study has compared them on individual components of insight/delusionality (Eisen et al., 2004).

For the upcoming DSM-5, it is proposed that BDD and OCD both be categorized as obsessive-compulsive and related disorders (also known as obsessive compulsive-spectrum disorders) (Hollander et al., 2005; Phillips et al., 2010a). BDD and OCD have similarities in a number of domains, such as symptoms, many aspects of treatment response, and perhaps underlying neurobiology (although data on the latter are still limited for BDD; [Feusner et al., 2010a; Phillips et al., 2010b]). Furthermore, there are elevated rates of comorbidity between BDD and OCD (see Neziroglu & Khemlani-Patel, 2005 for a review) and elevated rates of BDD in first-degree relatives of individuals with OCD (Bienvenu et al., 2000; Bienvenu et al., 2012).

Despite these similarities, OCD and BDD also appear to have some clinically important differences, one of which may be insight. Among obsessive-compulsive and related disorders, “insight” -- also often referred to as degree of “delusionality” -- is often defined as a person’s conviction that their disorder-relevant belief is accurate (for example, in BDD that one looks deformed, or in OCD that the house will actually burn down if the stove is not checked 30 times). Insight is a multidimensional construct (Eisen et al., 1998; Kendler et al., 1983; Kozak & Foa, 1994), which includes components such as recognition that the belief has a psychological/psychiatric cause, and willingness to consider that the belief may be false (Amador et al., 1993; Eisen et al., 1998; Garety & Helmsley, 1987; Kendler et al., 1983). Clinical observations have suggested that BDD is characterized by poorer insight than OCD (de Leon et al., 1989; McKenna, 1984; Vitiello & de Leon, 1990). Supporting these early observations, studies that compared OCD to BDD found that patients with BDD had greater overvalued ideation (a construct similar to poor insight; McKay et al., 1997) and

were more likely to receive a psychotic disorder diagnosis due to BDD- or OCD-related delusional beliefs (Phillips et al., 1998).

More recently, Eisen and colleagues (2004), using the reliable and valid Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998), found that patients with BDD (n=85) had poorer global insight (higher total BABS score), and were more likely to have their disorder-related beliefs classified as delusional, than patients with OCD (n=64). Reese and colleagues (2011) similarly found poorer global insight on the BABS (higher total score) in BDD (n=20) than in OCD (n=20). Furthermore, Eisen and colleagues (2004) found large between-group differences for most individual components of insight on the BABS, with BDD characterized by greater conviction that the disorder-related belief is accurate, greater certainty that other people think the belief is accurate, greater certainty that their own view is more accurate than the view of others, greater reluctance to accept the possibility that the belief is not accurate, and poorer insight into the psychological/psychiatric cause of the belief. Only two components of insight/delusionality did not significantly differ between BDD and OCD (attempts to disprove the belief and ideas/delusions of reference).

In this report, we compare insight in OCD and BDD using the BABS. This report extends a prior report from a broadly ascertained sample of treated individuals with OCD or BDD in which we compared these disorders across a broad range of demographic and clinical features (Phillips et al., 2007). That report noted that BDD subjects had poorer global insight/delusionality than OCD subjects (BABS total score) and that a higher proportion of BDD than OCD beliefs were classified as delusional. However, examination of insight/delusionality was limited to these two items. The present report examines and compares additional aspects of insight -- a range of global insight categories (i.e., excellent, good, fair, poor, delusional), components of insight, and the relationship between insight and illness severity -- which were not previously reported from this sample. We hypothesized that BDD subjects would have poorer global insight across a range of insight categories as well as poorer insight across all individual components of insight. Based on our clinical experience, we hypothesized, contrary to Eisen and colleagues' (2004) prior findings, that BDD subjects would be less likely to try to disprove their belief and more likely to have disorder-related ideas or delusions of reference. Referential thinking is a prominent clinical feature of BDD (Phillips, 2004; Phillips et al., 1994), with many individuals believing that others take special notice of their perceived appearance defects in a negative way -- for example, stare at, talk about, or laugh at the perceived deformities. In contrast, referential thinking is not considered typical of OCD (Kozak & Foa, 1994).

2. Methods

2.1. Subjects

Subjects were obtained from two larger samples that have previously been described (e.g., Phillips et al., 2005; Pinto et al., 2006). The sample selection process for the present report is described in Phillips et al. (2007). In brief, subjects were obtained from two very similar longitudinal studies of the course of BDD and OCD conducted at the same site (Phillips et al., 2005; Pinto et al., 2006). Although some inclusion criteria differed between the two studies, a similar subset of both samples was selected; each subset included broadly ascertained adults with a primary diagnosis of DSM-IV OCD or DSM-IV BDD who were receiving mental health treatment at the time of the intake interview. In both samples, the primary diagnosis was defined as the disorder that subjects considered their biggest problem overall across their lifetime. The selection process yielded 225 participants with primary OCD, 211 of whom were evaluated with the BABS and are therefore included in this report. The BABS was not administered to eight participants due to rater error, and it could not be administered to six others because their primary symptom was not associated with a feared

consequence that involved a belief. The BDD group consisted of 70 individuals with primary BDD, 68 of whom could be evaluated with the BABS and are thus included in this report. Two subjects could not be evaluated with the BABS because they had severely damaged skin from BDD-related skin picking (thus, their belief about perceived skin defects was accurate). Thirteen of the 211 OCD participants (6.2%) had comorbid BDD, and 24 of the 68 BDD participants (35.3%) had comorbid OCD. These individuals are included in this report to increase the generalizability of the results. These subjects were not put in a separate “comorbid” group ($N = 37$) because BABS scores were available only for the primary disorder; thus, BABS scores in a separate comorbid group would be for BDD in some cases and OCD in others, making results difficult to interpret. (Because comorbid individuals are included in the primary OCD and BDD groups in this report, unlike in our prior report (Phillips et al., 2007), some aspects of these two reports slightly differ.) The most common additional current comorbid diagnoses for the OCD and BDD groups, respectively, were social phobia (17% and 34%), major depressive disorder (15% and 46%), specific phobia (13% and 16%), and panic disorder (9% and 16%). The study was performed in compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) and approved by the sites’ hospital Institutional Review Board. All participants signed statements of informed consent after procedures were fully explained.

