Psychological Medicine, 2006, **36**, 877–885. © 2006 Cambridge University Press
doi:10.1017/S0033291706007264 First published online 6 March 2006 Printed in the United Kingdom

The prevalence of body dysmorphic disorder: a population-based survey

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ABSTRACT

Background. Body dysmorphic disorder (BDD) is a highly distressing and impairing disorder characterized by a preoccupation with imagined or slight physical defects in appearance. Well designed studies on its prevalence and on base rates for diagnostic criteria are rare. Therefore this study aimed to reveal prevalence rates of BDD in the general population and to examine clinical features associated with BDD.

Method. Of 4152 selected participants 2552, aged 14–99 years, participated in this German nationwide survey. Participants were carefully selected to ensure that the sample was representative; they were visited by a study assistant who provided instructions and help if needed. Participation rate was 62·3%. DSM-IV criteria for BDD, as well as subthreshold features (e.g. individuals who consider some part(s) of their body as ugly or disfigured, but do not fulfill all BDD criteria) were examined. We also assessed suicidal ideation associated with the belief of having an ugly body part, as well as the desire for cosmetic surgery. Furthermore, somatization symptoms were assessed.

Results. The prevalence of current BDD was 1·7% (CI 1·2–2·1%). Individuals with BDD reported higher rates of suicidal ideation (19% *v.* 3%) and suicide attempts due to appearance concerns (7% *v.* 1%) than individuals who did not meet criteria for BDD. Somatization scores were also increased in individuals with BDD, relative to those without. BDD was associated with lower financial income, lower rates of living with a partner, and higher rates of unemployment.

Conclusions. Our study shows that self-reported BDD is relatively common and associated with significant morbidity.

INTRODUCTION

Body dysmorphic disorder (BDD) is a highly distressing and impairing disorder characterized by a preoccupation with imagined or slight physical defects in appearance (e.g. shape or size of nose). Individuals with BDD often think about their perceived defect for many hours per day, and they frequently engage in time-consuming repetitive behaviors such as comparing, mirror-checking, camouflaging, excessive grooming or reassurance-seeking (Phillips, 1991; Phillips *et al.* 1993). Avoidance of everyday activities may lead to substantial social isolation, including being housebound for years (Phillips *et al.* 1993).

Phillips & Diaz (1997) assessed the focus of concern for 188 patients with BDD. The most frequently affected body parts were: skin (65%), hair (55%), nose (39%), eyes (19%), legs (18%), and breasts for women or pectoral muscles for men (14%). Cansever and colleagues (2003) assessed the prevalence and symptoms

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https://doi.org/10.1017/S0033291706007264 Published online by Cambridge University Press

of BDD in Turkish female college students ($n=420$). They reported that hips and various parts of the head were the most frequent focus of imagined defects. Grant and colleagues (2001) assessed BDD in psychiatric in-patients and confirmed that the nose, hair, skin, and lips were the body parts most frequently associated with imagined flaws. However, all of the data mentioned above were from selected samples and may differ from data representing the general population.

Research on the prevalence of BDD has been rare. In female college students, prevalence rates of BDD were estimated at about 5% (Bohne *et al*. 2002; Cansever *et al*. 2003). Otto and colleagues (2001) reanalyzed a subsample of data selected from a larger sample of women between ages of 36 and 44, including 658 non-depressed and 318 depressed women. For this group, they found a prevalence rate for BDD of 0·7%. Faravelli and colleagues (1997) reported data from 637 subjects from the general population of Tuscany (Italy) and found a BDD prevalence rate of 0·7% (i.e. five cases within their sample). In a study of Bienvenu *et al*. (2000), a community control sample of 73 subjects showed BDD prevalence rates of 3%, while two of 300 first-degree relatives (1%) of these control persons had lifetime BDD.

