

High Prevalence of Body Dysmorphic Disorder and Moderate to Severe Appearance-Related Obsessive–Compulsive Symptoms Among Rhinoplasty Candidates



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Abstract

Background Rhinoplasty is one of the most sought-after procedures in plastic surgery by individuals with body dysmorphic disorder (BDD). The identification of BDD symptoms is a challenge for plastic surgeons. The purpose of this study was to use a specific instrument for detection of BDD symptoms as a screening tool in rhinoplasty candidates and estimate the prevalence and severity of BDD symptoms in this population.

Methods Eighty patients of both sexes seeking rhinoplasty were consecutively recruited at a plastic surgery outpatient clinic of a university hospital from February 2014 to March 2015. In a clinical interview, 50 of them showed an excessive preoccupation with physical appearance associated with clinically significant subjective distress and were, therefore, selected to participate in the study. All participants were assessed using the Brazilian-Portuguese versions of the Yale-Brown Obsessive Compulsive Scale modified for BDD (BDD-YBOCS) and the Body Dysmorphic Symptoms Scale (BDSS), which can be applied by plastic surgeons, who are laypersons in psychology/psychiatry.

Results Twenty-four (48%, 24/50) candidates had BDD symptoms, and 27 (54%, 27/50) showed moderate to severe appearance-related obsessive–compulsive symptoms. A strong correlation was found between the BDSS and BDD-YBOCS scores ($r = 0.841$, $P < 0.001$), and a strong agreement was observed between the BDSS cutoff point and body dysmorphic disorder symptom status ($\kappa = 0.822$).

Conclusions A high prevalence of BDD and moderate to severe appearance-related obsessive–compulsive symptoms was found among aesthetic rhinoplasty candidates. The BDSS may be used as a screening tool for BDD symptoms in plastic surgery patients.

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Keywords Body dysmorphic disorders · Body image · Plastic surgery · Rhinoplasty

Introduction

Rhinoplasty is one of the most sought-after aesthetic surgeries. Rhinoplasty is often sought by young people between 13 and 34 years [1–3]. Typical candidates include people with ethnic noses, adolescents, and individuals with body dysmorphic disorder (BDD) [1–8], showing the social aspect of this surgical procedure [3, 4, 6, 7, 9–11].

BDD is a psychiatric condition related to dissatisfaction with body image and associated with cosmetic surgery, indicating the existence of an interface between this surgical specialty and psychiatry [1, 2]. The identification of

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BDD symptoms is a challenge for plastic surgeons. BDD is underdiagnosed and remains relatively unknown to mental health professionals [2, 12]. The perception of the problem is inaccurate, considering that the dissatisfaction with appearance is a product of mental processes, but the defect is perceived on the body, with the result that these patients frequently seek physical interventions and refuse referral to psychiatric or psychological treatment [1].

The main characteristic of BDD is a negative emotional response toward the visual perception of body parts, which the individual perceives as deformed. A very poor body image is a major factor in BDD that may affect patient satisfaction with the results of aesthetic surgery. These patients seek perfection and their construction of thoughts and behavior are based on perfectionism. This explains their preoccupation and excessive distress with imperfections in appearance. BDD patients often show a need to belong to or identify with a cultural group [12]. Some individuals are not concerned about the defect itself, but with one or more features that are not perfect, correct, symmetrical, or harmonious to their body and personality [13]. Symmetry is one of the perceptual processes that may contribute to the aesthetic sensibility, which may be a risk factor for the development or maintenance of BDD [14]. Thus, the careful screening of candidates for cosmetic procedures is very important to identify those with BDD symptoms.

The purpose of this study was to use a specific instrument for detection of BDD symptoms as a screening tool in rhinoplasty candidates and estimate the prevalence and severity of BDD symptoms in this population.

Patients and Methods

The study was approved by the Institutional Research Ethics Committee and performed in accordance with the Brazilian Ethical Review System on research involving human beings; it also conforms to the 1964 Declaration of Helsinki and subsequent amendments. Written informed consent was obtained from all patients and parents or legal representatives after the procedures had been fully explained and prior to their inclusion in the study; anonymity was assured. The study was conducted between February 2014 and March 2015.

A total of 80 patients of both sexes seeking rhinoplasty were consecutively recruited from a plastic surgery outpatient clinic of a university hospital in São Paulo (Brazil). In a clinical assessment with an experienced psychologist, 50 of them showed an excessive preoccupation with physical appearance associated with clinically significant subjective distress and were, therefore, selected for the study. During the clinical interview, these patients reported

low insight, exaggerating the extent of the perceived defect, self-consciousness, comparing self to other people's appearance, checking behavior, and avoidance of public, social, and emotional situations.