2.2. Assessments

All data were obtained in person by experienced interviewers who were closely supervised by senior study staff. Both studies used the same careful and rigorous interviewer training and monitoring procedures (see Phillips & Stout, 2006; Pinto et al., 2006). Interviewer training included viewing and discussing videotaped interviews, conducting mock interviews with experienced interviewers, and being closely observed by trainers during training sessions and initial interviews.

Insight/delusionalism was assessed both dimensionally and categorically with the *Brown Assessment of Beliefs Scale (BABS)* (Eisen et al., 1998). This 7-item semi-structured rater-administered scale assesses insight/delusionalism during the past week in various disorders. The patient’s main disorder-related inaccurate belief is determined, and specific probes and anchors rate components of this belief. In OCD participants, the primary OCD belief (i.e., the belief they most wanted to get rid of) was rated rather than a global belief because the content of different beliefs can vary greatly, and it can be difficult to obtain a global belief that appears valid and understandable to subjects. Examples of typical OCD beliefs are “If I touch this faucet, I’ll get very ill and end up in the hospital” or “If I don’t check the stove over and over, the house will burn down.” For BDD participants, a global belief about the appearance of the “defective” body areas was obtained, rather than specific beliefs about different body parts, because all BDD beliefs focus on perceived appearance abnormalities. Typical BDD beliefs are “I look deformed” or “I look ugly.” In both studies, it was ensured that the belief being rated was false and therefore could be assessed with the BABS.

The BABS’s seven individual items assess the following components of insight: 1) conviction (how convinced the person is that his/her belief is accurate), 2) perception of others’ views (certainty that most people think the belief is accurate), 3) explanation of differing views (the person’s explanation for the difference between his/her and others’ views of the belief), 4) fixity of beliefs (whether the person could be convinced that the belief is wrong), 5) attempt to disprove the belief (how actively the person tries to disprove his/her belief), 6) insight into the cause of the belief (recognition that the belief has a psychiatric/psychological cause, as opposed to being true), and 7) referential thinking (an optional item that assesses ideas/delusions of reference). Each BABS item is rated from 0 to 4, with higher scores indicating poorer insight. The first six items are summed to create a total score from 0 to 24. Item 7 is not included in the total score, because referential thinking

is characteristic of some disorders but not others. The BABS also provides cutpoints for classifying the total score according to different categories of insight. A total BABS score 18 plus a score of 4 on the first item (100% conviction) classifies a belief as delusional. In previous sensitivity and specificity calculations, this cutpoint had 100% sensitivity and 86% specificity for delusional versus nondelusional beliefs (Eisen et al., 1998). Other categories based on BABS total score are excellent (0–3), good (4–7), fair (8–12), and poor (13–17, or total score 18 and a score of 0–3 on the BABS conviction item). The BABS has strong internal consistency ($\alpha=.87$), interrater reliability (ICC for total score=.96), and test-retest reliability (ICC for total score=.95) as well as good convergent and discriminant validity and sensitivity to change in OCD and BDD (Eisen et al., 1998; Phillips, 2006). In the current study, the six BABS items that constitute the total score had high internal consistency in both the OCD ($\alpha=.80$) and BDD ($\alpha=.90$) groups.

The *Structured Clinical Interview for DSM-IV* (First et al., 2002) diagnosed BDD, OCD, and comorbid disorders. A semi-structured instrument (Phillips KA, unpublished) used in previous BDD studies (e.g., Phillips et al., 1998) was used in the BDD and OCD groups to obtain data on educational attainment, age at disorder onset, and illness duration. The reliable and valid 10-item semi-structured *Yale-Brown Obsessive Compulsive Scale (Y-BOCS)* assessed current OCD severity (Goodman et al., 1989). Five items assess obsessions, and five parallel items assess compulsions. Scores range from 0–40, with higher scores reflecting more severe symptoms. The Y-BOCS Symptom Checklist identified the obsessions and compulsions that were rated with the Y-BOCS. The Y-BOCS had good internal consistency in the current study ($\alpha=.82$). The *Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (BDD-YBOCS)* assessed current BDD severity (Phillips et al., 1997). The BDD-YBOCS was derived from, and is very similar to, the Y-BOCS. The main difference (other than focusing on BDD-related preoccupations and compulsive behaviors) is that the BDD-YBOCS has two additional items that are experimental items on the Y-BOCS (insight/delusional and avoidance). Scores on this 12-item scale range from 0 to 48, with higher scores reflecting more severe symptoms. In this report, we use only the first 10 BDD-YBOCS items to facilitate comparisons with the Y-BOCS, which has 10 items. The 10-item version of the BDD-YBOCS has strong psychometric properties (Phillips et al., 1997) and had good internal consistency in the current study ($\alpha=.84$).

