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Assessing Body Dysmorphic Disorder Prevalence among Patients Seeking Cosmetic Dermatology Procedures in a Tertiary Care Hospital

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Abstract

Introduction: Body Dysmorphic Disorder (BDD) is a psychiatric condition, with the primary symptom being an impairing preoccupation with a non-existent or slight defect in appearance, leading to seeking multiple cosmetic procedures. It is often difficult to diagnose, causing a lot of suffering, and is more prevalent in dermatology patients. There are few reports on the prevalence of BDD in the Indian population.

Objectives: To determine the prevalence of BDD among patients seeking cosmetic dermatologic procedures, to analyse the relationship between dermatological and sociodemographic variables and possible cases of BDD, and to provide data on the phenomenology of compulsive behaviours associated with BDD.

Materials and Methods: A total of 150 patients seeking cosmetic procedures in Shimoga Institute of Medical Sciences, Shivamogga were included in the study. Body Dysmorphic Disorder Questionnaire- Dermatology Version was used to screen the possible cases of BDD.

Results: In our sample, we obtained a prevalence for BDD of 11.3% (95% CI: 6.05% -16.61%). The median age in the BDD group was 28 (26,33) which was slightly lower compared to the non-BDD group. 70.6% of BDD patients were females. 76.5% of BDD patients had a history of previous treatments. This was high compared to non BDD group and is statistically significant. 47.1% of BDD patients had facial pigmentation as their primary concern. The most frequent compulsive behaviour in BDD patients was in comparison with others (47.1%).

Conclusion: BDD is relatively common in a dermatologic setting, especially among patients seeking cosmetic treatments. Dermatologists should be aware of its clinical characteristic of BDD to avoid unnecessary procedures and refer these patients to mental health professionals.

Keywords: Body Dysmorphic Disorder; Body dysmorphic disorder questionnaire- dermatology version; Cosmetic procedures; Facial pigmentation; Mental health

Introduction

Body dysmorphic disorder (BDD) is a distressing and impairing preoccupation with a slight or imagined defect in appearance.[1] The Diagnostic and Statistical Manual of Mental Disorders (DSM-4) defines BDD according to the following three criteria: 1) the patient is preoccupied with an imagined defect in appearance; if a slight physical anomaly is present, the concern is markedly excessive; 2) the concern causes clinically significant distress or impairment in functioning; and 3) the appearance preoccupation is not better accounted for by another mental disorder (such as anorexia nervosa).[2]

The prevalence of BDD in the general population is around 2%, among dermatologic patients from 8.5% to 15.0%, and among patients seeking for cosmetic treatments ranges from 2.9% to 53.6%.3,4,5 BDD is usually diagnosed after many years of suffering and often goes unnoticed because patients do not expressly talk about their symptoms.6,7 In

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dermatology clinics, specific questions about BDD are not usually asked and as a consequence, possible cases of BDD may not be detected.7,8 As a result self-report BDD questionnaire was developed and validated by Dufresne et al., grounded on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria.2

Considering that BDD is more prevalent among dermatology patients and to assist dermatologists in screening for possible cases of BDD, the objectives of this study were i) To determine the prevalence of BDD among patients seeking cosmetic dermatologic procedures ii) To analyse the relationship between dermatological and sociodemographic variables and possible cases of BDD iii) To provide data on the phenomenology of compulsive behaviours associated with BDD.

Materials and Methods

A total of 150 consecutive patients aged between 18 and 60 years, seeking cosmetic dermatology treatments, were enrolled from the outpatient dermatology department of a tertiary care centre, SIMS, Shivamogga. The study was conducted over a three months' span, from July 2023 to September 2023. Patients aged below 18 years or above 65 years were excluded from the study. Patients gave written signed informed consent before initiating the study procedures.

Considering the BDD p=10.6% of the subjects in the population having the factor of interest, a population size of 2000 and an expected response rate of 90%, the study would require a sample size of: 147~150 (approx.) for estimating the expected proportion with 5% precision and 95% confidence level. This was according to the study done by S.E Marron et al., where prevalence of BDD was 10.6%. The results were provided by OpenEpi software.

We carried out a prospective cross-sectional study. Patients attended a single medical visit where informed consent was obtained, lesion of concern was assessed, sociodemographic (sex, age, living environment and educational level) and clinical variables (type of lesion, location of the lesions and previous treatments) were collected, and the self-reported screening questionnaire for BDD was administered. They were also enquired about specific behaviours or repetitive mental acts to address their lesion.