Robust epidemiological data on BDD are required to evaluate the usefulness of existing diagnostic classification criteria as well as treatment needs. Moreover, additional studies on the prevalence of BDD might raise awareness about this often secretive and underdiagnosed disorder. Although suffering from BDD, patients present only rarely with these complaints in general practice. Indeed, DeWaal *et al*. (2004) did not find any individuals with BDD in more than 1000 consecutive patients of general practitioners diagnosed by structured interviews. Grant *et al*. (2001) reported that although 13% of psychiatric inpatients had BDD, all of these patients reported that they would not reveal the disorder to their physician unless specifically asked. This was true even for the patients who considered BDD to be their primary concern.

Several studies report increased suicidality rates in individuals with BDD. In the psychiatric in-patient sample described by Grant *et al*. (2001), one-third reported suicide attempts. Phillips & Diaz (1997) found that 23% of their out-patients with BDD had a history of suicide attempts, a rate that was confirmed for British out-patients (Veale *et al*. 1996). This underlines the extreme suffering that is associated with BDD. Many individuals with BDD seek surgery to change their appearance. In the study by Phillips and Diaz, 29% of patients with BDD sought or received surgical treatment while 45% sought dermatological treatment. Of these cases, the response to these forms of non-psychiatric treatments was generally poor. Altamura *et al*. (2001) demonstrated that more than 6% of patients in hospital centers for esthetical medicine had BDD, while about 18% reported subthreshold BDD symptoms. About one-fifth of patients requesting rhinoplasty had a possible diagnosis of BDD (Veale *et al*. 2003). In Turkish patients presenting with mild acne to a dermatologist, 9% were diagnosed with BDD (Uzun *et al*. 2003). Thus the prevalence of BDD is substantial in patients seeking surgical or dermatological interventions, despite the ineffectiveness of non-psychiatric interventions.

BDD is often co-morbid with other mental disorders. This has been described for psychiatric inpatients in general (Grant *et al*. 2001), for patients with depressive disorders (Phillips *et al*. 1996; Nierenberg *et al*. 2002), and patients with anxiety disorders (Wilhelm *et al*. 1997). There is also a substantial co-occurrence between BDD and obsessive-compulsive disorder (OCD) (e.g. Brawman-Mintzer *et al*. 1995; Simeon *et al*. 1995; Bienvenu *et al*. 2000), as well as with social phobia (Brawman-Mintzer *et al*. 1995), although the Brawman-Mintzer study reported the lowest BDD rates of all cited studies. Thus patients with BDD have increased rates of comorbid psychiatric disorders and, conversely, patients with other mental disorders have increased rates of BDD. Despite the association of BDD with OCD or social phobia, DSM-IV (APA, 1994) and ICD-10 (WHO, 1993) do not classify BDD under anxiety disorders but rather under the category of somatoform disorders. Little is currently known about similarities and differences between BDD and other somatoform disorders.

The aims of this study were, first, to present the first study to our knowledge which reports prevalence rates for BDD in a large, representative, nationwide community sample. We expected higher rates for women than men, as

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body concerns seem to be more frequent in the female population. Associated features of the disorder, such as suicidality or seeking surgery, were also assessed. Secondly, we intended to define base rates for body parts with which individuals are dissatisfied. Thirdly, we aimed to obtain more empirical data on classification criteria for BDD by examining base rates for the individual BDD criteria. Finally, we wanted to analyze the overlap between BDD with somatoform symptoms, since BDD is categorized as a subgroup of somatoform disorders in DSM-IV.

SUBJECTS AND METHOD

Subjects

The final sample consisted of 2552 subjects (52·74% of whom were female). The age range was from 14 to 99 years (mean = 47·6, S.D. = 18·0). Approximately 53% were married, 58·6% were living with a partner (including those being married and living with their partner), 51% had more than a standard education (e.g. high-school degree or equivalent), 7% were unemployed, and 29·6% were retired. Sixty-five percent of the sample was living in households earning less than 2000 Euros per month.