2.3. Statistical analysis

Statistical analyses were performed using SPSS 11.0 for Windows. All tests were two-tailed. Means, standard deviations, frequencies, and percentages were calculated. Between-group differences were tested using χ^2 analyses for categorical variables and ANOVA for continuous variables. Effect sizes are reported as phi for χ^2 analyses and eta for ANOVA (.10=small, .30=medium, .50=large for both effect size measures). Bivariate correlations and hierarchical regressions examined the relationship between insight and illness severity. We decided *a priori* not to apply a full Bonferroni correction because this approach tends to be overly conservative (Rosner, 1995). However, to diminish the possibility of type I error, we used a partial alpha correction with $p<.01$ to determine statistical significance.

3. Results

Participants with primary OCD ($n=211$) and primary BDD ($n=68$) did not differ significantly on demographic variables, age at onset of the primary disorder, or illness duration (Table 1). Mean total BDD-YBOCS scores were significantly higher than mean total Y-BOCS scores, reflecting greater disorder severity in BDD subjects. BDD subjects had more severe preoccupations/obsessions, but not compulsions, than OCD subjects.

As shown in Table 2, in both disorders level of insight spanned the full range, from excellent insight to absent insight (i.e., delusional beliefs). However, the two groups significantly differed in terms of categories of global insight ($p < .001$). In the BDD group, 32.4% of participants had delusional beliefs, compared to only 2.4% of OCD participants. Seventy-two percent of BDD subjects, but only 16% of OCD subjects, had poor or absent insight. BDD participants had a significantly higher mean BABS total score than OCD participants, with a large effect size. Mean total scores reflected poor insight in BDD and good insight in OCD.

As predicted, BDD participants had poorer insight on all individual components of insight (i.e., individual BABS items; Table 2). All effect sizes were medium to large, except for attempts to disprove beliefs (small). Differences between the OCD and BDD groups on BABS total score and individual BABS items remained significant when controlling for disorder severity. The only exception was item 5 (attempts to disprove beliefs), for which the between-group difference was no longer significant ($p = .12$).

In the OCD group, the BABS total score was significantly correlated with each of the Y-BOCS summary scores (Table 3). Six of 7 individual BABS items were significantly correlated with the Y-BOCS total score. The only exception was insight into the psychiatric/psychological cause of the belief ($p = .07$). Similarly, in the BDD group, the BABS total score was significantly correlated with each of the BDD-YBOCS summary scores. Six of 7 individual BABS items were significantly correlated with BDD-YBOCS total score (perception of other's views was associated at a trend level, $p = .02$).

Three hierarchical regressions were conducted to determine if selected clinical variables (duration of BDD/OCD, presence of comorbid major depressive disorder) and demographic variables (gender, level of education) predicted insight (BABS total score) above and beyond disorder severity (Y-BOCS/BDD-YBOCS total score). Separate regressions were conducted for the primary OCD and BDD groups, with severity entered in the first step, followed by the clinical and demographic variables entered simultaneously. In both regressions, greater disorder severity was the only significant predictor of poorer insight, accounting for 21% of the variance in insight in OCD ($R^2 = .21$, $B = .40$, $SE = .05$, $\beta = .46$, $t = 7.49$, $p < .001$) and 28% in BDD ($R^2 = .28$, $B = .51$, $SE = .10$, $\beta = .53$, $t = 5.12$, $p < .001$).

4. Discussion

Global insight, assessed categorically, was poorer in BDD than in OCD, as hypothesized. The two disorders were characterized by a nearly opposite pattern of results: only 2% of OCD subjects had delusional beliefs, and a majority had excellent or good insight; in contrast, only 3% of BDD subjects had excellent insight, and a majority had poor or absent insight. Our finding that 32% of BDD subjects had delusional BDD beliefs is similar to Eisen et al.'s finding of 39% in a different sample (2004).

When assessing insight dimensionally (mean total BABS score), global insight was in the poor insight range for BDD and the good insight range for OCD. Prior studies with the BABS similarly found mean insight scores in the poor range for BDD; mean scores for OCD have generally been in the good to fair range (Alonso et al., 2008; Catapano et al., 2010; Eisen et al., 2004; Grant et al., 2002; Miguel et al., 2008; Reese et al., 2011; Sallet et al., 2010; Shimshoni et al., 2011). Our finding that insight is poorer in BDD than in OCD is consistent with prior studies (Eisen et al., 2004; Reese et al., 2011). However, mean scores do differ somewhat across these studies; the reason is unknown, but these differences may possibly be attributable to current treatment status (treated versus untreated). Mean scores in the present report's treated sample (BDD: 15.6 ± 6.1 ; OCD: 7.1 ± 5.0) and those reported for Reese et al.'s treated sample (2011) (BDD: 13.8; OCD: 3.6 [standard deviations not

reported]) are somewhat lower than those of Eisen and colleagues' untreated sample (2004) (BDD: 16.8 ± 5.2 ; OCD: 8.4 ± 4.1) (subjects in that study were assessed with the BABS before beginning pharmacotherapy). Indeed, in the larger sample ($n=191$) from which the present BDD sample was derived, currently untreated subjects had significantly higher mean BABS scores than currently treated subjects (18.1 ± 4.4 versus 15.6 ± 5.9 , $p=.002$) (Phillips et al., 2005). Shimshoni and colleagues (2011) similarly found that OCD participants who were currently taking psychotropic medication had better insight on the BABS than those not taking medication. It is unclear whether better insight in treated subjects might reflect greater willingness of individuals with better insight to seek and participate in mental health treatment, improvement in insight with treatment, neither, or both. The possibility that treatment may improve insight is supported by findings of significant improvement in insight in BDD and in OCD after treatment with serotonin-reuptake inhibitors in efficacy studies (Alonso et al., 2008; Eisen et al., 2001; Hollander et al., 1999; Phillips, 2006; Phillips et al., 2001; Phillips & Najjar, 2003).

