

Published in final edited form as:

Psychiatry Res. 2006 March 30; 141(3): 305–314.

Clinical features of body dysmorphic disorder in adolescents and adults

Katharine A. Phillips^{a,b,*}, Elizabeth R. Didie^{a,b}, William Menard^a, Maria E. Pagano^b, Christina Fay^a, and Risa B. Weisberg^{b,c}

a Butler Hospital, 345 Blackstone Blvd., Providence, RI 02906, USA

b Department of Psychiatry and Human Behavior, Brown Medical School, Providence, RI, USA

c Department of Family Medicine, Brown Medical School, Providence, RI, USA

Abstract

Body dysmorphic disorder (BDD) usually begins during adolescence, but its clinical features have received little investigation in this age group. Two hundred individuals with BDD (36 adolescents; 164 adults) completed interviewer-administered and self-report measures. Adolescents were preoccupied with numerous aspects of their appearance, most often their skin, hair, and stomach. Among the adolescents, 94.3% reported moderate, severe, or extreme distress due to BDD, 80.6% had a history of suicidal ideation, and 44.4% had attempted suicide. Adolescents experienced high rates and levels of impairment in school, work, and other aspects of psychosocial functioning. Adolescents and adults were comparable on most variables, although adolescents had significantly more delusional BDD beliefs and a higher lifetime rate of suicide attempts. Thus, adolescents with BDD have high levels of distress and rates of functional impairment, suicidal ideation, and suicide attempts. BDD's clinical features in adolescents appear largely similar to those in adults.

Keywords

Dysmorphophobia; Body image; Development; Somatoform disorders

1. Introduction

Body dysmorphic disorder (BDD), a distressing or impairing preoccupation with an imagined or slight defect in appearance, usually begins during adolescence (Phillips, 2001; Gunstad and Phillips, 2003). However, very little research has been done on BDD's clinical features in this age group. BDD is an often severe disorder that appears to interfere with normal adolescent development (Phillips, 1996). In addition, body image is important during adolescent development. It may be the most important contributor to adolescents' global self-esteem, and negative body image is associated with depression, anxiety, and fear of negative evaluation in this age group (Harter et al., 1992; Levine and Smolak, 2002).

Adults with BDD have markedly impaired functioning and notably poor quality of life (Phillips et al., 1993; Veale et al., 1996; Phillips and Diaz, 1997). Suicidal ideation and attempts also appear common, with lifetime suicide attempt rates of 22–24% (Veale et al., 1996; Phillips and Diaz, 1997). In a retrospective study of patients in two dermatology practices who were known to have committed suicide over 20 years, most had acne or BDD (Cotterill and Cunliffe, 1997).

* Corresponding author. Butler Hospital, 345 Blackstone Blvd., Providence, RI 02906, USA. Tel.: +1 401 455 6490; fax: +1 401 455 6539. E-mail address: Katharine_Phillips@brown.edu (K.A. Phillips).

Retrospective studies of adults indicate that BDD usually begins during adolescence (Phillips, 2001). The largest study ($n=293$) reported a mean age at onset of 16.0 ± 6.9 (range 4–43), with a mode of 13 (Gunstad and Phillips, 2003). However, to our knowledge, published reports on BDD's clinical features in adolescents consist only of case reports and one case series of 33 children and adolescents with BDD (Sondheimer, 1988; El-Khatib and Dickey, 1995; Phillips et al., 1995; Albertini et al., 1996; Heimann, 1997; Albertini and Phillips, 1999; Sobanski and Schmidt, 2000; Horowitz et al., 2002). These reports underscore the severe distress and functional impairment that BDD often causes in this age group. In the study of 33 children and adolescents, for example, 72% reported that their BDD symptoms caused severe or extreme and disabling distress, and 21% had attempted suicide (Albertini and Phillips, 1999). Ninety-four percent had experienced significant impairment in social functioning, and 85% in academic or work functioning, due to BDD. Eighteen percent had dropped out of school primarily because of BDD symptoms.

To our knowledge, no other studies have examined BDD's clinical features in adolescents, and no previous study has compared BDD's clinical features in adolescents and adults. This question is important because psychopathology may meaningfully differ in these age groups. The clinical features of other psychiatric disorders, such as depression, bipolar disorder, obsessive-compulsive disorder, and attention deficit hyperactivity disorder, have been shown to vary in children/adolescents and adults (e.g., Carlson and Kashani, 1988; Dulcan, 1997; Geller and Luby, 1997; Geller et al., 2001). Demonstrating differences—as well as similarities—in these age groups has important clinical implications.

The purposes of this article are to (1) describe BDD's clinical features in middle and late adolescence (age 20 and younger) and (2) compare BDD's clinical features in adolescents ($n=36$) and adults ($n=164$). To our knowledge, this is the first study to compare these age groups and contains a BDD sample that is broader and more diverse than those in most previous samples. Inclusion/exclusion criteria were very broad, and participants were obtained from diverse sources. Unlike the previous study (Albertini and Phillips, 1999), nearly half of adolescents in the present study were not currently seeking or receiving mental health treatment, and a higher proportion were minority group members. (The adolescents in the present report are a different sample from those in previous reports focusing on adolescents with BDD.) Furthermore, we assessed some features of BDD that have not previously been examined in adolescents (for example, depression severity, quality of life, and level of functional impairment using standard measures).