Method

To obtain a representative sample, an independent agency (USUMA, Berlin) divided Germany into 258 sample point regions (the definition of sample points was derived from representative data from the last federal elections). To select a subject for inclusion, the first step was the selection of one of the sample point regions by chance. Then, following a random route procedure, an address was selected. Finally, one of the household members at this address was selected by chance ('Sweden procedure') and attempts were made to contact this person. Only subjects above 13 years of age were included in the selection process. Data collection took place between September and October 2004. We initially attempted to contact 4156 subjects. Reasons for drop out were: three consecutive unsuccessful attempts to reach anyone in the selected household (9%), three consecutive unsuccessful attempts to reach the target person (3·6%), the household rejected participation (14%), the target person rejected participation (9·4%). Participation rate of the primarily selected sample was 62·3%. As some interviews were unsuitable ($n = 39$; people did not understand instructions; most items show missing values), the final sample consisted of 2552 participants. This sample still has the typical characteristics of the German population in terms of age and sex (compared with the overall data for the 70 779 million people in Germany older than 13 years; see www.sozialpolitik-aktuell.de), with 48% male subjects (Germany: 49%); 21·5% of the sample being older than 65 years (Germany: 20%); and 12% being in the age range 14-24 years (Germany: 12%).

All participants were visited face-to-face, informed by a research assistant about the study procedures and signed an informed consent sheet (if the participants were minors, informed consent was also obtained from the parents). They were instructed that several psychological rating scales would follow, without informing the subjects about the special focus on body dysmorphic symptoms. Thereafter, participants completed the following self-rating scales:

(*a*) a demographic information sheet;
(*b*) a questionnaire assessing DSM-criteria for current BDD (four items; see Table 1 on case definition);
(*c*) a questionnaire assessing clinical characteristics related to BDD symptoms, such as body sites of preoccupation (hair, skin, nose, mouth, eyes, ears, breast/chest, genitals, hands, and other body parts to be named by the participants), and suicidality due to BDD symptoms;
(*d*) the Screening for Somatoform Symptoms, state version (SOMS-7) (Rief & Hiller, 2003).

The SOMS-7 has been shown to be sensitive and specific for the assessment of somatoform symptoms. Base rates of these symptoms have been published elsewhere (Rief *et al*. 2001). In its state version, the SOMS-7 asks for the existence of 53 typical somatoform symptoms during the last 7 days, including abdominal pain, headache, back pain, food intolerance, or chest pain. These 53 symptoms cover all complaints mentioned in the DSM-IV somatization disorder, the ICD-10 somatization disorder, and the ICD-10 somatoform autonomic dysfunction. The intensity of symptoms is Likert-scaled from 1 (not at all) to 5 (very strongly). Two

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Table 1. *Definition of body dysmorphic disorder*

DSM-IV inclusion rules	Description of DSM-IV criteria (DSM-IV TR)	Item
Agreement to DSM-IV criterion A	Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.	Are you preoccupied with an imagined or slight physical defect in your appearance, although other people do not share your opinion or believe your concern to be markedly exaggerated?
Either agreement to DSM-IV criterion B1 …	The preoccupation causes clinically significant distress …	If yes, is this preoccupation about a physical defect very distressing to you?
… or agreement to DSM criterion B2	… or impairment in social, occupational, or other important areas of functioning.	Do the worries about your physical defect cause significant impairment in your everyday life (e.g. in your occupational or social life)?
Disagreement to DSM-IV criterion C	The preoccupation is not better accounted for by another mental disorder (e.g. dissatisfaction with body shape and size in anorexia nervosa)	Is your bodyweight the primary cause of your appearance concern?

composed indices are computed: the symptom count (number of agreed symptoms in total) and the symptom severity (mean score of all responses). The severity index of the SOMS-7 correlates with the number of somatoform symptoms as assessed by structured interviews to $r = 0{\cdot}70$ (Rief & Hiller, 2003). The median in the general population is four somatoform symptoms during the last 7 days; the mean is 6·6 (S.D. = 8·2).