Our finding that BDD subjects also had poorer insight on all individual components of insight is generally similar to findings from Eisen and colleagues (2004), except that the latter study did not find this for ideas/delusions of reference or attempts to disprove the belief (although for the latter variable a difference was found at a trend level). The reason for these somewhat different findings is unclear, although sample ascertainment differed. The present report's results might be considered consistent with Nakata and colleagues' (2007) finding that ideas/delusions of reference were more common among OCD patients with comorbid BDD than in patients with OCD without comorbid BDD. Taken together, our findings add to a growing body of data indicating that BDD and OCD differ in terms of insight/delusionality both globally and in terms of individual components of insight.

Studies that have compared BDD plus comorbid OCD to BDD without comorbid OCD, or that have compared OCD plus comorbid BDD to OCD without comorbid BDD, cannot be directly compared to our study, as the groups in those studies differed from ours (primary BDD versus primary OCD). Nonetheless, some of the findings have some consistency with our results. In studies that compared OCD with comorbid BDD to OCD without comorbid BDD, subjects had less insight regarding their BDD than their OCD (Simeon et al., 1995), and a higher proportion of those with comorbid BDD had referential thinking (Nakata et al., 2007). In addition, comorbid BDD was associated with poorer insight regarding OCD beliefs (Nakata et al., 2007).

The significant correlations between global insight and BDD severity scores are similar to Eisen et al.'s (2004) findings ($r=.46$ for total BDD-YBOCS score and BABS score) and those of Mancuso and colleagues (2010) ($r=.78$ for total BDD-YBOCS score and the BDD-YBOCS insight item [item 11]). However, unlike the present report, Eisen and colleagues (2004) did not find significant correlations for OCD severity ($r=.19$ for total Y-BOCS score). Reasons for these discrepant findings are unclear. Other studies examining the association between insight and OCD symptom severity have also yielded mixed results (Alonso et al., 2008; Catapano et al., 2010; Poyurovsky et al., 2007; Ravi Kishore et al., 2004; Shimshoni et al., 2011). Despite the positive correlations in the present study, disorder severity accounted for a relatively small proportion of the variance in BABS total score, indicating that insight is not merely a proxy for disorder severity in BDD or OCD.

Several aspects of the study design may limit the results' generalizability, including recruitment of participants from a single site in the northeastern United States and assessment of a treated sample, which may make the results more generalizable to treated than untreated individuals. We did not use the BABS to assess OCD-related insight in BDD subjects with comorbid OCD, or to assess BDD-related insight in OCD subjects with

comorbid BDD; thus, we could not compare insight of comorbid BDD and OCD within participants. Although we did not ascertain interrater reliability across BDD and OCD samples, all interviewers were extensively trained and supervised by two of the authors, who developed the BABS (J.L.E. and K.A.P.). We did not examine some possible predictors of insight/delusionality, such as anxiety (Shimshoni et al., 2011; Steketee & Shapiro, 1995), visual processing abnormalities (Deckersbach et al., 2000a; Deckersbach et al., 2000b; Feusner et al., 2007; Yaryura-Tobias et al., 2002), or social threat perception (Buhlmann et al., 2004), which should be examined in future studies.

Our findings are consistent with recommendations for DSM-5 to broaden the OCD insight specifier to incorporate a full range of insight and to add a similar insight specifier to BDD (Leckman et al., 2010; Phillips et al., 2010b). From a clinical perspective, it is useful for clinicians to be aware that level of insight spans a broad range in OCD and BDD, and is usually poorer in BDD. For example, level of insight may have treatment implications. Some, although not all, OCD studies have found that poorer insight is associated with poorer response to medication and behavior therapy (see Jakubovski et al., 2011). In BDD, although serotonin-reuptake inhibitors appear equally efficacious for patients with delusional BDD vs non-delusional BDD (see Phillips et al., 2010b), the only cognitive-behavioral therapy study that has examined insight as a predictor of outcome found that poorer insight was related to poorer outcome (Neziroglu, Stevens, McKay, & Yaryura-Tobias, 2001). In addition, our clinical experience suggests that poor or absent insight may necessitate motivational interviewing to engage and retain patients in treatment. Research is needed to further examine the relationship of insight/delusionality to treatment outcome and other important constructs, including quality of life and underlying neurobiology.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This study was funded by grants R01 MH060241 and 5 K24 MH063975 from the National Institute of Mental Health to Dr. Phillips, grant R01 MH60218 from the National Institute of Mental Health to Dr. Rasmussen, and grant K23 MH080221 to Dr. Pinto. The authors thank Martha Niemiec for her assistance with the references.

