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Original Research Article

# Evaluation of prevalence of body dysmorphic disorder among patients seeking orthodontic treatment in marathwada population

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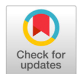


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ABSTRACT

**Objective:** Body Dysmorphic disorder (BDD) is a psychological complaint that has visions concerning faults in overall well-being of an individual for which cases explore different treatment modalities. Cases with BDD commonly consult for cosmetological procedures amongst which orthodontic treatment considered commonly. The study was adopted to assess the occurrence of Body Dysmorphic Disorder in Marathwada population.

**Materials and Methods:** A sample size of 183 patients with different degree of malocclusive traits answered the given the BDD-YBOCS questionnaire form, while the acuteness of malocclusion was assessed with a rating scale.

**Results:** From total of 183 patients No BDD was seen among 58 (31.7%) patients while 116 (63.4%) had mild BDD, 9 (4.9%) reported with moderate BDD and none of the patients had severe Body Dysmorphic Disorder. Significantly higher number of BDD positive patients [98 (78.4%)] as opposed to 15 (29.3%) BDD negative patients were concerned with teeth as compared to face, hair or other body parts with statistically highly significant difference between the groups ($\chi 2$=49.219, p<0.001**).

**Conclusion:** This study concluded that Body Dysmorphic Disorder can be diagnosed with its prevalence being 4.9% in the total sample of 183 patients. Face and Dentition are majorly affected. BDD affected samples in study population were majorly males (63%) and even reported previous history of orthodontic consultations. While treating patients with Body Dysmorphic Disorder Orthodontists should be accustomed to the clinical variations encountered in BDD and should always include certain questions regarding BDD during history taking.

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## 1. Introduction

Lately, there have been a marked elevation in people seeking orthodontic consultations to enhance their physical well-being and quality of life as a number of allied treatment alternatives accessible. Self image plays a pivotal function for patients looking for orthodontic consultations with aesthetic as their main concern. It not only hinders about how a person perceives about their physical well-being but can also lead to subjective fear of ugliness and rejections. Dysmorphophobia, firstly described as "the unforeseen onset and posterior continuity of an idea of a defect; the individualized fright he has come, or may come, deformed and feels enormous apprehension of such an awareness."[1] Coined by Enrico Morselli as dysmorphophobia in 18661. It is explained as "an obsession with imaginary disfigurement

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in physical well-being or a huge magnification of a slight bodily deformity."[2]

Following criteria must be fulfilled for a diagnosis of Body Dysmorphic Disorder.[2]

1. Subject is distraited concerning a disfigurement in physical well-being. Either the disfigurement is fictitious or, if there's a defect, the subject's concern is mindfully exaggerated.
2. The distrait causes notable disturbance in professional, occupational, social, and other important areas of operation.
3. The said criteria is not better accounted for by another psycological disorder—example, anorexia nervosa.

According to Diagnostic and Statistical Manual of Mental Disorders -53, Body Dysmorphic Disorder is presently considered directly under Obsessive-Compulsive disorders. It requires the existence of reiterative behaviour or mental acts in response to physical well-being. Body Dysmorphic Disorder was earlier regarded as a somatoform defect in which the affected individual was predominantly concerned about his or her aesthetic concern and preoccupied by a self perceived defect in his or her body image. It is presently defined as an compulsive-obsessive-affiliated complaint as there's a chronic fear of disfigurement in some corridor of the body but no physically present disfigurement is noticed by others or, if any, is allowed to be slight.[3]

The prevalence of Body Dysmorphic Disorder is unpredictable. Underdiagnosis and nonrepresentation are likely because the patients are hesistant about their signs and do not always perceive consultations about the same. But, it is computed that up to 1% of the population in the United States suffers from BDD.[4]BDD is also correlated with professional and social embarrassment and suicidal possibilties. Body Dysmorphic Disorder is not considerably calculated studied condition among Asian populations, and only a little literature exist about its prevalence among the Indian population.