RESULTS

Twenty-seven percent of males and 41% of females reported being preoccupied with the appearance of at least one body part. Approximately 10% of males *versus* 15·6% of females reported being at least moderately dissatisfied with their appearance (overall $\chi^2 = 61{\cdot}4$, $p < 0{\cdot}001$). This result indicates more body dissatisfaction in women than in men. Furthermore, the body parts of concern differ somewhat between men and women. While women were most frequently dissatisfied with their breasts, hair, skin, stomach, and nose, men were mainly concerned with their hair, ears, and nose. Table 2 presents data of the general population for body parts rated as especially unattractive.

Table 3 presents base rates for the criteria to classify BDD according to DSM-IV. Again, we found higher rates for women than for men. About 10% of the general population was preoccupied with having one or more disfiguring body part, despite acknowledging that the perception of these flaws was not held by other people such as friends. However, when the other DSM criteria were also considered, the prevalence rate for current BDD was 1·7% [95% confidence interval (CI) 1·2–2·1%], with slightly higher rates for women (1·4% for men, 1·9% for women). Due to the small sample size of individuals meeting all criteria, gender differences were no longer significant. Moreover, to exclude individuals with possible eating disorders, we assessed whether bodyweight was the major reason for body dissatisfaction. This exclusion criterion was met by half of the women who perceived one or more of their body parts as ugly or disfigured but only by one-third of the men. The base rate of BDD showed a trend to higher prevalence rates in adolescents (age <21 years; 2·3%), although the low figures ($n = 4$) do not allow further interpretation.

As expected, the rate of participants who underwent cosmetic surgery was higher in the

Table 2. *Prevalence of body parts rated as especially unattractive in the German general population* ($n = 2552$)

Body part of concern	Males, % ($n = 1206$)	Females, % ($n = 1346$)	χ^2
Hair	10·3	10·4	0·1
Ears	4·7	2·2	12·9***
Nose	5·3	5·5	0·5
Eyes	1·7	2·1	0·4
Mouth	0·7	1·3	2·9
Skin	3·7	10·1	39·2***
Breast, chest	1·3	11·5	105·6***
Hands	1·6	3·0	6·0*
Genitals	1·7	0·4	9·3**
Buttocks	0·2	2·5	25·5***
Stomach	3·5	6·0	8·9**
Legs	0·2	3·9	39·4***
Shape, weight	0·5	1·6	7·6**

* $p < 0{\cdot}05$, ** $p < 0{\cdot}01$, *** $p < 0{\cdot}001$.

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Table 3. *Base rates for DSM-IV criteria for body dysmorphic disorder* (*point prevalence*)

DSM-IV criteria	Males, % ($n=1206$)	Females, % ($n=1346$)	χ^2
A. Are you preoccupied with an imagined or slight physical defect in your appearance, although other people do not share your opinion or believe your concern to be markedly exaggerated?	7·2	12·0	18·1***
B1. If yes, is this very distressing to you? (ref. to total $n=248$)	31·0	30·4	1·9
B2. Does this cause significant impairment in your everyday life (e.g. in your occupational or social life)? (ref. to total $n=248$)	32·2	21·1	3·8
Criteria A and B fulfilled (ref. to total $n=2552$)	3·0	4·2	2·8
C. Primary appearance concern weight-related (total $n=248$)	34·5	50·9	6·4*
All criteria (A, B, C) for BDD met (excluding individuals with primary weight concerns)	1·4	1·9	0·8
Overall prevalence of BDD 1·7% ($n=42$)			

BDD, Body dysmorphic disorder.
* $p<0·05$, *** $p<0·001$.

BDD group than in the non-BDD group (Table 4). Moreover, nearly one-fifth of the BDD group confirmed having suicidal thoughts because of appearance concerns while 7% had a history of suicidal attempts because of appearance concerns. However, the base rate of suicidal attempts due to appearance concerns in the non-BDD group was 1%.

There was no significant difference between the BDD group and the non-BDD group with respect to age (see Table 4). Participants with BDD seemed to be more frequently divorced, while the base rate for being married was higher in the non-BDD group than in the BDD group. The mean household income was lower and the rate of unemployment was higher in the BDD group than it was in the non-BDD group (see Table 4).