References

- Aigner M, Zitterl W, Prayer D, Demal U, Bach M, Prayer L, et al. Magnetic resonance imaging in patients with obsessive-compulsive disorder with good versus poor insight. *Psychiatry Research*. 2005; 140:173–179. [PubMed: 16256314]
- Alonso P, Menchon JM, Segalas C, Jaurrieta N, Jimenez-Murcia S, Cardoner N, et al. Clinical implications of insight assessment in obsessive-compulsive disorder. *Comprehensive Psychiatry*. 2008; 49:305–312. [PubMed: 18396191]
- Amador XF, Strauss DH, Yale SA, Flaum MM, Endicott J, Gorman JM. Assessment of insight in psychosis. *American Journal of Psychiatry*. 1993; 150:873–879. [PubMed: 8494061]
- Bellino S, Patria L, Ziero S, Bogetto F. Clinical picture of obsessive-compulsive disorder with poor insight: A regression model. *Psychiatry Research*. 2005; 136:223–231. [PubMed: 16125785]
- Bienvenu OJ, Samuels JF, Riddle MA, Hoehn-Saric R, Liang KY, Cullen BA, et al. The relationship of obsessive-compulsive disorder to possible spectrum disorders: Results from a family study. *Biological Psychiatry*. 2000; 48:287–293. [PubMed: 10960159]
- Bienvenu OJ, Samuels JF, Wuyek LA, Liang KY, Wang Y, Grados MA, et al. Is obsessive-compulsive disorder an anxiety disorder, and what, if any, are spectrum conditions? A family study perspective. *Psychological Medicine*. 2012; 42:1–13. [PubMed: 21733222]

- Buhlmann U, McNally RJ, Etcoff NL, Tuschen-Caffier B, Wilhelm S. Emotion recognition deficits in body dysmorphic disorder. *Journal of Psychiatric Research*. 2004; 38:201–206. [PubMed: 14757335]
- Catapano F, Perris F, Fabrazzo M, Cioffi V, Giacco D, De Santis V, et al. Obsessive-compulsive disorder with poor insight: A three-year prospective study. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*. 2010; 34:323–330. [PubMed: 20015461]
- de Leon J, Bott A, Simpson GM. Dysmorphophobia: Body dysmorphic disorder or delusional disorder, somatic subtype? *Comprehensive Psychiatry*. 1989; 30:457–472. [PubMed: 2684497]
- Deckersbach T, Otto MW, Savage CR, Baer L, Jenike MA. The relationship between semantic organization and memory in obsessive-compulsive disorder. *Psychotherapy and Psychosomatics*. 2000a; 69:101–107. [PubMed: 10671831]
- Deckersbach T, Savage CR, Phillips KA, Wilhelm S, Buhlmann U, Rauch SL, et al. Characteristics of memory dysfunction in body dysmorphic disorder. *Journal of the International Neuropsychological Society*. 2000b; 6:673–681. [PubMed: 11011514]
- Eisen JL, Phillips KA, Baer L, Beer DA, Atala KD, Rasmussen SA. The Brown Assessment of Beliefs Scale: Reliability and validity. *American Journal of Psychiatry*. 1998; 155:102–108. [PubMed: 9433346]
- Eisen JL, Phillips KA, Coles ME, Rasmussen SA. Insight in obsessive compulsive disorder and body dysmorphic disorder. *Comprehensive Psychiatry*. 2004; 45:10–15. [PubMed: 14671731]
- Eisen JL, Rasmussen SA, Phillips KA, Price LH, Davidson J, Lydiard RB, et al. Insight and treatment outcome in obsessive-compulsive disorder. *Comprehensive Psychiatry*. 2001; 42:494–497. [PubMed: 11704942]
- Feusner JD, Moody T, Hembacher E, Townsend J, McKinley M, Moller H, et al. Abnormalities of visual processing and frontostriatal systems in body dysmorphic disorder. *Archives of General Psychiatry*. 2010a; 67:197–205. [PubMed: 20124119]
- Feusner JD, Phillips KA, Stein DJ. Olfactory reference syndrome: Issues for DSM-V. *Depression and Anxiety*. 2010b; 27:592–599. [PubMed: 20533369]
- Feusner JD, Townsend J, Bystritsky A, Bookheimer S. Visual information processing of faces in body dysmorphic disorder. *Archives of General Psychiatry*. 2007; 64:1417–1425. [PubMed: 18056550]
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV-TR Axis I disorders, Research Version, Patient Edition (SCID-I/P). New York: Biometrics Research; 2002.
- Garety PA, Hemsley DR. Characteristics of delusional experience. *European Archives of Psychiatry and Neurological Sciences*. 1987; 236:294–298. [PubMed: 3653151]
- Goodman WK, Price LH, Rasmussen SA, Mazure C, Fleischmann RL, Hill CL, et al. The Yale-Brown Obsessive Compulsive Scale: I. Development, use, and reliability. *Archives of General Psychiatry*. 1989; 46:1006–1011. [PubMed: 2684084]
- Grant JE, Kim SW, Eckert ED. Body dysmorphic disorder in patients with anorexia nervosa: Prevalence, clinical features and delusional quality of body image. *International Journal of Eating Disorders*. 2002; 32:291–300. [PubMed: 12210643]
- Hollander E, Allen A, Kwon J, Aronowitz B, Schmeidler J, Wong C, et al. Clomipramine vs desipramine crossover trial in body dysmorphic disorder: Selective efficacy of a serotonin reuptake inhibitor in imagined ugliness. *Archives of General Psychiatry*. 1999; 56:1033–1039. [PubMed: 10565503]
- Hollander, E.; Friedberg, JP.; Wasserman, S.; Yeh, CC.; Iyengar, R. Concepts and controversies in obsessive-compulsive disorder. New York: Springer; 2005. The case for the ocd spectrum.
- Jakubovski E, Pittenger C, Torres AR, Fontenelle LF, do Rosario MC, Ferrão YA, et al. Dimensional correlates of poor insight in obsessive-compulsive disorder. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*. 2011; 35:1677–1681. [PubMed: 21640153]
- Kaplan GB, Phillips KA, Vaccaro A, Eisen JL, Posternak MA, MacAskill HS. Assessment of insight into delusional beliefs in schizophrenia using the Brown Assessment of Beliefs Scale. *Schizophrenia Research*. 2006; 82:279–281. [PubMed: 16406495]
- Keller J, Schatzberg AF, Maj M. Current issues in the classification of psychotic major depression. *Schizophrenia Bulletin*. 2007; 33:877–885. [PubMed: 17548842]