The face and the head are considered to be one of the most crucial and critical part of the human body among affected BDD patients which may include minute deformities that can include acne, scars, orofacial swellings, markings, asymmetrical face or disproportionate face or defects in the hair.[5] Orthognathic surgeries, bleaching, and brackets(orthodontic treatment) are one of the crucial concerns for Body Dysmorphic Disorder patients to visit their doctors. Orthodontic considerations are usually excessive overjet(proclination), crowding, rotations and spacing.[5,6]

Patients often seek cosmetic surgeries for their Body Dysmorphic Disorder and yet are not wholly contented with the treatment because of the underlying psychological reasons. Most of the Body Dysmorphic Disorder patients who undertake dental appointments are not truly satisfied with ant treatment protocols that they receive and are several seen seeking different dentist or the orthodontists with the same criteria of concern always. The expectations of the patients and their individual psychological assessment is pivotal and therefore a crucial part of the overall assessment. This helps the fraternity to evaluate the potential risk factors at an early stage before initiating the treatment.[7,8] Hence, the objective of the study is to assess and screen the people with Body Dysmorphic Disorder and to screen the people seeking orthodontic treatment and not seeking orthodontic treatment.

## 2. Aim

The purpose of the present study is to comparatively evaluate the prevalence of body dysmorphic disorder among patients seeking orthodontic treatment in Marathwada population.

## 3. Objective

Objectives of the study are,

1. To identify the patients having BDD, and to grade them between mild, moderate and severe Body Dysmorphic Disorder.
2. To evaluate the ratio of males and females affected by BDD.

## 4. Materials and Methods

A Cross-sectional, Comparative study was undertaken among 183 participants that is 93 males and 90 females with inclusion criteria comprising of patients between the age of 18-35 years, and are prepared to participate in the study. The exclusion criteria included patients with even slight physical defect, syndromic patients, patients with oro-facial clefts and skeletal malocclusions that would eventually require orthognathic surgery. Participants were informed about the questionnaire and had agreed for their participation. Patients who fulfilled the inclusion criteria were asked to fill a BDD questionnaire which has well founded rationality and reproducibility.[9] BDD-YBOCS(Body Dysmorphic Disorder-Yale Brown Obsessive Compulsive Syndrome) questionnaire was self-modified version that consisted of 14 questions which were related to areas concerned with the perceived defect and would therein help in diagnosing BDD. Age, gender were also included in the questionnaire. Previous events of consultations to an orthodontist as suggested by Polo was included in the questionnaire as well.[7] Once the questionnaire was filled, the severity of malocclusion was rated in all the patients. The scale ranges from 1 to 4, where grade 1 comprised of very minor(1-2mm) malocclusion traits; grade 2 being mild rotations and spaces(3-5mm), minimal malalignment, and other minor imperfections; grade 3 is moderate(5-8mm) or borderline

need; and grade 4 (>9mm) definitely required treatment.[9]

### 4.1. Statistical analysis

Following data collection, data was coded and expressed in MS Excel worksheet (Microsoft, USA). Estimated values was expressed along with 95% confidence intervals. IBM Statistical Package for Social Sciences was used for doing data analysis (Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.). Data in continuous form was presented by mean and standard deviation (SD). Comparison of means was done using repeated measures ANOVA followed by Tukey's post hoc analysis. For categorical data, chi square test was used to compare the proportions. For analysis, p-value less than 0.05 was considered statistically significant.

## 5. Results

From the total of 183 patients No BDD was seen among 58 (31.7%) patients while 116 (63.4%) had mild BDD, 9 (4.9%) had moderate BDD and none of the patients had severe BDD.

Onfers distribution of patients based on severity of BDD. No BDD was seen among 58 (31.7%) patients while 116 (63.4%) had mild BDD, 9 (4.9%) had moderate BDD and none of the patients had severe BDD. Severe BDD is a psychological disorder that needs treatment with early psychiatric care followed by cosmetic aids.

