Published in final edited form as:
Gen Hosp Psychiatry. 2006 ; 28(6): 487–493.

Pathological skin picking in individuals with body dysmorphic disorder

Jon E. Grant, J.D., M.D.[a,*], **William Menard, B.A.**[b], and **Katharine A. Phillips, M.D.**[c]
a *Department of Psychiatry, University of Minnesota Medical School, Minneapolis, MN 55454, USA*

b *Body Image Program, Butler Hospital, Providence, RI 02906, USA*

c *Department of Psychiatry and Human Behavior, Butler Hospital, Brown Medical School, Providence, RI 02906, USA*

Abstract

Objective—The objective of this study was to examine the prevalence and clinical correlates of pathological skin picking (PSP) in a large sample of individuals with body dysmorphic disorder (BDD).

Method—One hundred seventy-six individuals with BDD (71.0% women; mean age, 32.5 ± 12.3 years) were assessed with respect to comorbidity, BDD severity, delusionality (insight), quality of life and social/occupational functioning, using reliable and valid measures. All variables were compared in BDD subjects with and without lifetime PSP.

Results—About 44.9% of subjects reported lifetime PSP, and 36.9% reported current PSP secondary to BDD. BDD subjects with PSP were more likely to be female, to have skin preoccupations, to have comorbid trichotillomania or a personality disorder, to camouflage with makeup and to seek and receive nonpsychiatric (e.g., dermatological) treatment for their skin preoccupations.

Conclusion—There is a high prevalence of PSP among individuals with BDD, and clinicians should be aware of the clinical correlates of this problematic behavior.

Keywords

Body dysmorphic disorder; Somatoform disorders; Skin picking; Neurotic excoriation; Prevalence

1. Introduction

Pathological skin picking (PSP) is a complex behavior characterized by repetitive, ritualistic or impulsive picking of otherwise normal skin [1]. Although described in the medical literature for over a century, PSP remains a poorly understood psychiatric problem and often goes undiagnosed and untreated [2,3]. Complicating the picture is the fact that some degree of skin picking appears to be normal. In fact, most people pick at their hands or face, to a limited extent, at various times in their lives [4]. Pathology exists in the focus, duration and extent of the behavior, as well as in the reasons for picking, associated emotions and resulting problems [5]. Individuals with PSP report thoughts of picking or impulses to pick that are irresistible, intrusive and/or senseless [1]. These thoughts, impulses or behaviors also cause marked distress and significantly interfere with other activities [1]. Unlike normal picking behavior, PSP is recurrent and may result in noticeable skin damage [1,6]. Some patients, using sharp implements such as needles or razor blades, pick through major blood vessels (e.g., facial or

* Corresponding author. Tel: +1 612 273 9736; fax: +1 612 273 9779. *E-mail address:* grant045@umn.edu (J.E. Grant)..

carotid arteries), which can require emergency medical treatment and can even be life-threatening [7].

The prevalence of PSP in the general population is not known. Studies have shown, however, that 2% of dermatology patients and 3.8% of college students suffer from PSP [1,4]. Interpretation of these prevalence rates is complicated by the fact that PSP may be a symptom of several conditions: obsessive–compulsive disorder (OCD; picking to remove contaminants) [1], genetic disorders such as Prader–Willi syndrome [8] or delusional disorders such as delusions of parasitosis (picking to remove imagined parasites) [9].

PSP may also be a symptom of body dysmorphic disorder (BDD) — a distressing or impairing preoccupation with an imagined or a slight defect in one's appearance [10]. Although BDD has been consistently described for more than a century [11], PSP was identified as a BDD symptom only recently [10]. In the present study, PSP specifically refers to picking secondary to BDD. The purpose of PSP in BDD is to improve the appearance of the skin by attempting to remove or minimize nonexistent or slight imperfections in appearance (e.g., perceived scars, pimples or bumps) [7]. In a previously reported study of 123 individuals with BDD, 26.8% (n =33) met criteria for PSP secondary to BDD [7].

The aims of the current study were to assess the prevalence of PSP among a more broadly ascertained group of individuals with BDD and to examine previously unstudied questions such as the relationship of PSP to certain comorbid disorders and whether individuals who pick differ from those who do not pick on standard measures of depression, social anxiety, functioning and quality of life. In addition, although the standard pharmacological treatment for BDD is serotonin reuptake inhibitors (SRIs), there are only sparse data regarding any type of treatment for PSP [6]. Another aim of this study, therefore, was to assess what types of treatment individuals with BDD and PSP sought and their subjective responses to these interventions.