The study was approved by the Research Ethics Committee of Shimoga Institute of Medical Sciences, Shivamogga-577201 (SIMS/IEC/8/4/2022-2023). Patients whose scores indicated a possible case of BDD were advised to consult the mental health unit

Body Dysmorphic Disorder Questionnaire – Dermatology Version2

Are you very concerned about the appearance of some part of your body, which you consider especially unattractive? Y N

If no, thank you for your time and attention. You are finished with this questionnaire.

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If yes, do these concerns preoccupy you? That is, you think about them a lot and they're hard to stop thinking about? Y N

What are these concerns? What specifically bothers you about the appearance of these body parts? _____

_____

_____

_____

What effect has your preoccupation with your appearance had on your life? _____

_____

_____

Has your defect often caused you a lot of distress, torment or pain? How much? (circle best answer)

1	2	3	4	5
No distress	Mild, and not too disturbing	Moderate and disturbing but still manageable	Severe, and very disturbing	Extreme, and disabling

Has your defect caused you impairment in social, occupational or other important areas of functioning? How much? (circle best answer)

1	2	3	4	5
No limitation	Mild interference but overall performance not impaired	Moderate, definite interference, but still manageable	Severe, causes substantial impairment	Extreme, incapacitating

Has your defect often significantly interfered with your social life? Y N

If yes, how? _____

_____

Has your defect often significantly interfered with your school work, your job, or your ability to function in your role? Y N

Are there things you avoid because of your defect? Y N

_____

_____

for evaluation and possible treatment. The Body Dysmorphic Disorder Questionnaire (BDDQ)- The presence of BDD was estimated by a self-report BDD questionnaire. In this questionnaire, questions 1 and 2 establish whether preoccupation is present. If the patient acknowledged on the Body Dysmorphic Disorder Questionnaire that they were preoccupied with their appearance, they were then asked about their concerns and the effect of this preoccupation on their life. They were then asked to respond to two additional questions, where they rated the severity of their distress or impairment in functioning caused by their perceived appearance flaw on a scale of 1 to 5. To screen positive for BDD, subjects must fulfill DSM-IV criteria, including preoccupation with a perceived disfigurement in appearance and experiencing at least moderate levels of distress or moderate impairment in their daily functioning. However, they completed several yes/no questions enquired about hindrances in academic, occupational, social, or other pursuits if the perceived disfigurement caused the patient to avoid things.

The alleged spot of main concern was also photographed for categorization, using a 5 point Likert scale (1 = no flaw present, 2 = minimal/ slight flaw present, 3 = flaw present and easily conspicuous within conversational distance, 4 = moderately severe flaw present, and 5 = severe flaw present).

Criteria to screen possible cases of BDD

Patients screened positive for a possible case of BDD if the following two criteria were met:

1. Preoccupation with a perceived defect in appearance and experiencing at least moderate distress or impairment in functioning.
2. Flaw severity rating of 1 or 2, according to clinical judgment

Statistical analysis

Descriptive statistics were analysed using frequencies for qualitative variables. Statistical significance was measured using Chi-Square tests. Quantitative data was not normally distributed; hence, it was expressed as median and interquartile range, and statistical significance was measured using the Mann-Whitney U test. The level of statistical significance was set at 5% and 95% confidence interval (CI). A p-value below 0.05 was considered statistically significant. Data was analyzed using IBM SPSS Statistics software Version 26.

Results

A total of 150 consecutive patients who signed consent to participate were included in the study. Of these, 58 (38.6%) were males, and 92 (61.3%) were females. Of these, 17 screened positive for BDD, according to BDDQ. Therefore, the prevalence of possible cases of BDD was 11.3% (95% CI: 6.05% -16.61%).

The patients were divided into BDD and non-BDD groups. Patients diagnosed with BDD were comparatively younger, with a median age of 28 (26,33) vs 29 (24, 38), than those without BDD. This difference was not statistically significant (P=0.79). Although female predominance was apparent in both groups, there was no gender difference between them (P=0.40). It was observed that 76.5% (13) of BDD patients had completed their secondary education compared to 37.6% (50) of non-BDD patients. This difference was statistically significant (chi- squared test (df=1) =9.352, P =0.002), whereas only 5.9% (1)