2. Methods

2.1. Participants

Participants were obtained from a study of BDD's course. This report includes only data from the intake (baseline) assessment. All participants met DSM-IV criteria for BDD currently or in the past. Participants were obtained from the following sources: mental health professionals (46.0%), advertisements (38.6%), our program website and brochures (10.2%), participant friends and relatives (3.4%), and nonpsychiatrist physicians (1.7%). Similar methods were used to recruit adolescents and adults, and recruitment sources did not significantly differ between adolescents and adults. We made efforts to overcome possible barriers to adolescent participation in the study (for example, by providing transportation when needed). Parents/guardians were not present during the interview. They were made aware that the interviewer would not share information with them disclosed by their child (including diagnosis), unless the child gave permission for the interviewer to do so or there were safety concerns. In the month before the intake assessment, 89.0% ($n=178$) of the full sample met full BDD criteria, 7.5% ($n=15$) were in partial remission, and 3.5% ($n=7$) were in full remission. Seventy-eight percent of the sample considered BDD their most problematic disorder (compared with any

comorbid disorder). (Additional characteristics of this sample have previously been described [Phillips et al., 2005].)

Inclusion criteria were DSM-IV BDD or its delusional variant (delusional disorder, somatic type), age 12 or older (the youngest subject was age 14), and ability to be interviewed in person. The only exclusion criterion was the presence of an organic mental disorder that would interfere with the collection of valid interview data. Of those participants age 20 or younger, 61.1% ($n=22$) were currently receiving mental health treatment (52.8% outpatient, 5.6% inpatient, and 2.8% partial hospital). Of those participants age 21 and older, 68.3% ($n=112$) were currently receiving mental health treatment (64.0% outpatient, 1.8% inpatient, 1.2% partial hospital, and 1.2% residential). All participants signed a statement of informed consent (assent plus parental consent for adolescents).

2.2. Assessments

Demographic characteristics and clinical features (e.g., body areas of concern, behaviors, functional impairment, and treatment history) were obtained with the *BDD Form*, a semi-structured instrument (Phillips, unpublished) used in previous adolescent and adult studies (Phillips et al., 1993; Phillips and Diaz, 1997; Albertini and Phillips, 1999). Current BDD severity was assessed with the semi-structured *Yale-Brown Obsessive Compulsive Scale Modified for BDD (BDD-YBOCS)*; scores range from 0 to 48. The BDD-YBOCS has strong interrater and test-retest reliability (ICC for total score=0.99 and 0.88, respectively), internal consistency (Cronbach's $\alpha=0.80$), and convergent validity (Phillips et al., 1997). A slightly modified version was used for participants age 17 and younger; this version was based on the adult BDD-YBOCS and the Children's Yale-Brown Obsessive Compulsive Scale (Scahill et al., 1997). The adolescent BDD-YBOCS, which has acceptable reliability (Phillips, unpublished data), consists of the same items and anchors as the adult version but has slightly modified, more developmentally appropriate probes. The *Body Dysmorphic Disorder Examination (BDDE)* assessed BDD symptom severity and negative body image (in the first 98 participants); scores range from 0 to 168. The BDDE has good test-retest reliability ($r=0.94$), internal consistency ($\alpha=0.95$), and concurrent validity with other body image questionnaires ($r=0.68$ to 0.83) (Rosen and Reiter, 1996). The *Brown Assessment of Beliefs Scale (BABS)*, a seven-item, semi-structured scale, assessed current delusional beliefs. The BABS categorizes individuals as delusional or nondelusional and also provides a dimensional delusional score from 0 to 24 (Eisen et al., 1998). It has excellent interrater and test-retest reliability (ICC =0.96 and 0.95), internal consistency (Cronbach's $\alpha=0.87$), convergent validity (r 's=0.56–0.85 with measures of delusionality), and divergent validity ($r=0.20$ with the BDD-YBOCS) (Eisen et al., 1998). A slightly modified adolescent version, which has acceptable reliability (Phillips, unpublished data), was used for participants age 17 and younger. This version has the same items and anchors as the adult version, but it has slightly modified, more developmentally appropriate probes. The 17-item *Hamilton Depression Rating Scale* assessed depressive symptoms (Hamilton, 1960). On the above measures, higher scores indicate more severe symptoms.

The Structured Clinical Interview for DSM-IV—Non-patient Version (SCID-I/NP) (First et al., 1996) diagnosed BDD and other Axis I disorders. The edition used in this study contains screening questions about psychotic symptoms but does not diagnose individual psychotic disorders. Per the SCID convention, current prevalence only is reported for dysthymia, generalized anxiety disorder, and somatoform disorders. The *Social and Occupational Functioning Scale (SOFAS)*, a 100-point global interviewer-rated measure that is very similar to the Global Assessment of Functioning Scale (GAF), assessed past month functioning (American Psychiatric Association, 1994); lower scores indicate poorer functioning. The *Social Adjustment Scale-Self Report (SAS-SR)* is a 54-item self-report measure of current social

functioning (Weissman et al., 1978); lower scores indicate better social functioning. Many studies show that the SAS has good convergent and discriminant validity (e.g., Weissman et al., 1978). This scale was added after the study began and was completed by 123 participants. The *LIFE-RIFT (Range of Impaired Functioning Tool)* (Leon et al., 1999), a semi-structured measure, assessed current functioning in work, school, household duties, recreation, relationships with family and friends, and satisfaction. The concurrent validity for this measure is moderate ($R^2=0.56$) and the internal consistency is good ($\alpha=0.82$) (Leon et al., 1999). Scores in each domain range from 1 to 5; higher scores indicate poorer functioning, and scores greater than 2 reflect impaired functioning. The total LIFE-RIFT score is the sum of scores in the following four domains: work (the worst score reported in work, student, or household functioning), recreation, satisfaction, and interpersonal relationships. We report separately the proportion of participants unable to perform work or schoolwork due to psychopathology; these participants are not included in the LIFE-RIFT total score. The “Short Form” of the *Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q)* assessed current quality of life; higher scores indicate better quality of life. Test–retest reliability over several weeks is 0.74 (ICC), internal consistency (α) is 0.90, and correlation with the Clinical Global Impressions Scale is 0.66 (Endicott et al., 1993). This scale was added after the study began and was completed by 126 participants.