Table 1 shows distribution of BDD positive and BDD negative patients based on response to perception of dental malocclusion. Significantly higher number of BDD positive patients [98 (78.4%)] as opposed to 15 (29.3%) BDD negative patients were concerned with teeth as compared to face, hair or other body parts with statistically highlynotable difference between the groups ($\chi 2$=49.219, p<0.001**). Among BDD negative patients mal-aligned teeth was not the concern for majority [34 (58.6%)] as compared to 21 (16.8%) BDD positive concerned patients along with 80 (64%) patients who thought that maybe mal-aligned teeth concerned them with statistically notable difference between the groups ($\chi 2$=36.255, p<0.001**). Among BDD negative patients majority identified dental malocclusion as spacing 29 [50%] while majority BDD positive patients rated themselves as having mild proclination with statistically highly notable difference between the groups. ($\chi 2$=47.231, p<0.001**)

Table 3 depicts distribution of BDD positive and BDD negative patients based on response to seeking orthodontic treatment. There was no significant difference among BDD negative and positive patients [20 (34.5%) and 30 (24%) respectively] who seeked orthodontic treatment for dental malocclusion ($\chi 2$=2.192, p=0.138 NS). Those who had not seeked orthodontic treatment, 29 (50%) BDD negative patients as opposed to only 22 (17.6%) BDD positive patients did not want to seek orthodontic treatment and the difference was statistically highly significant ($\chi 2$=37.217, p<0.001**).

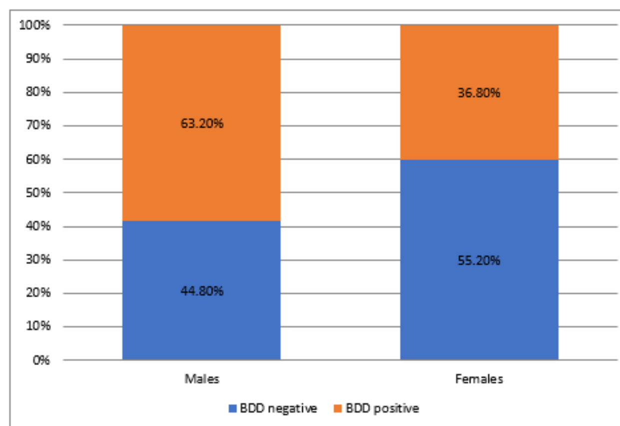


**Figure 1:** Gender wise distribution of BDD negative and BDDpositive patients

Figure 1 shows gender wise distribution of BDD negative and BDD positive patients. Significantly higher number of males [79 (63.2%)] had BDD as compared to females [46 (36.5%)] ($\chi 2$=5.468, p=0.019*).

## 6. Discussion

Image consciousness plays a crucial and a pivotal role in the psychological development of a patient. Patients are hysterical about their appearance even after the completing different treatment procedures as well. Body dysmorphism can persists for a longer period of time and can lead to anxiety issues, depression and suicidal thoughts as well.[3]

BDD has a negative impact on the population but yet is unrecognized and often goes undiagnosed as the patient is not able to speak about the same due to their fear of judgement.[2] There is not much literature available about the occuurance of Body Dysmorphic Disorder in Indian population with its correlation with the orthodontic treatment.

In the present study, 183 participants were screened for body dysmorphic disorder. In our study 116 patients (63.4%) had mild BDD, 9 patients (4.9%) had moderate BDD and none of the patients had severe BDD. The nucleus of concern in 98 subjects was primarily on dentition, 10 subjects on face and 6 subjects on hair. In our study, from among 98 BDD-positive patients, 87 patients were anxious about very mild proclination, spaces, mild crowding discrepancies which did not stand for any orthodontic treatment. The sample size were patients over 18 years since patients are more concerned about their appearance at this time.

**Table 1:** Distribution of patients based on severity of BDD

| Inference | Number | Percentage |
|---|---|---|
| No BDD | 58 | 31.7% |
| Mild BDD | 116 | 63.4% |
| Moderate BDD | 9 | 4.9% |
| Severe BDD | 0 | 0% |
| Total | 183 | 100% |