2. Methods

2.1. Subjects

One hundred seventy-six individuals who met current *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) criteria for BDD agreed to participate in a naturalistic prospective study of the course of BDD. This report includes only data from intake (baseline) assessment. Study inclusion criteria were as follows: (a) a diagnosis of *DSM-IV* BDD or its delusional variant; (b) age of ≥12 years; and (c) ability to be interviewed in person. The only exclusion criterion was the presence of an organic mental disorder or an inability to understand and consent to the study. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki. The Institutional Review Board of Butler Hospital approved the study and consent statement. All study participants provided voluntary written informed consent (assent plus parental consent in the case of adolescents).

Subjects were recruited from a variety of sources, including mental health professionals (46.0%), advertisements (38.6%), program website and brochures (10.2%), friends and relatives (3.4%) and nonpsychiatric physicians (1.7%). Among subjects, 77.8% considered BDD as their most problematic disorder compared to any comorbid disorder. Among participants, 65.9% (n =116) were currently receiving mental health treatment (outpatient, 60.2%; inpatient, 2.8%; partial hospital, 1.7%; residential, 1.1%). Additional characteristics of the sample have been previously reported [12].

2.2. Assessments

All assessments were performed by two experienced bachelor-of-arts-level interviewers rigorously trained in BDD and in the instruments. Training included discussing videotapes, doing mock interviews and being closely supervised during training and initial interviews. One psychiatrist (K.A.P.) and a highly trained clinical Ph.D. psychologist carefully and thoroughly edited all clinical interviews.

Demographic information, data on the clinical features of BDD and treatment history were obtained with the BDD form, a semistructured instrument used in previous BDD studies [13]. In addition, subjects were asked about skin picking as a symptom of BDD (i.e., picking directed at a body area with which the subject was excessively preoccupied). BDD subjects were designated as having PSP based on clinician judgment, using a combination of factors such as the time spent picking (excessive picking was defined as >1 h/day) and whether the picking caused distress or impairment in functioning. Those who picked with intent to self-harm or those who picked due to a dermatological condition were included only if they also picked secondary to BDD (i.e., picking to improve the appearance of a body part that the subject considered defective but which the interviewer considered normal).

Information was also obtained on BDD-related behaviors, such as camouflaging of perceived appearance defects and excessive grooming behaviors. Co-occurring disorders were diagnosed using the *Structured Clinical Interview for DSM-IV — Patient Edition* [14] and the *Structured Clinical Interview for DSM-IV Axis II Personality Disorders* [15].

Current BDD severity was assessed using the Yale–Brown Obsessive Compulsive Scale Modified for BDD (BDD-YBOCS) [16], a reliable and valid clinician-administered 12-item scale that assesses the severity of BDD obsessions and compulsions. Higher scores on the BDD-YBOCS indicate greater symptom severity, with total scores ranging from 0 to 48.

Insight was assessed using the Brown Assessment of Beliefs Scale (BABS), a reliable and valid seven-item semistructured rater-administered scale that assesses the delusionality of beliefs about appearance during the past week [17]. The total score ranges from 0 to 24, with higher scores reflecting more delusional beliefs. The BABS was not administered to seven subjects who had obvious skin defects due to PSP, as their belief about their appearance could not be considered inaccurate.

Current social functioning was assessed with the Social Adjustment Scale (SAS), a reliable, valid and widely used 54-item self-report scale [18]. Higher scores reflect poorer adjustment. The SAS was added after the study had begun and was completed by 126 subjects. Overall psychosocial functioning was assessed with the Social and Occupational Functioning Assessment Scale (SOFAS), a global measure with scores ranging from 0=*poorest level of functioning* to 100=*highest level of functioning* [19].

Quality of life was assessed with the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) [20], a reliable and valid self-report measure of current quality of life in eight domains: general activities, physical health, emotional well-being, household, leisure, social, work and school. Lower scores reflect less life satisfaction and enjoyment. This scale was added after the study had begun and was completed by 126 subjects.

General social anxiety was rated with the Social Phobia Inventory, a 17-item self-report measure with excellent reliability and validity [21]. Scores range from 0 to 68, with higher scores indicating greater social anxiety. Social anxiety, independent of BDD, was assessed using the Brief Social Phobia Scale, an 18-item clinician-administered instrument with strong

reliability and validity [22]. Depressive symptoms were assessed with the 17-item Hamilton Rating Scale for Depression (HAM-D) [23].