2.3. Statistical analysis

Means, standard deviations, and frequencies were calculated. Between-group differences were explored using chi-square analysis or Fisher’s exact test for categorical variables and *t*-tests for continuous variables. We defined adolescence as age 20 or younger because the literature’s cutpoint for adolescence has included this age range, to increase power for statistical analyses, and because this definition is consistent with the NIMH definition of “children.” For analyses of current symptom severity (e.g., BDD severity), only the 141 adults and 35 adolescents who met full criteria for current (past week) BDD were included. Tests were two-tailed; the alpha level was 0.05. Because this study is the first to compare these age groups and is therefore exploratory, we did not correct for multiple comparisons. Thus, there is possible inflation of Type I error rates. Effect size estimates were determined for *t*-tests with Cohen’s *d* ($d=0.2$ is small, 0.5 is medium, and 0.8 is large) and for chi-square with the phi coefficient (Cramer’s v) ($v=0.1$ is small, 0.3 is medium, and 0.5 is large).

3. Results

Adolescents and adults did not significantly differ in gender; 80.6% of adolescents and 65.8% of adults were female (Table 1). However, a significantly higher proportion of adolescents than adults were members of a minority racial or ethnic group ($P=0.011$ and $P=0.019$). Adolescents were excessively concerned (in the past or currently) with 6.0 ± 3.7 different body areas, similar to adults (6.5 ± 5.0). The most common areas of concern for adolescents were skin (most often, acne/scarring/“marks”), hair (most often, excessive body hair and thinning/balding), stomach, weight, and teeth (male and female adolescents did not significantly differ in the frequency of concern with these body areas). Body areas of concern were generally similar for adults, with no significant differences between adolescents and adults in the frequencies of the five most common concerns. All participants performed at least one excessive repetitive or safety (e.g., camouflaging) BDD-related behavior. There were no significant adolescent/adult differences in the frequencies of any behaviors, and effect sizes were small for all comparisons.

BDD-YBOCS scores reflected moderately severe BDD in both groups (Table 1). Adolescents had more severe BDD symptoms at a trend level on the BDD-YBOCS, with a small-medium effect size ($d=0.32$), although BDDE scores did not significantly differ. On the BDD-YBOCS, 54.3% of adolescents reported thinking about their appearance for more than 3 h a day; 40.0%

reported moderate distress, 48.6% severe distress, and 5.7% extreme and disabling distress due to BDD; and 25.7% experienced moderate functional impairment, 60.0% severe impairment, and 5.7% extreme impairment due to BDD. Currently, adolescents had significantly poorer insight than adults on the BABS ($P < 0.001$). The mean adolescent BABS score reflected delusional thinking, whereas that for adults reflected poor insight; a significantly higher proportion of adolescents were currently delusional (58.8%). The mean age of BDD onset was during adolescence, although subclinical BDD typically began several years earlier. A significantly higher proportion of adults had received nonpsychiatric medical or surgical treatment for BDD symptoms ($P = 0.021$), as was expected given their longer illness duration. Nonetheless, nearly half of adolescents had received such treatment. Most had received mental health treatment, although participants reported that a high proportion of treaters were unaware of their body image concerns.

Both adolescents and adults had high lifetime rates of suicidal ideation and attempts (Table 2). Among the adolescents, 80.6% reported lifetime suicidal ideation, and a significantly higher proportion (44.4%) of adolescents than adults had attempted suicide ($P = 0.012$). Both groups had marked functional impairment, with far more similarities than differences between adolescents and adults. Among the adolescents, 22.2% had dropped out of school (11.1% permanently and 11.1% temporarily) due to BDD, and adolescents reported missing 38.5 ± 58.4 days of school due to BDD. The mean SOFAS score reflected serious impairment in functioning. Mean SAS-SR, LIFE-RIFT, and Q-LES-Q scores reflected impaired functioning in all domains, with few significant differences between adolescents and adults. The prevalence of comorbid disorders was generally high for both age groups (Table 3), with only one significant difference (for panic disorder).

4. Discussion

Adolescents with BDD were preoccupied with many body areas and performed many BDD-related behaviors. They had high levels of distress due to BDD, and a high proportion had experienced suicidal ideation or attempted suicide. Their lifetime rate of suicide attempts is an estimated 5.2 times higher than in the general U.S. adolescent population (www.cdc.gov/HealthyYouth/yrbs/pdfs/trends-suicide.pdf). Adolescents also experienced marked impairment in academic and other aspects of psychosocial functioning. Mean adolescent SAS scores were 2.4 standard deviation units poorer than published community norms for adults (Weissman et al., 1978), and mean Q-LES-Q scores were poorer than reported for many disorders in adults, including social phobia, panic disorder, obsessive-compulsive disorder, premenstrual dysphoric disorder, post-traumatic stress disorder, dysthymia, major depression, and chronic major depression (Rapaport et al., 2005). Nearly half of the adolescents had received medical or surgical treatment for BDD, which usually appears to be ineffective (Phillips, 2001).