- Kendler KS, Glazer WM, Morgenstern H. Dimensions of delusional experience. *American Journal of Psychiatry*. 1983; 140:466–469. [PubMed: 6837787]
- Konstantakopoulos G, Tchanturia K, Surguladze SA, David AS. Insight in eating disorders: Clinical and cognitive correlates. *Psychological Medicine*. 2011; 41:1951–1961. [PubMed: 21211101]
- Kozak MJ, Foa EB. Obsessions, overvalued ideas, and delusions in obsessive-compulsive disorder. *Behavior Research and Therapy*. 1994; 32:343–353.
- Leckman JF, Denys D, Simpson HB, Mataix-Cols D, Hollander E, Saxena S, et al. Obsessive-compulsive disorder: A review of the diagnostic criteria and possible subtypes and dimensional specifiers for DSM-V. *Depression and Anxiety*. 2010; 27:507–527. [PubMed: 20217853]
- Lincoln TM, Lullmann E, Rief W. Correlates and long-term consequences of poor insight in patients with schizophrenia. A systematic review. *Schizophrenia Bulletin*. 2007; 33:1324–1342. [PubMed: 17289653]
- Mancuso S, Knoesen N, Castle DJ. Delusional vs nondelusional body dysmorphic disorder. *Comprehensive Psychiatry*. 2010; 51:177–182. [PubMed: 20152299]
- Mataix-Cols D, Frost RO, Pertusa A, Clark LA, Saxena S, Leckman JF, et al. Hoarding disorder: A new diagnosis for DSM-V? *Depression and Anxiety*. 2010; 27:556–572. [PubMed: 20336805]
- Matsunaga H, Kiriike N, Matsui T, Oya K, Iwasaki Y, Koshimune K, et al. Obsessive-compulsive disorder with poor insight. *Comprehensive Psychiatry*. 2002; 43:150–157. [PubMed: 11893994]
- McKay D, Neziroglu F, Yaryura-Tobias JA. Comparison of clinical characteristics in obsessive-compulsive disorder and body dysmorphic disorder. *Journal of Anxiety Disorders*. 1997; 11:447–454. [PubMed: 9276787]
- McKenna PJ. Disorders with overvalued ideas. *British Journal of Psychiatry*. 1984; 145:579–585. [PubMed: 6391600]
- Miguel EC, Ferrao YA, Rosario MC, Mathis MA, Torres AR, Fontenelle LF, et al. The Brazilian research consortium on obsessive-compulsive spectrum disorders: Recruitment, assessment instruments, methods for the development of multicenter collaborative studies and preliminary results. *Revista Brasileira de Psiquiatria*. 2008; 30:185–196. [PubMed: 18833417]
- Nakata AC, Diniz JB, Torres AR, de Mathis MA, Fossaluza V, Bragancas CA, et al. Level of insight and clinical features of obsessive-compulsive disorder with and without body dysmorphic disorder. *CNS Spectrums*. 2007; 12:295–303. [PubMed: 17426667]
- Neziroglu F, Khemlani-Patel, S. Overlap of body dysmorphic disorder and hypochondriasis with ocd. In: Abramowitz, JS., Houts, AC., editors. *Concepts and controversies in obsessive-compulsive disorder*. New York, NY: Springer Science + Business Media Inc; 2005. p. 163-175.
- Neziroglu F, Stevens KP, McKay D, Yaryura-Tobias JA. Predictive validity of the overvalued ideas scale: Outcome in obsessive-compulsive and body dysmorphic disorders. *Behaviour Research and Therapy*. 2001; 39:745–756. [PubMed: 11400717]
- Phillips KA. Psychosis in body dysmorphic disorder. *Journal of Psychiatric Research*. 2004; 38:63–72. [PubMed: 14690771]
- Phillips KA. An open-label study of escitalopram in body dysmorphic disorder. *International Clinical Psychopharmacology*. 2006; 21:177–179. [PubMed: 16528140]
- Phillips KA, Gunderson CG, Mallya G, McElroy SL, Carter W. A comparison study of body dysmorphic disorder and obsessive-compulsive disorder. *Journal of Clinical Psychiatry*. 1998; 59:568–575. [PubMed: 9862601]
- Phillips KA, Hollander E, Rasmussen SA, Aronowitz BR, DeCaria C, Goodman WK. A severity rating scale for body dysmorphic disorder: Development, reliability, and validity of a modified version of the Yale-Brown Obsessive Compulsive Scale. *Psychopharmacology Bulletin*. 1997; 33:17–22. [PubMed: 9133747]
- Phillips KA, McElroy SL, Dwight MM, Eisen JL, Rasmussen SA. Delusional and response to open-label fluvoxamine in body dysmorphic disorder. *Journal of Clinical Psychiatry*. 2001; 62:87–91. [PubMed: 11247107]
- Phillips KA, McElroy SL, Keck PE, Pope HG, Hudson JI. A comparison of delusional and nondelusional body dysmorphic disorder in 100 cases. *Psychopharmacology Bulletin*. 1994; 30:179–186. [PubMed: 7831453]