We retrospectively assessed the response of BDD symptoms to a minimally adequate trial of an SRI. Although what constitutes a minimally adequate SRI trial for BDD is still unclear, we used criteria that were based on available literature and clinical experience. The following daily SRI doses for at least 10 weeks were considered minimally adequate: fluvoxamine, 150 mg; fluoxetine, 40 mg; paroxetine, 40 mg; sertraline, 150 mg; clomipramine, 150 mg; citalopram, 40 mg; escitalopram, 20 mg. Response to an SRI was defined as much improved or as very much improved (as opposed to minimally improved, unchanged or worse). We also examined the nonpsychiatric treatments sought and received for excessive skin concerns. A majority of these treatments were provided by dermatologists.

2.3. Statistical analysis

Means, standard deviations and frequencies were computed. Between-group differences for BDD subjects with and without PSP were examined. Because subjects who picked their skin differed from those who did not pick in terms of age (at a trend level) and gender (see below), analyses controlling for these variables were conducted. Logistic regression analyses were performed for categorical variables, and univariate analysis of covariance (ANCOVA) was performed for continuous variables. In a few cases, one of the group cells contained no data, and logistic regression could not be conducted. A chi-square analysis was performed in these instances. Analyses were two-tailed, with $\alpha = .05$. Effect size estimates for ANCOVA were determined with $\partial\eta^2$. Effect size estimates for chi-square tests were determined with Φ coefficient. Odds ratios (ORs) and 95% confidence intervals (95% CIs) are presented for all regression analyses.

3. Results

Of the 176 subjects with current BDD, 44.9% ($n = 79$) reported lifetime PSP secondary to BDD and 36.9% ($n = 65$) reported current PSP secondary to BDD. BDD subjects with PSP were more likely than those who did not pick to be female (82.3% vs. 17.7%; $P = .003$). There were no significant differences on any other demographic variables (Table 1).

In terms of clinical characteristics (Table 2), all BDD subjects with PSP reported being excessively preoccupied with the appearance of their skin and were more likely than nonpickers to report concern with this body area (100.0% vs. 67.0%; $P < .001$). Those with PSP were also more likely to use makeup to camouflage their perceived appearance defects (79.6% vs. 47.1%; $P = .012$). Both skin pickers and nonpickers engaged in a mean of six to seven BDD-related compulsive or safety behaviors. There was a trend for subjects with PSP to be more likely to intentionally self-mutilate a disliked body area (e.g., cutting the area; the act of skin picking itself was not considered self-mutilation) (16.5% vs. 6.2%; $P = .063$).

Although a significantly higher proportion of BDD subjects with PSP were receiving disability due to BDD (10.1% vs. 6.2%; $P = .039$), they did not significantly differ from nonpickers in terms of BDD severity, delusionality (insight), social anxiety (unrelated or related to BDD), depression, quality of life or social functioning. In terms of co-occurring disorders (Table 3), BDD subjects with PSP were more likely to have co-occurring trichotillomania (6.3% vs. 0.0%; $P = .017$) and personality disorder (57.1% vs. 38.8%; $P = .015$).

Treatment data analyses revealed an equal likelihood of both groups having received mental health treatment (Table 4). BDD subjects with PSP were as likely as those without PSP to respond to a minimally adequate trial of an SRI (Table 4). However, subjects with PSP were

more likely than nonpickers to seek (68.4% vs. 37.1%; $P < .001$) and receive (68.4% vs. 33.0%; $P < .001$) skin treatment for a BDD-related preoccupation with the skin (Tables 4 and 5).

4. Discussion

In this study, we determined the prevalence of PSP in 176 individuals with current *DSM-IV* BDD. To our knowledge, this is the largest and most broadly ascertained sample of individuals with BDD to have been studied. Because the current sample was ascertained from a wide variety of sources and because one third was not currently receiving mental health treatment, these results may be broadly generalizable. Of BDD subjects in this study, 44.9% had lifetime PSP and 36.9% had current PSP. The prevalence of PSP found in this study is slightly higher than that found in previous samples of BDD subjects (27–33%) [7,24] and is notably higher than the prevalence found in subjects with OCD (8.9%, lifetime; 7.8%, current) [25], in college students (2.7–3.8%) [1,4] or in dermatology patients (2%) [26]. The high prevalence of PSP in individuals with BDD and its association with disability due to BDD suggest that clinicians should carefully screen BDD patients for skin picking.