Variables (n=150)		BDD		p-value	Total n=150
		Present(n=17)	Absent (n=133)		
		No. (%)			
Gender	Male	05 (29.4)	53(39.8)	0.40	58 (38.6%)
	Female	12 (70.6)	80 (60.2)	0.40	92 (61.3%)
Marital status	Married	11(64.7)	65(48.9)	0.21	76(50.6%)
	Unmarried	6(35.3)	68(51.1)	0.21	74 (49.3%)
Education level	Primary	3 (17.6)	26(19.5)	0.85	29 (19.3%)
	Secondary	13(76.5)	50(37.6)	**0.002**[1]	63 (42%)
	University	1(5.9)	57(42.9)	**0.003**[2]	58 (38.6%)
Environment	Urban	13 (76.5)	87(65.4)	0.36	100 (66.6%)
	Rural	4 (23.5)	46 (34.6)	0.36	50 (33.4%)
History of Previous Treatment	No	4(23.5)	84(63.2)	0.002[3]	88 (58.6%)
	Yes	13(76.5)	49(36.8)	**0.002**	62 (41.3%)
Median Age		28(26,33)	29(24,38)	0.79	

1: (chi- squared test (df=1)= 9.352, p=0.002); 2: (chi- squared test (df=1)=8.689, p=0.003); 3: (chi- squared test (df=1)= 9.352)

Table 1: Clinical and sociodemographic characteristics of patients with and without body dysmorphic disorder (BDD)

of the patient in BDD group were university passed out compared to 42.9% (57) of non-BDD group (chi-squared test (df=1) =8.689, P=0.003). A total of 76.5% (13) of patients who screened positive for BDD had received previous treatment, which was significantly greater than 36.8% (49) of patients in non-BDD group (chi-squared test(df=1) =9.352, P =0.002). All 13 BDD patients expressed dissatisfaction with the outcomes of the previous procedures, whereas only 6 of the 49 non-BDD patients voiced discontent. No significant between-group differences were found in the other sociodemographic parameters. Table 1 shows the sociodemographic variables of patients with and without a possible diagnosis of BDD.

In both groups, lesions were predominantly located on the face. No significant differences occurred between the two groups regarding the types of dermatologic concerns (Table 2). The most frequent dermatologic concern was facial dyschromia (47.1% in BDD group and 36.1% in non-BDD group), including melasma, post inflammatory hyperpigmentation, age spots, frictional melanosis, and periorbital melanosis in both the groups. Other issues prompting patients to seek cosmetic procedures included acne, acne scars, hair loss, hirsutism, traumatic scars, and xanthelasma. These patients requested various procedures, including chemical peeling, laser toning, fractional CO2 laser, platelet-rich plasma therapy or mesotherapy, laser hair reduction, and scar revision surgery.

In the questionnaire, patients were asked whether their preoccupation caused clinically significant discomfort or deterioration in the social, occupational, or other important areas of functioning. We found that 76 % (13) of patients who screened positive for BDD answered yes to this question. Typical clinical pictures of these patients included feeling that many people paid attention to (very mild) defects that made them embarrassed. Four patients reported that there were no effects. The others stated effects such as low self-esteem, absence of work, avoiding friends, leaving the house, wearing particular clothing, or marriage.

The three most frequent compulsive behaviours in patients who screened positive for BDD were comparison with others [47% (8)], reassurance seeking [23.5% (4)], and using makeup in the area of preoccupation [23.5% (4)]. Significant between group differences were observed for comparison and reassurance seeking behaviour but no significant differences in makeup and mirror checking behaviour was observed (Table 3).

Variables (n=150)		BDD		p-value
		Present(n=17)	Absent (n=133)	
		No. (%)		
Type of lesion	Facial pigmentation	8(47.1)	48(36.1)	0.37
	Acne	2 (11.8)	27(20.3)	0.40
	Acne scar	2(11.8)	23 (17.3)	0.56
	Hair loss	4(23.5)	16(12.0)	0.18
	Hirsutism	1(5.9)	5(3.8)	0.67
	Traumatic scar	0	7(5.3)	0.33
	Xanthelasma	0	7(5.3)	0.37

Table 2: Types of dermatologic concerns

Variables (n=150)		BDD		p-value
		Present(n=17)	Absent (n=133)	
		No. (%)		
Compulsive behaviour	Comparison	8(47.1)	24(18.0)	**0.006**[1]
	Makeup	4(23.5)	19(14.3)	0.31
	Reassurance	4(23.5)	69(51.9)	**0.02**[2]
	Mirror checking	1(5.9)	21(15.8)	0.27

1: (chi- squared test (df=1)=7.561, p=0.006); 2: (chi- squared test (df=1)= 4.849, p=0.02)

Table 3: Types of compulsive behaviours

Discussion

In this cross-sectional study, we wanted to evaluate the prevalence of possible cases of BDD in patients seeking cosmetic dermatology procedures in our tertiary care institute. To our knowledge, this is one of the few studies that have investigated the frequency of BDD in an Indian population in cosmetic dermatology

settings. Similar to Western populations, there has been increasing interest in cosmetic procedures among the Indian population over the past decade, and thus, it has become more important to recognize patients with BDD.