- Phillips KA, Menard W, Fay C, Weisberg R. Demographic characteristics, phenomenology, comorbidity, and family history in 200 individuals with body dysmorphic disorder. *Psychosomatics*. 2005; 46:317–325. [PubMed: 16000674]
- Phillips KA, Menard W, Pagano ME, Fay C, Stout RL. Delusional versus nondelusional body dysmorphic disorder: Clinical features and course of illness. *Journal of Psychiatric Research*. 2006; 40:95–104. [PubMed: 16229856]
- Phillips KA, Najjar F. An open-label study of citalopram in body dysmorphic disorder. *Journal of Clinical Psychiatry*. 2003; 64:715–720. [PubMed: 12823088]
- Phillips KA, Pinto A, Menard W, Eisen JL, Mancebo M, Rasmussen SA. Obsessive-compulsive disorder versus body dysmorphic disorder: A comparison study of two possibly related disorders. *Depression and Anxiety*. 2007; 24:399–409. [PubMed: 17041935]
- Phillips KA, Stein DJ, Rauch SL, Hollander E, Fallon BA, Barsky A, et al. Should an obsessive-compulsive spectrum grouping of disorders be included in DSM-V? *Depression and Anxiety*. 2010a; 27:528–555. [PubMed: 20533367]
- Phillips KA, Stout RL. Associations in the longitudinal course of body dysmorphic disorder with major depression, obsessive-compulsive disorder, and social phobia. *Journal of Psychiatric Research*. 2006; 40:360–369. [PubMed: 16309706]
- Phillips KA, Wilhelm S, Koran LM, Didie ER, Fallon B, Fuesner J, et al. Body dysmorphic disorder: Some key issues for DSM-V. *Depression and Anxiety*. 2010b; 27:573–591. [PubMed: 20533368]
- Pinto A, Mancebo MC, Eisen JL, Pagano ME, Rasmussen SA. The Brown longitudinal obsessive compulsive study: Clinical features and symptoms of the sample at intake. *Journal of Clinical Psychiatry*. 2006; 67:703–711. [PubMed: 16841619]
- Poyurovsky M, Faragian S, Kleinman-Balush V, Pashinian A, Kurs R, Fuchs C. Awareness of illness and insight into obsessive-compulsive symptoms in schizophrenia patients with obsessive-compulsive disorder. *Journal of Nervous and Mental Disease*. 2007; 195:765–768. [PubMed: 17984777]
- Ravi Kishore V, Samar R, Janardhan Reddy YC, Chandrasekhar CR, Thennarasu K. Clinical characteristics and treatment response in poor and good insight obsessive-compulsive disorder. *European Psychiatry*. 2004; 19:202–208. [PubMed: 15196601]
- Reese HE, McNally RJ, Wilhelm S. Probabilistic reasoning in patients with body dysmorphic disorder. *Journal of Behavior Therapy and Experimental Psychiatry*. 2011; 42:270–276. [PubMed: 21349243]
- Rosner, B. *Fundamentals of biostatistics*. 4. Belmont, CA: Duxbury Press; 1995.
- Sallet PC, de Alvarenga PG, Ferrao Y, de Mathis MA, Torres AR, Marques A, et al. Eating disorders in patients with obsessive-compulsive disorder: Prevalence and clinical correlates. *International Journal of Eating Disorders*. 2010; 43:315–325. [PubMed: 19424977]
- Shimshoni Y, Reuven O, Dar R, Hermesh H. Insight in obsessive-compulsive disorder: A comparative study of insight measures in an Israeli clinical sample. *Journal of Behavior Therapy and Experimental Psychiatry*. 2011; 42:389–396. [PubMed: 21450265]
- Simeon D, Hollander E, Stein DJ, Cohen L, Aronowitz B. Body dysmorphic disorder in the DSM-IV field trial for obsessive-compulsive disorder. *American Journal of Psychiatry*. 1995; 152:1207–1209. [PubMed: 7625473]
- Steinglass JE, Eisen JL, Attia E, Mayer L, Walsh BT. Is anorexia nervosa a delusional disorder? An assessment of eating beliefs in anorexia nervosa. *Journal of Psychiatric Practice*. 2007; 13:65–71. [PubMed: 17414681]
- Steketee G, Shapiro LJ. Predicting behavioral treatment outcome for agoraphobia and obsessive compulsive disorder. *Clinical Psychology Review*. 1995; 15:317–346.
- Vitiello B, de Leon J. Dysmorphophobia misdiagnosed as obsessive-compulsive disorder. *Psychosomatics*. 1990; 31:220–222. [PubMed: 2330405]
- Yaryura-Tobias JA, Neziroglu F, Chang R, Lee S, Pinto A, Donohue L. Computerized perceptual analysis of patients with body dysmorphic disorder: A pilot study. *CNS Spectrums*. 2002; 7:444–446. [PubMed: 15107766]

Table 1
Demographic and clinical characteristics of subjects with primary OCD versus subjects with primary BDD