Patients unable to understand the interview questions and those with severe physical deformities as a result of tumors and other conditions, psychotic disorders, or who had undergone psychiatric or psychological treatment were not included in the study.

A psychologist then applied the Brazilian-Portuguese versions of the Yale-Brown Obsessive Compulsive Scale modified for Body Dysmorphic Disorder (BDD-YBOCS) [15] and the Body Dysmorphic Symptoms Scale (BDSS) [16], both of which have been validated in population samples of cosmetic surgery patients in previous studies [15, 16].

The BDD-YBOCS measures the degree of patient dissatisfaction with a given physical feature and severity of BDD symptoms [15, 17]. The total score is calculated as the sum of ratings for the 12 items, for a maximum score of 48, with higher scores indicating more severe symptoms of BDD [15, 17]. The BDD-YBOCS cutoff score of 19 is associated with a sensitivity of 0.865 and specificity of 0.731 [15].

The BDSS is a simple, rapid, and objective ten-item self-report measure assessing psychopathological symptoms of BDD in people with excessive concerns and anxiety about physical appearance, who seek plastic surgery [16, 18]. Each item is answered “yes” or “no.” The total score is the sum of positive responses for the ten items [16, 18]. Scores 6 and above indicate the presence of psychopathological symptoms associated with dissatisfaction with body image and BDD symptoms. The BDSS cutoff score of 6 is associated with a sensitivity of 1.0 and a specificity of 0.86 [16]. Mühlbauer et al. [19] proposed a modification of the original scale [18] regarding unrealistic expectations addressed in item 6. The BDSS can be applied by plastic surgeons, who are laypersons in psychology/psychiatry [19].

Statistical Analysis

Demographic and clinical characteristics of the patients were evaluated by descriptive analysis. Measures of central tendency [mean, standard deviation (SD), and minimum and maximum values] were used to describe numeric variables. Categorical variables were summarized as absolute and relative frequencies.

Student's *t* test for independent samples was performed to compare mean BDSS scores between patients with and without BDD symptoms.

Pearson's correlation coefficient (*r*) and the kappa coefficient were used to determine the strength of the

correlations between the BDSS and BDD-YBOCS, and between BDSS cutoff point and BDD symptom status (presence or absence of symptoms).

The Statistical Package for the Social Sciences (SPSS) 20.0 for Windows (SPSS Inc., Chicago, IL, USA) and Stata 12 (StataCorp, College Station, Texas, USA) were used for data analysis. All statistical tests were performed at a significance level α of 5% ($P < 0.05$). Data are expressed as mean \pm standard deviation (SD).

Results

Eighty patients who sought rhinoplasty in the participating institution were consecutively recruited and assessed by an experienced psychologist. Fifty of them showed moderate to excessive preoccupation with physical appearance associated with clinically significant subjective distress and were selected for the study. No patient declined participation.

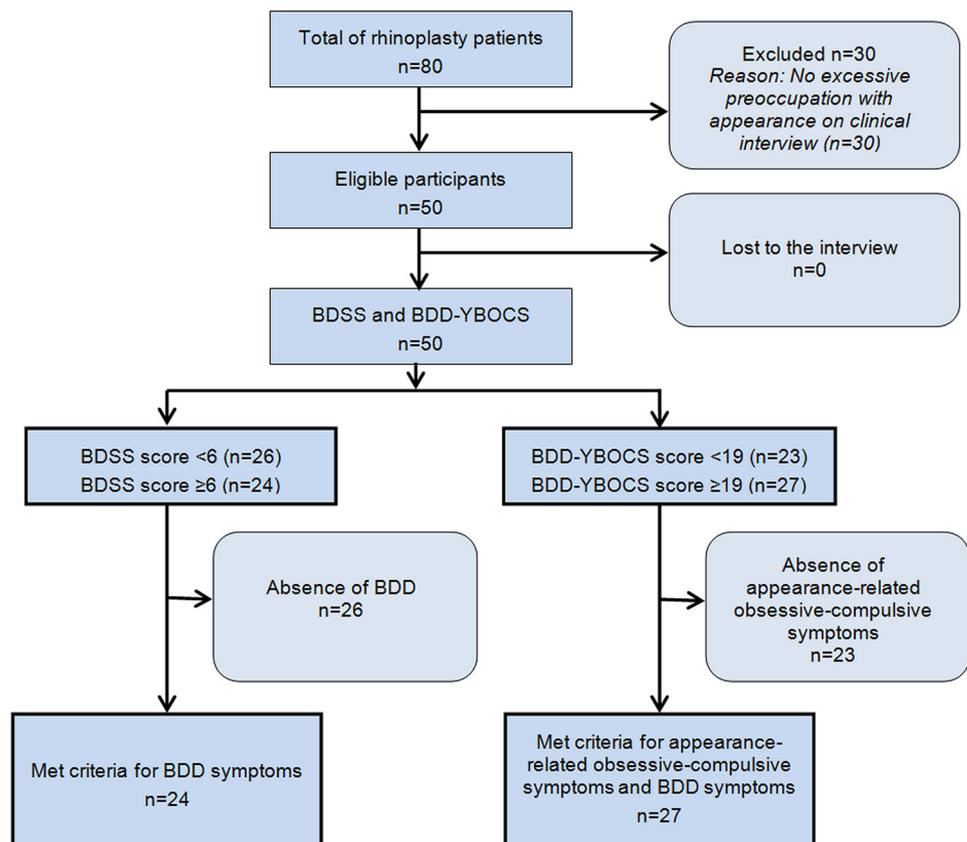
Twenty-four (48%, 24/50) patients met diagnostic criteria for BDD, according to the BDSS; and 27 (54%, 27/50) showed moderate to severe appearance-related obsessive–compulsive symptoms, based on the BDD-YBOCS (Fig. 1).

