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Updates on the prevalence of body dysmorphic disorder: A population-based survey

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ABSTRACT

Body dysmorphic disorder (BDD) is characterised by a preoccupation with perceived defects in one's appearance, which leads to significant distress and/or impairment. Although several studies have investigated the prevalence of BDD, many studies have methodological limitations (e.g., small sample sizes and student populations), and studies on the prevalence of BDD in the general population are limited. In the current study, 2510 individuals participated in a representative German nationwide survey. Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) criteria for BDD and associated characteristics such as suicidality and the prevalence of plastic surgeries were examined using self-report questionnaires. The prevalence of current BDD was 1.8% ($N=45$). Further, individuals with BDD, relative to individuals without BDD, reported significantly more often a history of cosmetic surgery (15.6% vs. 3.0%), higher rates of suicidal ideation (31.0% vs. 3.5%) and suicide attempts due to appearance concerns (22.2% vs. 2.1%). The current findings are consistent with previous findings, indicating that self-reported BDD is a common disorder associated with significant morbidity.

1. Introduction

Individuals with body dysmorphic disorder (BDD) are distressed about perceived flaws in their physical appearance, commonly in their face (e.g., wrinkles, size or shape of the nose or ears; American Psychiatric Association [APA], 2000). Although these "defects" are usually not noticeable to others, individuals with BDD misperceive their body part (s) of concern as unattractive and repulsive and often spend several hours per day worrying about their appearance. They frequently engage in time-consuming repetitive behaviours such as comparing, mirror checking, camouflaging, excessive grooming or reassurance seeking (e.g., Phillips et al., 1993; Phillips, 1991). Further, BDD is associated with significant morbidity, including social or occupational impairment, being house-bound, hospitalisation and suicide attempts (e.g., Phillips and Menard, 2006; Phillips et al., 1993).

Despite increased awareness of BDD in the last decade, it is a relatively unknown and under-studied disorder. Although some studies have examined the prevalence of BDD, the obtained rates vary widely, which may be due to methodological differences and limitations (e.g., nonrepresentative populations and small sample sizes). Studies examining prevalence rates in student populations, in which higher base rates might be expected, have obtained prevalence rates of self-reported BDD ranging from 5% (Cansever et al., 2003, $N=420$ female nursing school students; Bohne et al., 2002, $N=133$ psychology students;) to 13% (Biby, 1998, $N=102$ psychology students). A few studies examined the prevalence of BDD using structured clinical interviews (Otto et al., 2001; Bienvenu et al., 2000; Faravelli et al., 1997). Specifically, Otto et al. (2001) reported a BDD prevalence rate of 0.7% in a sample of 658 nondepressed and 318 depressed women between 36 and 44 years of age. Faravelli and colleagues examined the prevalence of BDD in 637 subjects from the general population of Tuscany (Italy) and also obtained a prevalence of 0.7% (Faravelli et al., 1997). In addition, Bienvenu et al. (2000) found a BDD prevalence of 3% in a small community sample ($N=73$). Taken together, these results suggest that BDD prevalence rates vary significantly depending on the subject population, sample size and assessment methods.

To our knowledge, only two studies have been conducted on the prevalence of BDD using a representative sample ($N>2,000$) of the general population. Rief et al. (2006) conducted a survey study in 2004 with 2552 participants selected by an independent agency that divided Germany into 258 sample point regions (the sample point regions were derived from representative data of the last federal elections). The prevalence of current BDD was 1.7% ($N=42$). Moreover, consistent with previous research emphasising the morbidity associated with BDD (e.g., Phillips and Menard, 2006), individuals with BDD reported significantly higher rates of appearance-related suicidal ideation (19% vs. 3%) and suicide attempts (7% vs. 1%) than did individuals without BDD. Individuals with BDD also reported significantly higher rates of cosmetic surgeries than did those

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Table 1
DSM-IV criteria for body dysmorphic disorder.

DSM-IV inclusion rules	Description of DSM-IV criteria (DSM-IV TR)	Item
Agreement to DSM-IV A criterion	Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.	Do you think you have one or more unattractive or disfiguring defects in your appearance, although other people do not share your opinion or believe your concern to be markedly exaggerated? Do you think about your appearance concerns for at least one hour a day?
Either agreement to DSM-IV B1 criterion…	The preoccupation causes clinically significant distress …	If yes, is this defect very distressing to you?
… or agreement to DSM B2 criterion	… 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 job or social life)?
Disagreement to DSM-IV C criterion	The preoccupation is not better accounted for by another mental disorder (e.g., dissatisfaction with body shape and size in anorexia nervosa)	a. Are you primarily concerned about not being thin enough or becoming too fat? b. In the last 3 months, have you often restrained from eating for 24 h or longer? c. In the last 3 months, have you often made yourself vomit after eating something? d. In the last 3 months, have you often taken more than twice the recommended amount of diuretics?