Adolescents and adults did not differ significantly on most characteristics. Of note, adolescents had similar lifetime rates of functional impairment and comorbidity, despite their younger age. However, adolescents had poorer insight and a higher rate of suicide attempts. These differences could have occurred by chance; however, the effect size for current delusional thinking was medium-large, although it was smaller for suicide attempts (small-medium). Adolescents' mean BABS scores were in the delusional range, reflecting complete conviction that their view of their perceived "defects" was accurate and undistorted. A developmental perspective offers one possible explanation for this finding. Metacognition (one's awareness regarding the interpretation and modification of thinking itself) is hypothesized to mediate poor insight in some psychiatric disorders (Koren et al., 2004). Because metacognitive skills are thought to continue developing well into adolescence (Ormond et al., 1991), adolescents' poorer insight may in part reflect lack of full development of this cognitive mechanism. Adolescents'

significantly higher lifetime suicide attempt rate was unexpected, given their younger age. This finding does not appear to be explained by higher rates of comorbid depression or more severe depression on the Hamilton. It also does not appear to be explained by current treatment status, as adults and adolescents did not significantly differ on this variable. Nor does a cohort effect seem to explain this finding, as suicide attempt rates in adolescents have not appreciably increased in the U.S. since the early 1990s (www.cdc.gov/HealthyYouth/yrbs/pdfs/trends-suicide.pdf). It is possible that adolescent recall of suicide attempts was more accurate than adult recall. Adolescents also had a significantly earlier age of BDD onset than adults ($P < 0.001$). To some extent, this finding was expected, because all adolescents had already developed BDD and, by definition, would have experienced its onset during childhood or adolescence, whereas adults may have developed BDD later in life. However, it is also possible that this finding represents a cohort effect, whereby younger individuals may have an earlier age of onset, perhaps due to increased societal pressures regarding appearance. Given that earlier age of onset may be associated with greater severity of mental illness (Zisook et al., 2004; Gollan et al., 2005), the earlier onset of BDD in our adolescents is also consistent with the possibility that adolescents represent a more severe subset of individuals with BDD. Although adolescents did not differ from adults on most severity measures, a higher proportion of adolescents had attempted suicide and were delusional. In addition, adolescents' lifetime rates of functional impairment and comorbidity were similar to those in adults, despite the fact that adolescents had had fewer years over which to have developed comorbid disorders or problems in functioning.

Characteristics of adolescents in this study are very similar to those in the only previous study of adolescents with BDD (Albertini and Phillips, 1999). Similarities include body areas of concern, BDD behaviors, distress levels, functional impairment, most comorbidity, and medical and surgical treatment received. However, these studies have several differences. The present study's sample was more ethnically and racially diverse (39.4% of adolescents were members of a minority racial or ethnic group, compared to 3% in the prior study), and nearly half of adolescents in the present study were not currently receiving mental health treatment (whereas all participants in the previous study were seeking or receiving treatment). For unclear reasons, the present study had a lower lifetime prevalence of bipolar disorder (3% in the present study vs. 18% in the previous study) and a higher prevalence of substance use disorders (44% vs. 6%). More than twice as many adolescents in the current sample had attempted suicide (44% vs. 21%). Another difference is that twice as many adolescents in the present study were male (19% vs. 9%). However, it is interesting that both studies of BDD in adolescents found that most adolescents were female. This finding is consistent with several studies of adults with BDD in community and clinical settings (Rosen and Reiter, 1996; Veale et al., 1996; Faravelli et al., 1997), but differs from other adult BDD studies, which had a nearly equal gender ratio or contained more males than females (Hollander et al., 1993; Neziroglu and Yaryura-Tobias, 1993; Perugi et al., 1997; Phillips and Diaz, 1997; Bienvenu et al., 2000). It is unclear whether BDD actually affects more females than males—both adolescents and adults—or whether males with BDD are less likely to come to clinical attention or participate in a study such as ours, perhaps because it is more distressing and feels more shameful for males to reveal and discuss body image concerns. Future studies are needed to examine BDD's gender ratio in adolescents in both community and clinical settings. Studies of gender differences in larger samples of adolescents with BDD are also needed.

Body image is a very important aspect of psychological and interpersonal development in adolescents (Levine and Smolak, 2002), which may contribute to BDD's typical onset during adolescence. In general, adolescent girls report greater body image dissatisfaction than boys (Tiggeman and Pennington, 1990; Wichstrom, 1999), although emerging research suggests that this gender gap may be diminishing (Furnham et al., 2002). Regarding the nature of body-image discontent in adolescents, in non-clinical samples this appears to vary across the sexes,

with boys more frequently reporting concern with body shape or muscularity and girls more frequently reporting concern with reducing weight or eliminating body fat (McCabe and Ricciardelli, 2001; Furnham et al., 2002). For both genders, a number of normative developmental challenges influence, and are influenced by, body image. These include pubertal development, emerging sexuality, and identity formation (Levine and Smolak, 2002). The relationship between these developmental processes and BDD is unknown and needs to be studied. For example, it is possible that aberrations in these developmental processes, combined with the normative importance of appearance in adolescence, may contribute to BDD's development in otherwise (e.g., biologically) vulnerable individuals. Conversely, BDD appears to negatively affect healthy adolescent development (Phillips, 1996). Prospective studies are needed to examine the longitudinal association between BDD and normal development, and to identify developmental risk factors for BDD.