Variable ^a	OCD (n=211)	BDD (n=68)	Test statistic ^b	P	ES ^c
Demographics					
Gender (% female)	117 (55.5)	40 (58.8)	$\chi^2 = .24$	.626	.03
Age (years)	39.08 ± 12.5	36.1 ± 11.9	$F = 2.92$	.088	.10
Race (% white)	201 (95.3)	62 (92.5)	--- ^d	.366	.05
Ethnicity (% Hispanic)	6 (2.8)	4 (6.3)	--- ^d	.249	.08
Education (at least some college)	157 (74.4)	54 (79.4)	$\chi^2 = .70$	.403	.05
Age at onset of disorder (years)	17.6 ± 9.3	16.5 ± 7.3	$F = 0.94$	.334	.06
Duration of illness (years)	21.4 ± 13.5	19.7 ± 13.2	$F = 0.88$	.350	.06
YBOCS/BDD-YBOCS Total Score ^e	23.3 ± 5.8	25.6 ± 6.3	$F = 7.34$	.007	.16
Obsessions	11.4 ± 3.0	12.9 ± 3.0	$F = 14.09$	<.001	.22
Compulsions	12.0 ± 3.4	12.6 ± 4.1	$F = 1.88$	.171	.08

^aResults by group are presented as n (% of subjects) for χ^2 analyses and mean ± standard deviation for ANOVA.

^b $df = 1$ for all χ^2 analyses and $df = 1, 277$ for all ANOVAs.

^cEffect sizes (ES) are presented as Φ for χ^2 analyses and η for ANOVA (.10, *small*, .30, *medium*, .50, *large* for both ES measures).

^dFisher's Exact test.

^eAbbreviations: YBOCS, Yale-Brown Obsessive-Compulsive Scale; BDD-YBOCS, Yale-Brown Obsessive-Compulsive Scale Modified for BDD; BDD-YBOCS total score based on first 10 items only.

Table 2
Insight in subjects with primary OCD versus primary BDD on the Brown Assessment of Beliefs Scale (BABS)

Variable ^d	OCD (n=211)	BDD (n=68)	Test statistic ^b	P	ES ^c			
Insight Category Based on BABS Total Score ^d								
Excellent (0–3)	61 (28.9)	2 (2.9)	$\chi^2 = 91.29$	<.001	.57			
Good (4–7)	56 (26.5)	8 (11.8)						
Fair (8–12)	61 (28.9)	9 (13.2)						
Poor (13–17) ^e	28 (13.3)	27 (39.7)						
Delusional (18) ^f	5 (2.4)	22 (32.4)						
BABS Total Score ^{d,g}	7.1 ± 5.0	15.6 ± 6.1				F= 132.62	<.001	.57
1. Conviction	1.8 ± 1.3	3.1 ± 1.1				F= 56.38	<.001	.41
2. Perception of other's views	0.4 ± 0.8	2.3 ± 1.3	F= 181.61	<.001	.63			
3. Explanation of differing views	1.0 ± 1.2	2.9 ± 1.2	F= 127.49	<.001	.56			
4. Fixity of ideas	1.4 ± 1.3	2.9 ± 1.2	F= 69.00	<.001	.45			
5. Attempt to disprove beliefs	1.9 ± 1.5	2.4 ± 1.3	F= 7.33	.007	.16			
6. Insight into cause of belief	0.6 ± 0.9	2.1 ± 1.4	F= 102.70	<.001	.52			
7. Ideas/delusions of reference	0.2 ± 0.7	1.8 ± 1.6	F= 125.36	<.001	.31			

^aResults by group are presented as n (% of subjects) for χ^2 analyses and mean ± standard deviation for ANOVA.

^bdf= 4 for χ^2 analysis and df= 1, 277 for all ANOVAs except ideas/delusions of reference (df = 1, 275).

^cEffect sizes (ES) are presented as Φ for χ^2 analyses and η for ANOVA (.10, *small*, .30, *medium*, .50, *large* for both ES measures).

^dAbbreviations: BABS, Brown Assessment of Beliefs Scale.

^ePoor insight also includes subjects with total BABS score of 18 and a score of 0–3 on item 1 (conviction).

^fDelusional was defined as having a total BABS score of 18 and a score of 4 on item 1 (conviction).

^gBABS total score excludes Item 7 (Ideas/delusions of reference).

Table 3

Correlations between insight on the Brown Assessment of Beliefs Scale (BABS) and OCD and BDD symptom severity on the Yale-Brown Obsessive-Compulsive Scale (YBOCS) and the BDD-YBOCS

	YBOCS total score (n=211)	YBOCS obsessions score	YBOCS compulsions score	BDD-YBOCS total score (n=68)	BDD-YBOCS obsessions score	BDD-YBOCS compulsions score
BABS Total Score ^a	.46**	.43**	.42**	.53**	.49**	.46**
1. Conviction	.39**	.32**	.39**	.51**	.46**	.46**
2. Perception of other's views	.18*	.18*	.15	.29	.31*	.22
3. Explanation of differing views	.34**	.28**	.33**	.48**	.45**	.41**
4. Fixity of ideas	.36**	.38**	.28**	.47**	.43**	.41**
5. Attempt to disprove beliefs	.46**	.43**	.41**	.54**	.52**	.46**
6. Insight into cause of belief	.13	.12	.12	.34*	.28	.32*
7. Ideas/delusions of reference	.19*	.15	.19*	.37*	.44**	.25

^aBABS total score excludes item 7 (ideas/delusions of reference).

* $p < .01$.

** $p < .001$.