BDD patients may have obvious and noticeable skin defects due to their picking, especially if they pick their skin for hours in a day and use sharp implements such as needles or knives [7]. Although the results of the picking may produce an appearance problem that exceeds an "imagined or [a] slight defect in appearance" which *DSM-IV* requires [19], these patients still qualify for the diagnosis of BDD because, when they do not pick, their skin appears relatively normal. Many skin pickers use makeup to camouflage minimal skin lesions or more obvious skin lesions that may result from picking. The finding that skin pickers were somewhat (but not significantly) less likely than nonpickers to have minimal or actual skin defects may reflect the use of camouflaging with makeup by the skin-picking group.

Clinicians should be aware that the purpose of picking in BDD is to improve the skin's appearance, not to intentionally self-mutilate. However, this behavior is typically characterized by very strong urges that are difficult to resist or control, and it may consume hours in a day [7]. The resulting skin damage may be assumed to reflect intentional self-mutilation, even though it does not. In more severe cases, patients presenting with PSP should receive a thorough physical examination by an internist to assess for possible medical complications (e.g., infection).

This study suggests that PSP is common in individuals with BDD. In addition, we found that trichotillomania, a grooming disorder that shares phenomenological similarities with PSP [6], was more common in BDD subjects with PSP. This elevated rate of co-occurrence of trichotillomania in a subset of individuals with BDD may support some shared underlying neurobiological correlates and genetic factors [27]. In fact, one previous study found significantly higher rates of "grooming disorders" (pathological nail biting, PSP, trichotillomania or impulse control disorder not otherwise specified), as well as BDD, in first-degree relatives of OCD probands than in first-degree relatives of control subjects, suggesting that BDD may be related to grooming disorders, as well as to OCD [27].

Subjects with BDD and PSP were not more severely ill or functionally impaired (contrary to our hypothesis) than BDD subjects without skin picking, except that the skin-picking group was more likely to be receiving disability payments for BDD. Both groups of BDD subjects had very poor overall functioning, and the presence of PSP had little effect on these measures. Once PSP has been identified as a symptom of BDD, it is important to focus on it during treatment, especially because we found that patients who pick their skin consider skin picking their most problematic BDD behavior.

Our results suggest that individuals with BDD who pick their skin are as likely as those who do not pick their skin to respond to SRIs as well [28]. This study examined improvement in overall BDD, not skin picking per se, however; in addition, treatment response was determined retrospectively, which may be subject to error. Given that SRIs have demonstrated some promise in the treatment of PSP unrelated to BDD [1], future studies will need to prospectively examine the response of PSP in BDD patients to SRIs. Studies are also needed to determine whether psychotherapy — and what type of therapy — is efficacious for PSP when it is a symptom of BDD. Based on clinical experience, it is recommended that PSP be treated with habit reversal — the behavioral treatment of choice for trichotillomania [29]. This differs from treatment recommendations for other BDD symptoms (with the possible exception of hair pulling) for which other cognitive and behavioral techniques are recommended. This study also demonstrates that many BDD patients with PSP instead seek and receive a variety of treatments from dermatologists. Although such treatment appears to rarely be effective in reducing overall BDD symptoms [30], future studies are needed to prospectively examine outcome with dermatological interventions. Clinical experience suggests that dermatologic treatment is not effective for PSP but may be necessary when patients damage their skin, especially when this behavior causes infection or requires sutures [5].

This study has a number of limitations. One limitation is that it is unclear how generalizable our results are to individuals with BDD in the community. Nonetheless, our sample is broader than those in previous BDD studies in that the study inclusion/exclusion criteria were very broad and a substantial proportion of participants were not currently receiving psychiatric treatment. One major limitation of the current study is that data on the severity of PSP were not collected. Future studies should include specific measures assessing PSP in subjects with BDD. Other limitations are that treatment was examined retrospectively and that multiple analyses were performed without statistical corrections. The strengths of the study include the fact that subjects were well characterized, the sample was fairly large and both self-report and interviewer-administered measures with strong psychometric properties and established norms were used.

In conclusion, these results suggest that PSP is common in individuals with BDD. Additional research on this topic is needed, including studies that further elucidate the phenomenological features of PSP as a symptom of BDD, as well as the functional relationship between BDD obsessions and skin picking (e.g., whether skin picking reduces anxiety caused by BDD obsessions) [31]. Also needed are larger prevalence studies, larger studies of clinical correlates of PSP in BDD and studies examining the effectiveness of mental health treatments and nonmental health (e.g., dermatologic) treatment for this distressing and problematic behavior.