**Table 2:** Distribution of BDD positive and BDD negative patients based on response to perception of dental malocclusion:

| Parameter | | BDD negative | | BDD positive | | p-value |
|---|---|---|---|---|---|---|
| | | | % | | % | |
| Body part of concern | Face | 10 | 17.2% | 10 | 8% | $\chi$2=49.219, p<0.001** |
| | Hair | 17 | 29.3% | 6 | 4.8% | |
| | Teeth | 15 | 25.9% | 98 | 78.4% | |
| | Other | 16 | 27.6% | 11 | 8.8% | |
| Mal-aligned teeth one of the concerns of BDD | Yes | 13 | 22.4% | 21 | 16.8% | $\chi$2=36.255, p<0.001** |
| | Maybe | 11 | 19% | 80 | 64% | |
| | No | 34 | 58.6% | 24 | 19.2% | |
| Rating of dental maloclusion | Spacing | 29 | 50% | 14 | 11.2% | $\chi$2=47.231 p<0.001** |
| | mild crowding(3-5mm) | 21 | 36.2% | 33 | 26.4% | |
| | mild proclination(3-5mm) | 6 | 10.3% | 40 | 32% | |
| | severe crowding(>5mm) | 1 | 1.7% | 19 | 15.2% | |
| | severe proclination (overjet >5mm) | 1 | 1.7% | 19 | 15.2% | |
| Total | | 58 | 100% | 125 | 100% | |

**Table 3:** Distribution of BDD positive and BDD negative patients based on response to seeking orthodontic treatment:

| Parameter | | BDD negative | | BDD positive | | p-value |
|---|---|---|---|---|---|---|
| | | | % | | % | |
| Seeked orthodontic treatment for the same | No | 38 | 65.5% | 95 | 76% | $\chi$2=2.192, p=0.138 NS |
| | Yes | 20 | 34.5% | 30 | 24% | |
| If not, are you willing to seek orthodontic treatment | Yes | 21 | 36.2% | 27 | 21.6% | $\chi$2=37.217, p<0.001** |
| | Maybe | 8 | 13.8% | 76 | 60.8% | |
| | No | 29 | 50% | 22 | 17.6% | |
| Total | | 58 | 100% | 125 | 100% | |

Comparable results were found in a study carried out by Satyanarayan HP, et al.[8] who screened 1184 patients for the Body Dysmorphic Disorder. It was the first study to screen Indian population for Body Dysmorphic Disorder and concluded that the treating practitioner should be conscious of the increased occurrence of BDD among orthodontic patients to assess and rectify the individual assumptions of the patient at the initial moment of recording the case sheet and the initial treatment duration. Proper diagnosis should be done and psychiatric care if necessary should be taken care of.

Concurrent results were found from a study done by Hepburn et al.[10] who assessed 110 patients for Body Dysmorphic Disorder and concluded that It is crucial to realize the importance of physical well-being and to recognize subjects who have BDD. These subjects are hardly pleased with the treatment results no matter how perfect the treatment would have been achieved and it is hence mandatory to identify it to avoid irrelevant, needless treatment and further reference for other management protocols.

Individual's preoccupations with their own perceived defect in physical well-being or immoderate regards about minute minimalized disfigurement are among quality trait of body dysmorphic disorder (BDD). This is in harmony with a study conducted by Yassaei S et al.[11] who did this study in Iranian population and concluded that the orthodontist should acknowledge the patient perspective of a body image, that the subject should confer the orthodontic aid only if its essential as majority of the results would be obtained after the psychological assessment of the patient.

Not much literature is present that would correlate Body Dysmorphic Disorder with the Orthodontic treatment. But being accustomed with this psychological deterrents and the

clues to diagnose it in the day-to-day practice is essential for all practitioners to circumvent risky circumstance for both patients and practitioners and to have a satisfied patient at the end of the treatment.

## 7. Limitations

1. As BDD is diagnosed from the patients response towards the questionnaire, the correct diagnosis is questionable.
2. Psychiatric consultation is mandatory to diagnose the condition as not much literature is present in the orthodontic journals about the condition.

## 8. Conclusions

The study concluded as follows:

1. Body Dysmorphic Disorder is prevalent with its prevalence rate being 4.9% in the sample of 183 patients. Face and teeth are the areas of main concern.
2. Majority of the positive patients were males (63%) as compared to that of the other group.
3. Treating orthodontists should be apprehensive of the characteristics of BDD and enquire some questions during case reporting to assist in identifying the patients.

## 9. Source of Funding

None.

## 10. Conflict of Interest

None.

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3. Conflict of interest- Authors declare that there is no conflict of interest.

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