This study has a number of limitations. The study contained a sample of convenience from Southeastern New England that was obtained from a variety of referral sources, and it is unclear how generalizable our findings are to other clinical samples, to community samples, or to other cultures. It is possible, for example, that participants recruited from advertisements might have more- or less-chronic or severe BDD than individuals in the community who did not respond to our advertisement or participate in our study; epidemiologic studies of BDD are needed. In addition, all adolescents had a history of mental health treatment, although in a previous report, we found relatively few differences between individuals in this sample who were currently receiving mental health treatment vs. those who were not (Phillips et al., 2005). Other study limitations include use of the SCID rather than the K-SADS to assess comorbidity (although the SCID has been used in adolescents in other studies [e.g., Martin et al., 2000; Yaryura-Tobias et al., 2000; Dalton et al., 2003]). Our study also lacked a record review to confirm certain data (e.g., receipt of treatment). However, this study also had a number of strengths, including use of standard, reliable, and valid measures, and assessment of some previously unstudied aspects of BDD. To our knowledge, it is the first study to explore differences between adolescents and adults with BDD, and the BDD sample is larger and more diverse than most previous samples for which a wide range of clinical features have been reported. Additional research is needed to address this study's limitations and to examine BDD's clinical characteristics in community settings and in different cultures and racial/ethnic groups. Such information may lead to better recognition of BDD, which often appears to go undiagnosed in clinical settings (e.g., Zimmerman and Mattia, 1998). Indeed, in the present study, adolescents reported that a substantial proportion of their mental health providers were unaware of their body-image concerns. It is important to screen for BDD in adolescents, because this is the age when BDD usually begins, and because BDD in adolescents is associated with very poor functioning and quality of life, as well as a high rate of suicidal ideation and suicide attempts.

References

- Albertini RS, Phillips KA. Thirty-three cases of body dysmorphic disorder in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 1999;38:453–459. [PubMed: 10199118]
- Albertini RS, Phillips KA, Guvremont D. Body dysmorphic disorder in a young child [Letter to the editor]. *Journal of the American Academy of Child and Adolescent Psychiatry* 1996;35:1425–1426. [PubMed: 8936908]
- American Psychiatric Association. 4th ed. American Psychiatric Press; Washington, DC: 1994. *Diagnostic and Statistical Manual of Mental Disorders*.
- Bienvu OJ, Samuels JF, Riddle MA, Hoehn-Saric R, Liang KY, Cullen BA, Grados MA, Nestadt G. The relationship of obsessive-compulsive disorder to possible spectrum disorders: results from a family study. *Biological Psychiatry* 2000;48:287–293. [PubMed: 10960159]

- Carlson GA, Kashani JH. Phenomenology of major depression from childhood through adulthood: analysis of three studies. *American Journal of Psychiatry* 1988;145:1222–1225. [PubMed: 3421342]
- Cotterill JA, Cunliffe WJ. Suicide in dermatological patients. *British Journal of Dermatology* 1997;137:246–250. [PubMed: 9292074]
- Dalton EJ, Cate-Carter TD, Mundo E, Parikh SV, Kennedy JL. Suicide risk in bipolar patients: the role of comorbid substance use disorders. *Bipolar Disorders* 2003;5:58–61. [PubMed: 12656940]
- Dulcan M. Practice parameters for the assessment and treatment of children, adolescents, and adults with attention deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry* 1997;36 (105):85S–121S. [PubMed: 9334567]
- 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]
- El-Khatib HE, Dickey TO. Sertraline for body dysmorphic disorder [Letter to the editor]. *Journal of the American Academy of Child and Adolescent Psychiatry* 1995;34:1404–1405. [PubMed: 8543506]
- Endicott J, Nee J, Harrison W, Blumenthal R. Quality of Life Enjoyment and Satisfaction Questionnaire: a new measure. *Psychopharmacology Bulletin* 1993;29:321–326. [PubMed: 8290681]
- Faravelli C, Salvatori S, Galassi F, Aiazzi L, Drei C, Cabras P. Epidemiology of somatoform disorders: a community survey in Florence. *Social Psychiatry and Psychiatric Epidemiology* 1997;32:24–29. [PubMed: 9029984]
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Biometrics Research Department, New York State Psychiatric Institute; New York: 1996. Structured Clinical Interview for DSM-IV Axis I Disorders: Non-patient edition (SCID-NP).
- Furnham A, Badmin N, Sneade I. Body image dissatisfaction: gender differences in eating attitudes, self-esteem, and reasons for exercise. *Journal of Psychology* 2002;136:581–596. [PubMed: 12523447]
- Geller B, Luby J. Child and adolescent bipolar disorder: a review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry* 1997;36:1168–1176. [PubMed: 9291717]
- Geller DA, Biederman J, Faraone S, Agranat A, Craddock K, Hagermoser L. Developmental aspects of obsessive compulsive disorder: findings in children, adolescents, and adults. *Journal of Nervous and Mental Disease* 2001;189:471–477. [PubMed: 11504325]
- Gollan J, Rafferty B, Gortner E, Dodson K. Course profiles of early- and adult-onset depression. *Journal of Affective Disorders* 2005;86:81–86. [PubMed: 15820274]
- Gunstad J, Phillips KA. Axis I comorbidity in body dysmorphic disorder. *Comprehensive Psychiatry* 2003;44:270–276. [PubMed: 12923704]
- Hamilton M. A rating scale for depression. *Journal of Neurology, Neurosurgery and Psychiatry* 1960;23:56–62.
- Harter S, Marold DB, Whitesell NR. Model of psychosocial risk factors leading to suicidal ideation in young adolescents. *Development and Psychopathology* 1992;4:167–188.
- Heimann SW. SSRI for body dysmorphic disorder [Letter to the editor]. *Journal of the American Academy of Child and Adolescent Psychiatry* 1997;36:868. [PubMed: 9204660]
- Hollander E, Cohen LJ, Simeon D. Body dysmorphic disorder. *Psychiatric Annals* 1993;23:359–364.
- Horowitz K, Gorfinkle K, Lewis O, Phillips K. Body dysmorphic disorder in an adolescent girl. *Journal of the American Academy of Child and Adolescent Psychiatry* 2002;41:1503–1509. [PubMed: 12447038]
- Koren D, Seidman LJ, Poyurovsky M, Goldsmith M, Viksman P, Zichel S. The neuropsychological basis of insight in first-episode schizophrenia: a pilot metacognitive study. *Schizophrenia Research* 2004;70:195–202. [PubMed: 15329296]
- Leon AC, Solomon DA, Mueller TI, Turvey CL, Endicott J, Keller MB. The Range of Impaired Functioning Tool (LIFE-RIFT): a brief measure of functional impairment. *Psychological Medicine* 1999;29:869–878. [PubMed: 10473314]
- Levine, MP.; Smolak, M. Cash, TF.; Pruzinsky, T. *Body Image: A Handbook of Theory, Research, and Clinical Practice*. The Guilford Press; New York: 2002. Body image development in adolescence; p. 74–82.