Most patients were women (78%, $n = 39$), Caucasians (70%, $n = 35$), single (62%, $n = 31$), the mean age was 32.3 ± 11 years (range 16–64 years), 54% ($n = 27$) had complete high school education, and 48% ($n = 24$) were semi-skilled workers. Eighty percent ($n = 40$) of patients reported that they began to experience body dissatisfaction in childhood and adolescence, and 56% ($n = 28$) used to spend three or more hours daily concerned about their physical appearance.

Patients with BDD symptoms reported higher BDSS scores than those without symptoms ($P < 0.001$), as shown in Fig. 2, revealing that the BDSS discriminates between groups of patients with and without the disorder.

A strong agreement was observed between the BDSS cutoff point of 6 and BDD symptom status (kappa = 0.822). There was also a strong agreement (kappa = 0.8721) between the cutoff points of the BDSS (cutoff point = 6) and BDD-YBOCS (cutoff point = 19). A strong positive correlation was found between the BDSS and BDD-YBOCS ($r = 0.841$, $P < 0.001$).

Fig. 1 STARD diagram to report the flow of participants through the study



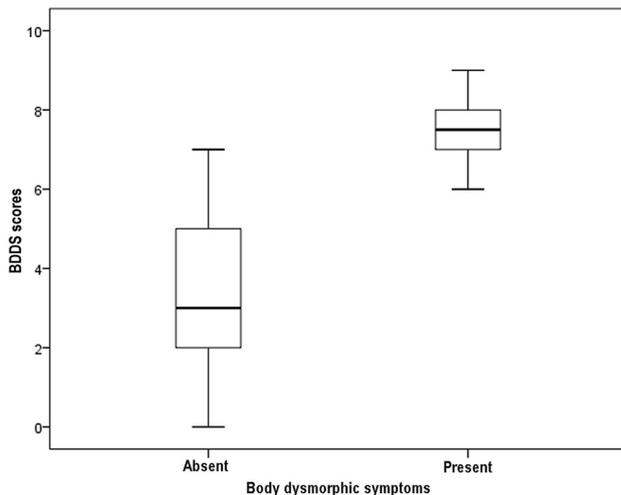


Fig. 2 Distribution of patients with and without BDD symptoms, according to the BDSS

Discussion

Our results showed a prevalence of BDD symptoms of 48% (based on the BDSS) and a prevalence of moderate to severe appearance-related obsessive–compulsive symptoms of 54% (according to the BDD-YBOCS) among rhinoplasty candidates. This result may suggest that BDD symptoms belong to the spectrum of obsessive–compulsive disorders, in agreement with the current version of DSM [20], and indicates the different levels of symptom severity and global functioning of patients. It also revealed cognitive aspects that may be expressed in perfectionist behaviors among individuals with BDD who seek rhinoplasty. In the same way, Picavet et al. [10] identified moderate to severe appearance-related obsessive–compulsive symptoms in 33% of patients seeking rhinoplasty, also using the BDD-YBOCS. The high prevalence of BDD symptoms is similar to those of recent studies on plastic surgery [12, 21], revealing that this population is often identified by plastic surgeons [22, 23].