Acknowledgements

This study was supported by a grant from the National Institute of Mental Health (R01 MH60241) to Dr. Phillips.

References

1. Arnold LM, Auchenbach MB, McElroy SL. Psychogenic excoriation: clinical features, proposed diagnostic criteria, epidemiology and approaches to treatment. CNS Drugs 2001;15:351–9. [PubMed: 11475941]
2. Wilhelm S, Keuthen NJ, Deckersbach T, et al. Self-injurious skin picking: clinical characteristics and comorbidity. J Clin Psychiatry 1999;60:454–9. [PubMed: 10453800]
3. Gupta MA, Gupta AK, Haberman HF. Neurotic excoriations: a review and some new perspectives. Compr Psychiatry 1986;27:381–6. [PubMed: 3731771]
4. Keuthen NJ, Deckersbach T, Wilhelm S, et al. Repetitive skin-picking in a student population and comparison with a sample of self-injurious skin-pickers. Psychosomatics 2000;41:210–5. [PubMed: 10849452]

5. Grant JE, Phillips KA. Captive of the mirror: I pick at my face all day, every day. Curr Psych 2003;2:45–52.
6. Bohne A, Keuthen N, Wilhelm S. Pathologic hairpulling, skin picking, and nail biting. Ann Clin Psychiatry 2005;17:227–32. [PubMed: 16402755]
7. Phillips KA, Taub SL. Skin picking as a symptom of body dysmorphic disorder. Psychopharmacol Bull 1995;31:279–88. [PubMed: 7491380]
8. Dykens E, Shah B. Psychiatric disorders in Prader–Willi Syndrome: epidemiology and management. CNS Drugs 2003;17:167–78. [PubMed: 12617696]
9. Bishop ER. Monosymptomatic hypochondriacal syndromes in dermatology. J Am Acad Dermatol 1983;9:152–8. [PubMed: 6886098]
10. Phillips KA, McElroy SL. Obsessive–compulsive disorder in relation to body dysmorphic disorder (letter). Am J Psychiatry 1992;149:1284. [PubMed: 1503155]
11. Phillips KA. Body dysmorphic disorder: the distress of imagined ugliness. Am J Psychiatry 1991;148:1138–49. [PubMed: 1882990]
12. Phillips KA, Menard W, Fay C, Weisberg R. Demographic characteristics, phenomenology, comorbidity, and family history in 200 individuals with body dysmorphic disorder. Psychosomatics 2005;46:317–32. [PubMed: 16000674]
13. Phillips KA, Diaz S. Gender differences in body dysmorphic disorder. J Nerv Ment Dis 1997;185:570–7. [PubMed: 9307619]
14. First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV — patient edition (SCID-I/P, version 2.0). New York, NY: Biometrics Research Department, New York State Psychiatric Institute; 1995.
15. First, MB.; Gibbon, M.; Spitzer, RL.; Williams, JBW.; Benjamin, L. Structured Clinical Interview for DSM-IV Axis II personality disorders (SCID-II): user's guide. Washington, DC: American Psychiatric Press; 1997.
16. 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. Psychopharmacol Bull 1997;33:17–22. [PubMed: 9133747]
17. Eisen JL, Phillips KA, Baer L, Beer DA, Atala KD, Rasmussen SA. The Brown Assessment of Beliefs Scale: reliability and validity. Am J Psychiatry 1998;155:102–8. [PubMed: 9433346]
18. Weissman MM, Prusoff BA, Thompson DW, Harding PS, Myers JK. Social adjustment by self-report in a community sample and in psychiatric outpatients. J Nerv Ment Dis 1978;166:317–26. [PubMed: 650195]
19. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, fourth edition, text revision. Washington, DC: American Psychiatric Association Press; 2000.
20. Endicott J, Nee J, Harrison W, Blumenthal R. Quality of Life Enjoyment and Satisfaction Questionnaire: a new measure. Psychopharmacol Bull 1993;29:321–6. [PubMed: 8290681]
21. Connor KM, Davidson JR, Churchill LE, Sherwood A, Foa E, Weisler RH. Psychometric properties of the Social Phobia INventory (SPIN). New self-rating scale. Br J Psychiatry 2000;176:379–86. [PubMed: 10827888]
22. Davidson JR, Miner CM, De Veaugh-Geiss J, Tupler LA, Colket JT, Potts NL. The Brief Social Phobia Scale: a psychometric evaluation. Psychol Med 1997;27:161–6. [PubMed: 9122296]
23. Hamilton M. A rating scale for depression. J Neurol Neurosurg Psychiatry 1960;23:56–62. [PubMed: 14399272]
24. Neziroglu F, Mancebo M. Skin picking as a form of self-injurious behavior. Psychiatr Ann 2001;31:549–55.
25. Grant JE, Mancebo MC, Pinto A, Eisen JL, Rasmussen SA. Impulse control disorders in adults with obsessive compulsive disorder. J Psychiatr Res 2006;40:494–501. [PubMed: 16430922]
26. Griesener RD. Emotionally triggered disease in a dermatologic practice. Psychiatr Ann 1978;8:407–12.