- Martin CS, Pollock NK, Bukstein OG, Lynch KG. Inter-rater reliability of the SCID alcohol and substance use disorders section among adolescents. *Drug and Alcohol Dependence* 2000;59:173–176. [PubMed: 10891630]
- McCabe MP, Ricciardelli LA. Body image and body change techniques among young adolescent boys. *European Eating Disorders Review* 2001;9:335–347.
- Neziroglu FA, Yaryura-Tobias JA. Body dysmorphic disorder: phenomenology and case descriptions. *Behavioural and Cognitive Psychotherapy* 1993;21:27–36.
- Ormond C, Luszcz M, Mann L, Beswick G. A metacognitive analysis of decision making in adolescence. *Journal of Adolescence* 1991;14:275–291. [PubMed: 1744255]
- Perugi G, Akiskal HS, Giannotti D, Frare F, Di Vaio S, Cassano GB. Gender-related differences in body dysmorphic disorder (dysmorphophobia). *Journal of Nervous and Mental Disease* 1997;185:578–582. [PubMed: 9307620]
- Phillips, KA. Oxford University Press; New York: 1996. *The Broken Mirror: Understanding and Treating Body Dysmorphic Disorder*. (Revised and expanded edition, 2005)
- Phillips, KA. Body dysmorphic disorder. In: Oldham, JM.; Riba, MB.; Phillips, KA., editors. *Somatoform and Factitious Disorders: Review of Psychiatry*. 20. American Psychiatric Publishing; Washington, DC: 2001. p. 67-94.
- Phillips KA, Diaz SF. Gender differences in body dysmorphic disorder. *Journal of Nervous and Mental Disease* 1997;185:570–577. [PubMed: 9307619]
- Phillips KA, McElroy SL, Keck PE, Pope HG, Hudson JI. Body dysmorphic disorder: 30 cases of imagined ugliness. *American Journal of Psychiatry* 1993;150:302–308. [PubMed: 8422082]
- Phillips KA, Atala KD, Albertini RS. Case study: body dysmorphic disorder in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 1995;34:1216–1220. [PubMed: 7559317]
- 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, Menard W, Fay C, Weisberg R. Demographic characteristics, phenomenology, comorbidity, and family history in 200 individuals with body dysmorphic disorder. *Psychosomatics* 2005;46:317–332. [PubMed: 16000674]
- Rapaport MH, Clary C, Fayyed R, Endicott J. Quality of life impairment in depressive and anxiety disorders. *American Journal of Psychiatry* 2005;162:1171–1178. [PubMed: 15930066]
- Rosen JC, Reiter J. Development of the Body Dysmorphic Disorder Examination. *Behaviour Research and Therapy* 1996;34:755–766. [PubMed: 8936758]
- Scahill L, Riddle MA, McSwiggin-Hardin M, Ort SI, King RA, Goodman WK, Cicchetti D, Leckman JF. Children's Yale-Brown Obsessive Compulsive Scale: reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry* 1997;36:844–852. [PubMed: 9183141]
- Sobanski E, Schmidt MH. Everybody looks at my pubic bone: a case report of an adolescent patient with body dysmorphic disorder. *Acta Psychiatrica Scandinavica* 2000;101:80–82. [PubMed: 10674954]
- Sondheimer A. Clomipramine treatment of delusional disorder, somatic type. *Journal of the American Academy of Child and Adolescent Psychiatry* 1988;27:188–192. [PubMed: 3360722]
- Tiggeman M, Pennington B. The development of gender differences in body size dissatisfaction. *Australian Psychologist* 1990;25:306–313.
- Veale D, Boocock A, Gournay K, Dryden W. Body dysmorphic disorder: a survey of fifty cases. *British Journal of Psychiatry* 1996;169:196–201. [PubMed: 8871796]
- Weissman MM, Prusoff BA, Thompson DW, Harding PS, Myers JK. Social adjustment by self-report in a community sample and in psychiatric outpatients. *Journal of Nervous and Mental Disease* 1978;166:317–326. [PubMed: 650195]
- Wichstrom L. The emergence of gender difference in depressed mood during adolescence: the roles of intensified gender socialization. *Developmental Psychology* 1999;35:232–235. [PubMed: 9923478]
- Yaryura-Tobias JA, Grunes MS, Walz J, Neziroglu F. Parental obsessive-compulsive disorder as a prognostic factor in a year-long fluvoxamine treatment in childhood and adolescent obsessive-

compulsive disorder. *International Clinical Psychopharmacology* 2000;15:163–168. [PubMed: 10870874]

Zimmerman M, Mattia JI. Body dysmorphic disorder in psychiatric outpatients: recognition, prevalence, comorbidity, demographic, and clinical correlates. *Comprehensive Psychiatry* 1998;39:265–270. [PubMed: 9777278]

Zisook S, Rush AJ, Albala A, Alpert J, Balasubramani GK, Fava M, Husain M, Sackeim H, Trivedi M, Wisniewski S. Factors that differentiate early vs. later onset of major depression disorder. *Psychiatry Research* 2004;129:127–140. [PubMed: 15590040]