Participants with BDD differed from the general population substantially in the number of somatoform symptoms they reported. Individuals with BDD noted nearly twice as many symptoms as other participants and showed increased somatization indices. Substantially higher rates in BDD were reported for the following symptoms (to avoid alpha-error inflation, only differences with $p<0·005$ are reported; this still allows the detection of medium effect sizes $d>0·4$): headache, abdominal pain, pain in extremities, nausea, discomfort in the chest and abdomenal area, loss of appetite, frequent urination, palpitation, fatigue, loss of libido, impaired balance, weakness, as well as pseudo-neurological symptoms. The mean number of somatoform symptoms during the past 7 days was 11·2 in the BDD group; this corresponds to a percentage rank of 82% of the general population reporting fewer somatic symptoms. The number of bodily complaints was also associated with the different diagnostic criteria for BDD: subjects fulfilling only criteria A (preoccupation with physical appearance) reported a mean number of 10·7 (S.D. 9·5) somatic symptoms, while subjects fulfilling criteria A and B (additional distress or impairment) reported 12·5 (S.D. 10·6) somatic complaints. Subjects with bodily preoccupation differed significantly in the number of reported symptoms, depending on whether or not they fulfilled criterion B ($t=2·3$, df $=246$, $p<0·05$).

DISCUSSION

This study reports for the first time nationwide base rates representative of the general population. Previous studies reported prevalence rates between 0·7% (e.g. Otto *et al.* 2001) and 5% (Bohne *et al.* 2002). However, all studies with fewer than 1000 participants aiming to assess a feature with a base rate of less than 5% are at risk of being underpowered. Using the DSM-IV-based definition of BDD as described above and analyzing a large sample, we found prevalence rates of 1·7% with a 95% CI of 1·2–2·1%. The studies reporting higher rates typically examined groups where higher base rates can be expected (e.g. female college students) and/or used self-rating scales that might be associated with less restrictive case definitions than our approach. The Italian study of Faravelli *et al.* (1997) used structured interview techniques. However, they examined a

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Table 4. *Associated features of individuals with and without body dysmorphic disorder*

	Individuals with BDD ($n=42$)	Individuals without BDD ($n=2510$)	Statistics (χ^2 if not otherwise specified)
Age (yr)	Mean = 44·3 (S.D. = 17·2)	Mean = 47·7 (S.D. = 18·0)	$t(2535)=1·2$ (N.S.)
Gender (% females)	60·0	52·0	0·9
Marital status (%)			23·9***
Married	21·4	52·7	
Divorced	28·6	9·9	
Single	31·0	24·4	
Mean income of household below 1250 Euros (%)	42·9	25·5	7·6*
Unemployed (%)	21·4	6·8	13·6**
Focus of appearance concern (%)			
Hair	31·0	10·0	19·6***
Skin	31·0	6·7	36·9***
Breast/chest	28·6	6·3	32·7***
Stomach	16·7	4·5	13·5***
Ears	11·9	3·2	9·7**
Nose	11·9	5·3	$3·5^{+}$
Buttocks	9·5	1·3	20·1***
Mouth	7·1	0·9	15·8***
Hands	7·1	2·3	4·2*
Eyes	4·8	1·9	1·8
Genitals	4·8	0·9	6·2*
Legs	4·8	2·1	1·4
Primary concern weight-related	—	1·1	
Plastic surgery (%)			
Underwent cosmetic surgery	7·2	2·8	31·2***
Suicidality (%)			
Thought about killing oneself due to appearance concerns	19·1	3·4	34·8***
Suicide attempts due to appearance concerns	7·2	1·0	18·1***
Somatoform symptoms			
Somatoform symptom count	Mean = 11·2 (S.D. = 8·9)	Mean = 6·4 (S.D. = 7·9)	$F=15·6$, $p<0·001$
Somatization intensity index	Mean = 0·37 (S.D. = 0·29)	Mean = 0·19 (S.D. = 0·29)	$F=14·5$, $p<0·001$

* $p<0·05$, ** $p<0·01$, *** $p<0·001$, $^{+}$ $p=0·6$.

sample of 673 subjects, which is too small to reveal stable prevalence rates for less common disorders. A methodologically sophisticated study made by Otto *et al.* (2001), using structured clinical interviews, analyzed the data of 658 non-depressed women between the ages of 36 and 44 as well as 318 depressed women of the same age range. Both groups were selected from the Boston metropolitan area. As this sample represented only one city, the authors computed overall prevalence estimates using comparison data from the national co-morbidity survey. However, it is important to acknowledge that this estimated prevalence rate of 0·7% for BDD was based on two participants in the non-depressed group and six participants in the depression group.