27. Bienvenu OJ, Samuels JF, Riddle MA, et al. The relationship of obsessive–compulsive disorder to possible spectrum disorders: results from a family study. Biol Psychiatry 2000;48:287–93. [PubMed: 10960159]

28. O'Sullivan RL, Phillips KA, Keuthen NJ, Wilhelm S. Near-fatal skin picking from delusional body dysmorphic disorder responsive to fluvoxamine. Psychosomatics 1999;40:79–81. [PubMed: 9989126]

29. Azrin NH, Nunn RG, Frantz SE. Treatment of hairpulling (trichotillomania): a comparative study of habit reversal and negative practice training. J Behav Ther Exp Psychiatry 1980;11:13–20.

30. Phillips KA, Grant J, Siniscalchi J, Albertini RS. Surgical and nonpsychiatric medical treatment of patients with body dysmorphic disorder. Psychosomatics 2001;42:504–10. [PubMed: 11815686]

31. Abramowitz, JS.; Deacon, BJ. Obsessive–compulsive disorders: essential phenomenology and overlap with other anxiety disorders. In: Abramowitz, JS.; Houts, AC., editors. Concepts and controversies in obsessive–compulsive disorder. New York: Springer; 2005. p. 119-36.

Table 1

Demographics of BDD subjects with and without PSP

Variable	BDD with skin picking (*n* =79)	BDD without skin picking (*n* =97)	Wald, χ^2 ANCOVA or *t* test	*df*	*P*	Effect size
Demographics						
Age in years [mean (± S.D.)]	30.5 (11.3)	34.0 (12.8)	1.89	174	.060	*d* =0.29
Female [*n* (%)]	65 (82.3)	60 (61.9)	8.82	1	.003	Φ =0.22
Race (non-White) [*n* (%)]	9 (11.7)	18 (18.6)	1.55	1	.214	Φ =0.09
Hispanic ethnicity [*n* (%)]	7 (9.2)	5 (5.5)	0.86	1	.354	Φ =0.07
Marital status (single) [*n* (%)]	65 (82.3)	69 (71.1)	2.50	1	.114	OR=0.53 (95% CI=0.24–1.17)
Education (at least some college) [*n* (%)]	54 (68.4)	68 (70.1)	0.003	1	.957	OR=0.98 (95% CI=0.49–1.96)

Gen Hosp Psychiatry. Author manuscript; available in PMC 2006 November 29.