Table 1

Clinical characteristics of adolescents vs. adult BDD participants

Variable ^a	Adolescents (n =36)	Adults (n =164)	Test statistic	P	df	Effect size
Gender (% female)	29 (80.6)	108 (65.9)	$\chi^2=2.96$	0.086	1	$v=0.12$
Age	17.8 ± 2.0	35.9 ± 10.9	$t=19.90$	<0.001	195	$d=1.50$
Race (% non-white) ^b	10 (28.6)	17 (10.4)	—	0.011	—	$v=0.20$
Ethnicity (% Hispanic)	6 (18.2)	8 (5.1)	—	0.019	—	$v=0.19$
Body areas of concern	6.0 ± 3.7	6.5 ± 5.0	$t=0.51$	0.611	198	$d=0.09$
Most common	Skin: 33 (91.7)	Skin: 127 (77.4)	$\chi^2=3.74$	0.053	1	$v=0.05$
Second most common	Hair: 17 (47.2)	Hair: 98 (59.8)	$\chi^2=1.90$	0.168	1	$v=0.17$
Third most common	Stomach: 15 (41.7)	Nose: 67 (40.9)	—	—	—	—
Behaviors (lifetime)	6.9 ± 2.2	6.9 ± 2.4	$t=0.19$	0.850	198	$d=0.04$
Comparing with others	33 (91.7)	157 (95.7)	—	0.391	—	$v=0.07$
Camouflaging	32 (88.9)	152 (92.7)	—	0.496	—	$v=0.05$
Mirror checking	32 (88.9)	147 (89.6)	—	1.000	—	$v=0.01$
Grooming	26 (72.2)	111 (67.7)	$\chi^2=0.28$	0.596	1	$v=0.04$
Touching body areas	21 (58.3)	97 (59.1)	$\chi^2=0.01$	0.928	1	$v=0.01$
Skin picking	21 (58.3)	65 (39.6)	$\chi^2=4.21$	0.040	1	$v=0.15$
Reassurance seeking	20 (55.6)	96 (58.5)	$\chi^2=0.11$	0.743	1	$v=0.02$
Clothes changing	20 (55.6)	72 (43.9)	$\chi^2=1.61$	0.204	1	$v=0.09$
Dieting	15 (41.7)	60 (36.6)	$\chi^2=0.33$	0.569	1	$v=0.04$
BDD severity	32.1 ± 7.0	30.0 ± 6.4	$t=31.71$	0.090	174	$d=0.32$
BDD-YBOCS	96.2 ± 19.7	95.3 ± 22.0	$t=30.15$	0.881	82	$d=0.04$
BDDE	19.0 ± 4.2	15.8 ± 5.7	$t=33.70$	<0.001	67	$d=0.59$
BDD insight/delusional	20 (58.8)	45 (33.1)	$\chi^2=7.63$	0.006	1	$v=0.21$
BABS (current)	15 (41.7)	75 (45.7)	$\chi^2=0.20$	0.657	1	$v=0.03$
% Delusional (current)	30 (83.3)	124 (75.6)	$\chi^2=0.99$	0.319	1	$v=0.08$
Ideas/delusions of reference (current)	8.6 ± 5.7	9.4 ± 7.1	$t=0.63$	0.528	196	$d=0.12$
% Delusional (lifetime)	13.5 ± 2.9	17.0 ± 7.5	$t=4.63$	<0.001	148	$d=0.49$
Depression severity (Hamilton score)	11.3 ± 2.9	13.3 ± 6.2	$t=2.92$	0.004	114	$d=0.34$
Course of BDD	4.4 ± 3.1	18.3 ± 12.2	$t=12.86$	<0.001	195	$d=1.14$
Age at onset of BDD	35 (97.2)	127 (77.9)	$\chi^2=7.26$	0.007	—	$v=0.19$
Age at onset of subclinical BDD	17 (47.2)	111 (67.7)	$\chi^2=5.36$	0.021	1	$v=0.16$
Duration of illness (years)	12 (33.3)	83 (50.6)	$\chi^2=3.53$	0.060	1	$v=0.13$
Continuous course ^c	0 (0)	39 (23.8)	—	<0.001	—	$v=0.23$
Nonpsychiatric treatment received (lifetime) ^d	8 (22.2)	51 (31.1)	$\chi^2=1.12$	0.290	1	$v=0.08$
Dermatologist	36 (100.0)	155 (94.5)	—	0.368	—	$v=0.10$
Surgeon	28 (77.8)	124 (75.6)	$\chi^2=0.08$	0.783	1	$v=0.02$
Other ^e	35 (97.2)	142 (86.6)	—	0.085	—	$v=0.13$
Mental health treatment received (lifetime)	40.8 ± 32.6	51.7 ± 38.1	$t=1.60$	0.112	189	$d=0.29$
Pharmacotherapy	16.3 ± 2.1	29.8 ± 11.1	$t=10.59$	<0.001	105	$d=1.19$
Psychotherapy ^f	—	—	—	—	—	—
Mean % of providers aware of body image concerns	—	—	—	—	—	—
Age of first treatment for body image concerns	—	—	—	—	—	—

^a Results are presented as n (%) of participants or mean ± standard deviation.^b Non-white races (for entire sample): Black (7%), American Indian (5.5%), Asian (1.0%), Alaskan Native (0.5%), and Native Hawaiian/Pacific Islander (0.5%).

^cRetrospectively assessed; continuous=symptoms had not remitted for at least 1 month since onset.

^dBy participant report.

^eFor adolescents, includes other physicians (11.1%), dentists (8.3%), and paraprofessionals (e.g., electrolysis) (2.8%).

^fFor adolescents, includes individual therapy (94.4%), family therapy (47.2%), group therapy (19.4%), inpatient hospitalization (44.4%), day treatment/partial hospitalization (33.3%), and residential (5.6%).