Our survey confirmed that many people have concerns about unattractive body parts, although only a few of them fulfill the criteria for BDD. In the general population, women tended to be concerned about their hair, skin, and breasts, while men focused on their hair, nose, and ears. Although women frequently showed higher base rates for body parts they dislike, men had specifically increased rates for ears (4·7% *v.* 2·2%) and genitals (1·7% *v.* 0·4%). From the subsample fulfilling the criteria for BDD, the most frequently disliked body parts were again skin, breasts/chest, and hair. Comparing these data with clinical samples, patients in clinical samples more frequently report multiple body parts of concern. For example, Phillips & Diaz (1997) reported frequencies of up to 71% (skin, women), and, similar to our results, noted that skin and hair were the most frequent body parts of concern.

Our data also confirmed that BDD is a serious disorder, frequently accompanied by suicidal ideation or even suicide attempts. However, in clinical samples with BDD, the suicidality rate is typically higher than in our epidemiological

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sample. Increased suicide rates have also been found in psychiatric patients with co-morbid BDD (Grant *et al*. 2001) compared with other psychiatric patients. This result is the more important as the authors did not assess suicidality in general, but completed suicide. Veale *et al*. (1996) reported suicide attempt rates of 24% in BDD patients, which has been confirmed in other studies (Phillips & Diaz, 1997). As expected, our BDD participants also underwent cosmetic surgery more frequently than individuals in the general population, although the base rates for these data were low and should be interpreted with caution. Finally, our participants with BDD reported lower income, lower rates of having a partner, and higher unemployment rates than participants without BDD. A similar socioeconomic and demographic pattern has also been described for patients with other psychiatric disorders, e.g. depression or panic (Rief *et al*. 2004).

A major goal of this study was to establish base rates for the DSM criteria and to stimulate discussion on how to classify individuals with BDD. Currently, BDD is classified as a somatoform disorder, although the empirical evidence for this grouping is weak. Gunstad & Phillips (2003) report only slightly increased rates for somatoform disorders in individuals with BDD seeking medical treatment, while Altamura *et al*. (2001) found 50% co-morbidity of BDD with somatoform disorders. In our study, we confirmed increased rates of somatoform symptoms in individuals with BDD. Nevertheless, somatoform symptoms are a typical co-morbid problem in most psychiatric disorders, such as depression and panic disorder (Rief *et al*. 1996). Co-morbidity with somatoform symptoms seems to be highly correlated with the severity of disorders. Thus, the association of BDD and somatoform symptoms confirms our case definition of BDD but should not be overinterpreted. On the other hand, the literature on similarities between OCD and BDD, as well as increased rates of OCD-related disorders in BDD, is overwhelming (e.g Brawman-Mintzer *et al*. 1995; Veale *et al*. 1996; Bienvenu *et al*. 2000; Altamura *et al*. 2001). Indeed, OCD samples also exhibit increased rates for BDD (Simeon *et al*. 1995). As the base rate for OCD is much lower than the base rates for single somatoform symptoms, an overlap with OCD indicates a more compelling result than an overlap with somatoform symptoms.

A prevalence rate for BDD of 1·7%, as found in this study, is substantial and helps to estimate the treatment needs for these individuals. As most of these individuals feel disabled and many suffer from suicidal ideation, health care providers should screen for BDD symptoms more frequently and treatment should be provided more systematically. Recently, researchers have begun to examine pharmacological and psychological treatments for BDD (Rosen *et al*. 1995; Hollander *et al*. 1999; Wilhelm *et al*. 1999; Phillips *et al*. 2002). The treatments should be offered more widely, and their availability should be brought to the attention of the general public.