Table 2

Clinical characteristics of BDD subjects with and without PSP

Variable	BDD with skin picking (*n* =79)	BDD without skin picking (*n* =97)	Wald, χ^2, ANCOVA or *t* test	*df*	*P*	Effect size
Number of body areas of concern [mean (± S.D.)]	6.9 (4.9)	6.6 (4.9)	0.010	1172	.919	η^2=.000
Skin [*n* (%)]	79 (100.0)	65 (67.0)	31.85	1	< .001	Φ =0.43
Acne/scarring/ marks/blemishes[a]	73 (92.4)	39 (60.0)	16.85	1	< .001	OR=7.83 (95% CI=2.93–20.93)
Color of skin[a]	21 (26.6)	19 (29.2)	0.24	1	.628	OR=0.83 (95% CI=0.39–1.76)
Hair [*n* (%)]	50 (63.3)	53 (54.6)	2.58	1	.109	OR=1.69 (95% CI=0.89–3.20)
Nose [*n* (%)]	29 (36.7)	39 (40.2)	0.31	1	.579	OR=0.84 (95% CI=0.44–1.57)
Total number of BDD behaviors [mean (± S.D.)]	6.9 (2.0)	6.3 (2.1)	2.48	1172	.117	η^2=.014
Camouflaging [*n* (%)]	77 (97.5)	86 (88.7)	2.66	1	.103	OR=3.80 (95% CI=0.77–18.87)
With makeup [*n* (%)]	39 (79.6)	24 (47.1)	6.30	1	.012	OR=3.42 (95% CI=1.31–8.94)
Grooming [*n* (%)]	62 (78.5)	62 (63.9)	3.54	1	.060	OR=1.95 (95% CI=0.97–3.92)
Mirror checking [*n* (%)]	75 (94.9)	83 (85.6)	2.40	1	.122	OR=2.55 (95% CI=0.78–8.33)
Touching [*n* (%)]	59 (74.7)	44 (45.4)	13.84	1	< .001	OR=3.54 (95% CI=1.82–6.89)
Self-mutilation of body part [*n* (%)][b]	13 (16.5)	6 (6.2)	3.46	1	.063	OR=2.72 (95% CI=0.95–7.77)
BDD-YBOCS total score [mean (± S.D.)][c]	31.5 ± 6.2	29.6 ± 6.9	2.41	1172	.122	η^2 = .014
BDD-YBOCS obsession score [mean (± S.D.)][c]	12.7 ± 2.7	12.3 ± 2.8	1.10	1172	.296	η^2 = .006
BDD-YBOCS compulsion score [mean (± S.D.)][c]	13.4 ± 3.1	12.0 ± 4.0	3.27	1172	.072	η^2 = .019
BABS total score [mean (± S.D.)][c]	16.5 ± 5.3	16.4 ± 5.8	0.00	1166	.952	η^2 = .000
Brief Social Phobia Scale [mean (± S.D.)][c]	17.9 ± 13.9	16.7 ± 14.1	0.40	1169	.528	η^2 = .002
Social Phobia Inventory [mean (± S.D.)][c]	32.4 ± 15.1	32.0 ± 15.8	0.36	1157	.548	η^2 = .002
HAM-D 17- item total score [mean (± S.D.)][c]	16.9 ± 10.7	16.4 ± 10.6	0.20	1170	.659	η^2 = .001
Q-LES-Q [mean (± S.D.)][c]	49.3 ± 17.8	50.5 ± 15.4	0.47	1119	.495	η^2 = .004
SAS-SR overall adjustment score [mean (± S.D.)][c]	2.4 ± 0.5	2.3 ± 0.5	0.98	1122	.325	η^2 = .008
SOFAS [mean (± S.D.)][c]	49.0 ± 14.0	46.8 ± 12.8	0.13	1100	.718	η^2 = .001
Age of BDD onset in years [mean (± S.D.)]	15.2 ± 5.5	17.0 ± 7.9	1.76	1172	.187	η^2 = .010
Days missed from work or school due to BDD [mean (± S.D.)][d]	76.6 ± 135.9	111.9 ± 220.3	0.08	1167	.779	η^2 = .000
Attempted suicide [*n* (%)]	20 (25.3)	30 (30.9)	1.08	1	.299	OR=0.69 (95% CI=0.35–1.38)
Attempted suicide due to BDD [*n* (%)][d]	7 (8.9)	16 (16.5)	1.64	1	.200	OR=0.53 (95% CI=0.20–1.40)
Receiving disability for reasons other than BDD (current) [*n* (%)]	14 (17.7)	18 (18.6)	1.01	1	.314	OR=1.57 (95% CI=0.65–3.80)
Receiving disability due to BDD (current) [*n* (%)]	8 (10.1)	6 (6.2)	4.26	1	.039	OR=3.84 (95% CI=1.07–13.80)
Interviewer's rating of skin defects as minimal or present (as opposed to absent)[e]	11 (28.2)	8 (47.1)	1.77	1	.183	OR=0.43 (95% CI=0.13–1.48)

[a] Acne/scarring/marks/blemishes and color were the two most common types of skin concern.

[b] Directed at disliked body areas; does not include skin picking.

[c] Scores are for all subjects with current BDD.

[d] Due primarily to BDD, in both the subject's judgment and the interviewer's judgment.