Table 2

Suicidality, functional impairment, and quality of life in adolescents vs. adults

Variable ^a	Adolescents (n =36)	Adults (n =164)	Test statistic	P	df	Effect size
<i>Suicidality (lifetime)</i>						
Suicidal ideation	29 (80.6)	127 (77.4)	$\chi^2=0.17$	0.683	1	$v=0.03$
Suicidal ideation due to BDD	17 (47.2)	93 (56.7)	$\chi^2=1.07$	0.300	1	$v=0.07$
Attempted suicide	16 (44.4)	39 (23.8)	$\chi^2=6.32$	0.012	1	$v=0.18$
Attempted suicide due to BDD	5 (13.9)	20 (12.2)	$\chi^2=0.08$	0.781	1	$v=0.02$
<i>Functional impairment (lifetime)</i>						
Social interference due to BDD	36 (100)	164 (100)	—	—	—	—
Job/academic interference due to BDD	36 (100)	161 (98.2)	—	1.000	—	$v=0.06$
Dropped out of school due to BDD	8 (22.2)	33 (20.1)	$\chi^2=0.08$	0.777	1	$v=0.02$
Housebound >1 week due to BDD	5 (13.9)	49 (30.1)	$\chi^2=3.90$	0.048	1	$v=0.14$
<i>Functional impairment (current)</i>						
SOFAS	47.1 ± 14.1	47.9 ± 13.1	$t=0.25$	0.806	102	$d=0.06$
SAS-SR	2.4 ± 0.5	2.4 ± 0.5	$t=30.38$	0.708	124	$d=0.20$
LIFE-RIFT	13.7 ± 3.2	13.9 ± 3.5	$t=0.31$	0.753	173	$d=0.06$
School impairment	3.6 ± 1.4	3.3 ± 1.1	$t=0.89$	0.378	38	$d=0.35$
Work impairment	2.5 ± 1.3	3.2 ± 1.1	$t=32.22$	0.029	90	$d=0.62$
Household impairment	2.7 ± 1.3	3.3 ± 1.2	$t=32.21$	0.029	148	$d=0.49$
Recreation	2.9 ± 1.4	3.0 ± 1.4	$t=30.53$	0.598	173	$d=0.07$
Relationships with family	3.5 ± 1.4	3.6 ± 1.3	$t=30.21$	0.832	172	$d=0.08$
Relationships with friends	2.5 ± 1.3	2.7 ± 1.3	$t=0.95$	0.343	174	$d=0.15$
Satisfaction	3.1 ± 1.0	3.3 ± 0.9	$t=1.33$	0.185	174	$d=0.22$
Global social adjustment	4.1 ± 0.8	4.0 ± 0.9	$t=30.41$	0.686	174	$d=0.11$
Cannot work due to psychopathology	9 (25.7)	54 (38.3)	$\chi^2=1.93$	0.165	1	$v=0.11$
Cannot do schoolwork due to psychopathology	10 (28.6)	46 (32.6)	$\chi^2=0.21$	0.645	1	$v=0.04$
Quality of life (current)						
Q-LES-Q	52.3 ± 16.6	49.3 ± 16.4	$t=30.82$	0.416	121	$d=0.18$

^a Mean ± S.D. or n (%) of participants.

Table 3

Lifetime comorbid disorders in adolescents vs. adults with BDD

Lifetime DSM-IV diagnosis ^a	Adolescents (n=36)	Adults (n=164)	Chi square	P	df	Effect size (r)
Mood disorders ^b	31 (86.1)	137 (83.5)	0.15	0.703	1	0.03
Major depression	29 (80.6)	120 (73.2)	0.85	0.357	1	0.07
Bipolar disorder	1 (2.8)	14 (8.5)	—	0.316	1	0.08
Dysthymia (current)	2 (5.6)	13 (7.9)	—	1.000	1	0.03
Psychotic disorder	1 (2.8)	4 (2.4)	—	1.000	1	0.01
Anxiety disorders ^b	24 (66.7)	115 (70.1)	0.17	0.684	1	0.03
Panic disorder	1 (2.8)	39 (23.8)	8.14	0.004	1	0.20
Agoraphobia	1 (2.8)	2 (1.2)	—	0.451	1	0.05
Social phobia	14 (38.9)	63 (38.4)	0.00	0.958	1	0.00
Specific phobia	6 (16.7)	33 (20.1)	0.22	0.636	1	0.03
OCD	10 (27.8)	56 (34.1)	0.54	0.462	1	0.05
PTSD	5 (13.9)	13 (7.9)	—	0.330	—	0.08
GAD (current)	1 (2.8)	6 (3.7)	—	1.000	1	0.02
Substance use disorders ^b	16 (44.4)	80 (48.8)	0.22	0.637	1	0.03
Alcohol	11 (30.6)	74 (45.1)	2.56	0.109	1	0.11
Other drug	14 (38.9)	53 (32.3)	0.57	0.449	1	0.05
Eating disorders ^b	6 (16.7)	24 (14.6)	0.10	0.757	1	0.02
Anorexia nervosa	4 (11.1)	14 (8.5)	—	0.747	1	0.03
Bulimia nervosa	2 (5.6)	11 (6.7)	—	1.000	1	0.02
Somatiform disorders	1 (2.8)	2 (1.2)	—	0.450	1	0.05
Somatization disorder	0 (0)	0 (0)	—	—	1	—
Pain disorder	0 (0)	0 (0)	—	—	1	—
Hypochondriasis	1 (2.8)	2 (1.2)	—	0.450	1	0.05

^a Results are presented as n (%) of participants.^b The total is less than the sum of the individual disorders because some participants had more than one disorder in a given category.