We found a prevalence of 11.3% (95% CI: 6.05% -16.61%) of possible cases of BDD in dermatology patients, confirming other reports that locate the prevalence at around 10%. A systematic review by Veale et al.,[9] found a prevalence of 11.3% for dermatological outpatients and 9.2% in cosmetic dermatology patients, while a meta-analysis by Ribeiro10 found a prevalence of 12.6% among dermatology patients. Studies in dermatology such as those by Dogruk et al., (8.6%),[1] Conrado et al., (10.3%),[3] and the study by Vulinik et al., (8.5%),[11] in cosmetic dermatology patients suggest a similar prevalence. Our results were in agreement with the reported data. Many studies have reported that sociocultural differences might profoundly affect body image, which was why we chose to perform this study.[12] The present study was conducted in Shimoga, a small district to the south of Karnataka. Thus the sociocultural differences between Indian and Western populations may account for this slight difference in results. However, a collaboration between psychiatrists, psychologists, and dermatologists may be required for an accurate diagnosis of BDD, as was the case in the study by Conrado et al.[3] Still, it is not easy to convince patients diagnosed with BDD to consult a psychiatrist, especially in our country where the stigma of psychiatric illness is still present.

In our study, sex differences were not significant, although BDD has been considered a female disorder. Former studies have described female:male prevalence rates of BDD ranging from 1:1 to 3:2 in different clinical samples.[13,14,15] The more significant number of female patients in the BDD group is in agreement with previous studies, indicating that women seek cosmetic treatments more frequently than men.[16,17,18] In our study, 76.5% of BDD patients had completed their secondary education in discrepancy to the survey done by Samaa et al., in which the majority of BDD cases had bachelorette or postgraduate degrees (67.6%).[19] This might be due to a lack of awareness among people about the various cosmetic conditions and the right way of addressing them. A large percentage (76.5%) of cases screened positive for BDD had previously received dermatological treatment, indicating a high frequency of topical treatments and procedures. There was a significant difference between the two groups. It is known that non-psychiatric treatment infrequently improves the general symptoms of BDD. Crerand et al.,[20] found that only 3% of non-psychiatric medical treatments received by patients with BDD improved the overall symptoms of BDD and that only 2.3% of surgical or minimally invasive procedures led to long-term improvement in the general symptoms of BDD.[21] Thus, dermatologists should refer patients with BDD for psychiatric treatment and avoid other inefficacious treatments.

We found a higher frequency of facial dyschromia (47.1%) in patients who screened positive for BDD, analogous to the study from Brazil in a cosmetic setting which found that 61.9% of the patients with BDD had concerns about dyschromia, followed by acne.[1] The effect of BDD concerns on life may vary. For instance, people may spend much time constantly reviewing their defects.[22] Others may avoid marriage, as was the case for three patients in the present study, and some may avoid working, as one of our patients did.

In our study, the most frequent repetitive, compulsive behaviour in patients who screened positive for BDD was comparing how they looked with others (47.1%). Our results coincide with those of Phillips et al.[23] The least frequent behaviour was mirror checking (5.9%), which did not match with the results of S.E Marron et al.,[7] and Phillips et al.[23] These patients reported that due to their defect, they were losing their self-confidence and the courage to look into the mirror, as it gave them a feeling of dissatisfaction with their appearance. No significant between-group differences were found concerning make up and mirror checking behaviour.

Patients' illness behaviour is evident in their belief that cosmetic treatment is the solution to their appearance issues, leading them to prefer seeing a surgeon, dermatologist, or dentist over a psychiatrist. They perceive their complaint as physical rather than mental. Also, they often feel too embarrassed and ashamed to report their symptoms directly to clinicians.

Conclusion

BDD is a psychiatric condition that is often significantly disabling in which patients are highly dissatisfied and entirely preoccupied with an imagined or minor defect in their physical appearance. Dermatologists are the physicians most likely to encounter BDD. As minimally invasive cosmetic procedures have become more popular, hospital visits by patients with BDD for such procedures are anticipated to increase. Still the question of whether patients with BDD benefit from these procedures is unanswered. Dermatologists need to be aware of BDD to identify and refer these patients to mental health professionals. Brief, self-reporting tools such as the BDDQ can be used to screen for possible BDD cases, as many patients are not aware of their problem and suffer greatly. We found high levels of distress, avoidance behaviours, and interference in social life in patients who screened positive for BDD. It is, therefore, crucial to avoid delayed diagnoses and performing unnecessary procedures in these patients. On the other hand, similar multicentre studies are needed to reach a definitive conclusion.

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