[e] Data are presented only for the 56 subjects whose primary body area of concern was their skin. Of the 39 subjects in the picking group whose primary concern was their skin, skin defects were judged to be absent in 28 cases, minimal in 7 cases and clearly visible in 4 cases (due to scarring from skin picking); for the 17 subjects in the nonpicking group whose primary concern was their skin, skin defects were judged to be absent in 9 cases and minimal in 8 cases.

Table 3

Co-occurring disorders in BDD subjects with and without PSP

Co-occurring disorder[a]	BDD with skin picking (*n* =79)	BDD without skin picking (*n* =97)	Wald or ANCOVA or *t* test	*df*	*P*	Effect size
Mood disorder	67 (84.8)	80 (82.5)	0.15	1	.700	OR=1.18 (95% CI=0.51–2.73)
Psychotic disorder[b]	2 (2.5)	3 (3.1)	0.06	1	.808	OR=0.79 (95% CI=0.12–5.13)
Anxiety disorder	61 (77.2)	64 (66.0)	3.11	1	.078	OR=1.88 (95% CI=0.93–3.77)
Substance use disorder	37 (46.8)	49 (50.5)	0.00	1	.953	OR=0.98 (95% CI=0.53–1.82)
Eating disorder[c]	31 (39.2)	30 (30.9)	0.02	1	.881	OR=1.05 (95% CI=0.54–2.06)
Tic disorder	1 (1.3)	4 (4.1)	0.63	1	.427	OR=0.40 (95% CI=0.04–3.85)
Trichotillomania	5 (6.3)	0 (0.0)	—[d]	—[d]	.017	Φ =0.19
Personality disorder	40 (57.1)	33 (38.8)	5.97	1	.015	OR=2.35 (95% CI=1.18–4.65)
Borderline personality disorder	11 (15.7)	8 (9.4)	0.37	1	.546	OR=1.37 (95% CI=0.50–3.77)

[a] *n* (%), unless otherwise noted.

[b] Delusional BDD is not included in this rate.

[c] Includes eating disorder not otherwise specified.

[d] Fisher's Exact Test.

Table 4

Treatment history of BDD subjects with and without PSP

Variable[a]	BDD with skin picking (*n* =79)	BDD without skin picking (*n* =97)	Wald or ANCOVA or *t* test	*df*	*P*	Effect size
Mental health treatment history						
Any treatment received (lifetime)	76 (96.2)	91 (93.8)	0.84	1	.359	OR=1.98 (95% CI=0.46–8.51)
Any treatment received (current)	51 (64.6)	65 (67.0)	0.01	1	.912	OR=1.04 (95% CI=0.54–1.99)
BDD response to at least one minimally adequate SRI trial[b]	9 (26.5)	13 (35.1)	0.16	1	.687	OR=0.80 (95% CI=0.28–233)
History of psychiatric hospitalization	36 (45.6)	37 (38.1)	1.44	1	.230	OR=1.47 (95% CI=0.78–2.77)
Nonpsychiatric medical treatment for skin concerns						
Skin treatment sought	54 (68.4)	36 (37.1)	16.16	1	< .001	OR=3.83 (95% CI=1.99–740)
Number of skin treatments sought [mean (± S.D.)][c]	3.5 ± 2.8	2.3 ± 1.5	3.38	1, 86	.069	η^2 = .038
Skin treatment received	54 (68.4)	32 (33.0)	19.80	1	< .001	OR=4.46 (95% CI=2.31–8.61)
Number of skin treatments received [mean (± S.D.)][c]	3.0 ± 2.2	2.3 ± 1.3	1.87	1, 82	.175	η^2 = .022

[a] *n* (%), unless otherwise noted.

[b] Response of overall BDD symptoms, including skin picking.

[c] Among those who sought/received skin treatment.

Table 5

Types of dermatologic treatment ever received for skin concerns in 79 BDD subjects with lifetime PSP

Variable	Skin treatments received [*n* (%)]
Type of treatment received	162 (–)
Topical agents[a]	73 (45.1)
Oral antibiotics	40 (24.7)
Isotretinoin (Accutane)	17 (10.5)
Microdermabrasion	7 (4.3)
Unspecified dermatologic treatment	7 (4.3)
Skin injection (antibiotic) for blemish	4 (2.5)
Facials/heat wraps	3 (1.9)
Skin spot removal	3 (1.9)
Acne cyst removal	3 (1.9)
Injection for leg veins	2 (1.2)
Laser peel	1 (0.6)
Laser skin treatment	1 (0.6)
Mole removal	1 (0.6)

[a]For example, topical antibiotics and Retin-A.