To date, there is no clear evidence to determine which definition of BDD is the best. Our selection of classification rules were very close to the DSM-IV criteria, seem to face validity challenges, and therefore carry the strength and limitations of the DSM-IV criteria. However, the DSM criteria do not reflect empirically validated, naturally occurring, and distinct prototypes, but define sometimes arbitrary dichotomies (Kendler & Gardner, 1998). As our case definition requested some insight that the perceived physical defect is imagined, our base rates might underestimate the prevalence, as many patients with BDD and poor insight are not classified. This would be in line with an underestimation of morbidity (suicidality, somatization, etc.), as BDD patients with poor insight or delusional subtype have increased morbidity rates. This fact could also explain in part why some subjects of the non-BDD group report cosmetic surgery (2·8%), suicidal ideation or suicide attempts because of concerns about the physical appearance (see Table 4); while the rates for these features are substantially higher in the BDD group, these features are still prevalent in the non-BDD group.

Moreover, we used self-rating scales, while structured interviews are still considered to be the gold standard of classification for psychiatric problems. On the other hand, individuals with BDD tend to be very ashamed of their symptoms, and thus are rather secretive. Therefore, in the case of BDD, it is possible that some individuals might be more comfortable acknowledging their symptoms in self-rating

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scales than in a personal interview. In fact, despite using a structured interview for more than 1000 GP office attendees, the study of DeWaal and others (2004) focusing on somatoform disorders did not find any individual with BDD. This is most likely an underestimation of the rate of BDD and may point to a problem with using standardized interview techniques for the identification of BDD. Computer-assisted assessment strategies might also be an option, with less hesitation in reporting these symptoms. Therefore the question of which methods best classify individuals with BDD needs to be further investigated.

Another shortcoming of this study is the lack of study results regarding co-morbid psychiatric disorders. Therefore, we cannot conclude whether our participants have only BDD or have BDD in combination with other psychiatric disorders. It is likely that many of our individuals with BDD had co-morbid depression or OCD. Moreover, the separation of BDD and eating disorders is still, at times, problematic. An exclusion criterion for BDD in our study was the existence of body concerns primarily focused on bodyweight. This can be considered very restrictive, as it led to the exclusion of more than 50% of women who were preoccupied with the feeling of having ugly body parts. It is likely that many men and women who are concerned about their weight would be dissatisfied with additional body parts. In developed countries, many people are overweight and/or have weight concerns, but this should not be associated with an exclusion of the diagnosis BDD. However, this criterion could lead to underdiagnosing BDD in patients with eating disorders or weight concerns, if interpreted too restrictively. So far, no clear rules exist as to when body concerns should be classified as pure byproducts of eating disorders and weight concerns. The overlap and co-morbidity of eating disorders and BDD therefore need further examination.

Finally, cultural and ethnic influences might determine prevalence rates. Our sample mainly consisted of European Caucasians, and therefore generalizations to societies with more African-Americans, more Hispanics, and more Asian members (as in the USA) may be inappropriate. On the other hand, BDD-associated disorders such as OCD show comparable prevalence rates across countries (Horwath & Weissman, 2000), with low cultural influences on prevalence rates. This could also imply that cultural influences may also have less importance on BDD. It might be that the body part of concern is culturally influenced, but not the actual prevalence rate of BDD. These questions need to be addressed in future studies.

CONCLUSION

To our knowledge, this is the largest study on prevalence rates for symptoms of BDD in the general population to date. The base rate of 1·7% and the confidence intervals of 1·2–2·1% are consequently the most stable ones to date and can be used for discussions on classification approaches and treatment needs. BDD is associated with increased suicidality and somatization scores. Nevertheless, it remains understudied compared with other types of mental health problems.

DECLARATION OF INTEREST

None.

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https://doi.org/10.1017/S0033291706007264 Published online by Cambridge University Press