However, BDD is not an exclusion criterion for a plastic surgery procedure [24] and patients with mild to moderate BDD can benefit from rhinoplasty [1]. During the screening of candidates, the plastic surgeon should pay attention to the presence of behaviors that, due to their frequency, intensity, and consumed time, may lead to considerable subjective distress and decline in affective, social, and occupational activities, dramatically affecting the overall functioning of the patient. These behaviors include comparisons of his or her appearance or personality with that of others, looking into mirrors several times a day or for several hours in a single moment, or avoidance of mirrors, social isolation, seeking many medical consultations in general or for aesthetic and surgical procedures to reassure

the perceived defect due to agonizing doubts or the constant doubt “Can my appearance be further improved?”, and extreme difficulty in exposing the body or parts of the body [2]. BDD may lead to avoidance of work, school, recreational activities, or other public situations [2]. Patients, whose behaviors show their inability to engage in everyday life, should be referred to mental health treatment, and, after treatment, they may be reassessed for BDD severity and referred to cosmetic and surgical treatments if their condition has improved [1, 2].

Eighty percent of patients began to experience body dissatisfaction in childhood and adolescence, revealing the importance of the early detection of BDD and referral of this population to adequate treatment. It was also observed that 56% of patients spent three or more hours daily with appearance-related concerns and behaviors, showing increased subjective distress.

The mean age (32.3 ± 11 years) of the participants at the time of the interview was not associated with the onset of BDD symptoms, which is consistent with previous studies [1–3, 10, 15–18, 24]. Most patients were women and Caucasians, in agreement with estimates in the literature [1, 2, 4, 20, 22–24].

The BDSS is a specific instrument that measures psychopathological aspects of BDD symptoms [16–18]. It is a short and easy-to-administer scale that captures specific information about BDD symptoms in patients seeking aesthetic and surgical procedures. The psychometric properties of BDSS were first tested in this population [16]. The cutoff score of 6 was associated with a sensitivity of 1.0 and specificity of 0.86, showing that the BDSS is a specific instrument for detecting BDD symptoms and that it can be used in the screening of candidates for rhinoplasty [16]. The strong correlation between BDSS and BDD-YBOCS ($r = 0.841$, $P < 0.001$) reflects the relationship between the variables of both instruments. In addition, the strong agreement between the BDSS cutoff point and BDD symptom status and that between the cutoff points of the BDSS and BDD-YBOCS indicate that both instruments are specific to detect the disorder and severity of symptoms among patients seeking rhinoplasty. To the best of our knowledge, this is the first study to correlate a specific instrument developed for screening BDD symptoms in plastic surgery candidates with a BDD assessment instrument commonly used in mental health.

The BDD-YBOCS measures the degree of patient dissatisfaction with a given physical feature and the severity of BDD symptoms [15]. However, the BDD-YBOCS is a longer and more complex tool to be applied by professionals who do not have much background on mental health, as compared to the BDSS.

In this study, two instruments were applied in patients with BDD. The results showed the importance of BDD

screening and indicated that the BDSS is a reliable instrument in the screening of BDD in plastic surgery.

The systematic application of instruments such as the Brazilian version of the BDSS in the pre- and postoperative periods to assess the level of distress with the physical appearance in plastic surgery patients, as well as the assessment of patient satisfaction with the results of surgery, will provide relevant data in the medium and long term for the development of more sensitive instruments for detection of severe levels of BDD symptoms to help plastic surgeons in the selection of patients in a more effective and practical manner.

The limitations of this study include the small sample size and the fact that most patients were women. Another study with a larger number of patients and involving multiple centers is underway to extend our results.

Conclusion

The prevalence of BDD and moderate to severe appearance-related obsessive–compulsive symptoms was high among aesthetic rhinoplasty candidates. Body image dissatisfaction is a major factor in BDD that may affect patient satisfaction with the results of aesthetic surgical procedures. Thus, the screening and detection of BDD in the selection of candidates for rhinoplasty are important, so that care and treatment strategies can be better targeted. The BDSS, which may be applied by plastic surgeons, allows a simple and rapid collection of data during screening of plastic surgery candidates. The Brazilian version of the BDSS has the potential to optimize data acquisition not only by psychologists/psychiatrists but also by plastic surgeons, contributing to the development of more sensitive, effective, and practical screening instruments for detection of severe levels of BDD symptoms to help plastic surgeons in the selection of patients.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments. The study was approved by the Institutional Research Ethics Committee and performed in accordance with the Brazilian Ethical Review System on research involving human beings

Informed Consent Written informed consent was obtained from all patients and parents or legal representatives after the procedures had been fully explained and prior to their inclusion in the study; anonymity was assured.

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