Notes. If the individual was primarily concerned with his/her weight (Criterion C, item a), questions b–d had to be answered with "no". It should be noted that the exclusion of primary weight concerns could have led to an underestimation of the BDD prevalence.

without BDD (7.2% vs. 2.8%). In addition, 27% of males and 41% of females without BDD reported being preoccupied with the appearance of at least one body part (though not meeting Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV) criteria for BDD), suggesting that body dissatisfaction is a common phenomenon in the general population (Rief et al., 2006). Further, Koran et al. (2008) conducted a national household telephone survey in 2004 with 2513 participants, of whom 2048 participants qualified for a more detailed BDD screening, based on their initial responses. They obtained an estimated point prevalence of 2.4% ($N=49$), which is comparable to the one obtained by Rief et al., further stressing that BDD is a common psychiatric disorder.

In the absence of large replication studies, the stability of previous findings remains unknown. Hence, in the current study, we sought to replicate previous findings (Koran et al., 2008; Rief et al., 2006) using another large, representative, nation-wide community sample. Specifically, we investigated the prevalence of BDD, associated features of BDD, such as suicidality or a history of cosmetic surgery, and rates of preoccupation with single body parts in the general population.

2. Materials and methods

2.1. Subjects

The sample consisted of 2510 participants from the general German population (51.6% females), ranging from 14 to 93 years of age (mean 46.9; S.D. 18.4). Approximately 57.8% were married, 0.8% were separated, 26% were single, 7.5% were divorced and 7.9% were widowed.

2.2. Subject selection

As in our previous study (Rief et al., 2006), an independent agency (USUMA, Berlin) divided Germany into 258 sample point regions, which were derived from representative data from the last federal elections. The selection process included the following steps: First, one of the sample point regions was randomly selected. Then, an address was selected following a random route procedure, and one of the household members of this address was selected by chance ("Sweden procedure"). The study staff then made three attempts to contact the selected household member at their address (face-to-face). Subjects had to be 14 years of age or older to be included in this selection process. The data collection took place between May and June 2007. Initially, 4205 individuals were contacted according to the procedure described above, and 61.9% of those initially contacted participated in this survey. Of the 38.1% targeted individuals who did not participate, 9.7% were not included because after three consecutive attempts, we were still unable to reach any member of their selected household, 3.9% of the targets were not included because we were unable to reach them after three consecutive attempts, 13.8% were not included because the household refused participation and 8.6% were not included because they themselves refused participation. The success and refusal rates are very similar to the ones obtained in previous national health surveys in Germany (e.g., Rief et al., 2001, 2006).

2.3. Procedure

The study protocol was approved by the institutional review committee at the German Psychological Association. All participants were tested individually (face to face). Each participant signed an informed consent sheet after the study procedure had been fully explained (in the case of minors, informed consent was additionally obtained from the parents). Afterwards, participants completed the following self-report scales: a) questionnaire assessing DSM criteria for current BDD (see Table 1), and b) a questionnaire assessing clinical characteristics of BDD, such as body parts of concern (e.g., hair, skin, nose and mouth), history of cosmetic surgeries and suicidality due to appearance concerns.

2.4. Statistical analyses

The data were analysed using Bonferroni-corrected two-tailed *t*-tests and chi square tests. Base rates for the BDD were assessed according to DSM-IV criteria (Table 2). Moreover, to exclude individuals with possible eating disorders (criterion C), we excluded individuals who reported both their body weight as the main focus of concern as well as having one of the following symptoms in the past 3 months: repeatedly fasting for at least 24 h, repeatedly making oneself vomit after eating meals or repeatedly taking more than twice the recommended amount of diuretics.[1]

3. Results

3.1. Appearance concerns in the general population

Overall, 35.3% of the general German population (26.7% males, 42.2% females) reported being concerned about at least one body part. Body parts of concern differed between men and women (Table 3). Specifically, relative to men, women were significantly more often dissatisfied with their breasts, hands, hips/buttocks, legs, skin, stomach and weight, whereas men were slightly more often dissatisfied with their overall muscle build, although it failed to reach statistical significance.

Base rates for DSM-IV BDD criteria are presented in Table 2. The presence of criterion A preoccupation with an imagined or slight body flaw was significantly higher in females than males. Specifically, 14.8% of the female general population and 5.3% of the male general population reported (a) having one or more unattractive body parts, despite acknowledging that their "flaws" were likely not perceived as such by others, as well as (b) thinking about their perceived flaws for at least 1 hour per day. It should be noted that in order to be included in the BDD group, individuals had to have some appearance concerns other than weight. When taking all DSM criteria into account, the prevalence for current BDD was 1.8% ($N=45$), with slightly higher rates for females (2.0%, $N=28$) than for males (1.5%, $N=17$).

[1] We acknowledge that a more detailed assessment is needed for a differential diagnosis of an eating disorder. It should be noted though that the focus of this study was to assess the prevalence of BDD and that the additional screening questions for eating disorder symptoms were only used for the purpose of not misdiagnosing individuals with eating disorders as having BDD. It should be noted though that the exclusion of primary weight concerns could have led to an underestimation of the BDD prevalence.