Original Article

Comparison of Frequency of Body Dysmorphic Disorder in Applicants of Abdominoplasty with Applicants of Other Cosmetic Surgeries

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ABSTRACT

BACKGROUND

Body Dysmorphic Disorder (BDD) is a psychic disorder in which a person is dissatisfied with their normal appearance. Identifying these people among the applicants for cosmetic surgery leads to the proper decision about the cosmetic procedure of these patients and their postoperative consequences.

METHODS

This cross-sectional study was performed on 250 women referred to a private Plastic Surgery Clinic in Mashhad, Iran from 2016 to 2017. Applicants were divided into two groups as abdominoplasty and other cosmetic surgeries. BDD was assessed using the modified form of the Bill Brown Questionnaire. Applicants' information including age, marital status, number of children, education level, and history of cosmetic surgeries were recorded.

RESULTS

The mean BDD score in the abdominoplasty group and another group was 93.6 ± 23.5 and 75.5 ± 25.8, respectively. There was a significant difference between the two groups in terms of the BDD score (P-value < 0.001). Although there was a notable relation between BDD score and marital status, no significant association between BDD score, age, and education level was found.

CONCLUSION

Considering the exact criteria of BDD, we noticed a significant increase in the frequency of BDD in abdominoplasty applicants. It was erroneous and could be explained by not applying the accurate diagnostic criteria of BDD.

KEYWORDS

Body Dysmorphic Disorder, Cosmetic Surgery, Abdominoplasty, Rhinoplasty, Cosmetic Surgery.

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INTRODUCTION

Nowadays, the demand for cosmetic treatments has increased dramatically, of note, cosmetic and reconstructive surgeries accounted for 17.5 and 5.8 million cosmetic treatments, respectively[1]. Iran is among the ten leading countries in cosmetic and reconstructive surgeries, ranked third after the US and Mexico[1]. In some cases, patients

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refer to specialists with unreasonable requests while majority of physicians acknowledge that they are neither physically nor even psychologically fit for the operation. These people are considered as perfectionists therefore any malformations in their bodies aggravates their anxiety and concerns regarding their appearance. A number of these patients suffer from a level of anxiety about their body appearance, which may be unreasonable for the surgeons[2].

Body dysmorphic disorder (BDD) is an imaginary (not delusional) belief in the appearance of a physical defect in all or part of the body[3]. This relatively common disorder is considered as a serious illness in psychiatry. This disorder generates a feeling of unpleasantness about their natural appearance. A large number of people diagnosed with BDD have little or no awareness of their disorder, some of them, however, firmly believe that the perceived defect in their appearance is real. Therefore, out of 50-88% people undergo cosmetic surgeries[4]. This disorder can disrupt one's daily functioning. Patients suffering from BDD are assumed to experience poor psychological outcomes after surgery. Severe stage of BDD is associated with poor postoperative consequences [5]. If surgery is performed for these patients, about 75% will be dissatisfied with the results of their operation, which may result in multiple physician complaints, or in some extreme cases, threats and acts of violence against the surgeon[6]. The abdomen is one of the most common sites of plastic surgery[6]. Abdominoplasty enhances different aspects of life quality, family life, and independence. In addition, it can improve the level of self-esteem and stability of patients postoperatively[7].

In the wake of the increasing number of cosmetic surgeries, some studies have investigated the prevalence of this disorder with the results showing that 5-15% of patients referred for cosmetic surgery have this disorder [8]. Moreover, a close relationship has been found between the symptoms of BDD with the degree of dissatisfaction with the body image and the discontent of each person with their appearance before the operation. Meanwhile, avoidance behaviors have been found to prevent it. Although this disorder is rather common, it is difficult to identify[9].

There is a paucity of studies on the prevalence of this disorder in abdominoplasty patients. Brito et al. reported the prevalence of BDD in patients undergoing abdominoplasty, rhinoplasty, and rhytidectomy. Finally, the prevalence of BDD in the group for abdominoplasty candidates was 57%, which is relatively high. Moreover, the rhinoplasty group had the lowest number of patients with severe symptoms, however in the rhytidectomy group; the highest number of patients had severe symptoms of BDD [9, 10]. The results of a study on complaints made by applicants of cosmetic surgeries pointed out that abdominoplasty, rhinoplasty, and liposuction are the most common operations that could be sued. Dissatisfaction among women is significantly higher than men[11] [12]. Women had a high level of preoperative complaints about their appearance [13, 14]. Therefore, women were selected as the study group in this paper. In addition, women expressed more concerns over their appearance that this indicates the importance of investigating this group [15].

Due to some issues including increasing demand for a variety of cosmetic procedures, belonging the most of the previous studies to non-Iranian communities and the limitation of studying BDD in abdominoplasty applicants, it is of importance to recognize the BDD as a disruptive factor in cosmetic procedures.

This study therefore set out to compare the frequency of body dysmorphic disorder in female applicants of abdominoplasty with applications of other cosmetic surgeries.

MATERIALS AND METHODS

This cross-sectional study was carried out to evaluate BDD in women referred to private cosmetic surgery clinic for abdominoplasty or other cosmetic surgeries such as autologous fat transplantation, rhinoplasty, blepharoplasty, breast augmentation, and liposuction. Overall, 250 patients were recruited for this study divided into the abdominoplasty group (50 patients), and the other cosmetic surgeries group (200 patients).

The primary inclusion criterion was dissatisfaction with one's appearance, which was the main reason for visiting the clinic. Patients with severe physical impairments caused by obesity (BMI> 35), bariatric surgery, tumors, and pathogenic disorders, psychiatric disorders, history of BDD, cardiovascular disease, diabetes, had a surgical scar in the right, left, or bilateral quadrants in the abdomen, and additional complications such as and

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patients undergoing medication or psychotherapy were excluded from the study. Moreover, patients who had a high vulnerability for surgery, or ones with unrealistic conception about the results of surgery, and ones diagnosed with body dysmorphic disorder were excluded. Adequate information from the study was provided to the participants by the researchers and an informed consent form was obtained.

Characteristic information such as age, marital status, number of children, level of education, and history of cosmetic surgery was recorded by checklist. Subsequently, the deformity questionnaire, adapted from the Peel Brown Questionnaire, was given to the participants. Rabie et al. assessed the concurrent validity of this scale on 200 students, reporting that the Body Malformation Cognitive Assessment Questionnaire and its factors were correlated positively and significantly with the modified Yale-Brown Obsessive Compulsive Scale for Body Malformation Disorder. This scale can be used in diagnostic and therapeutic cases [16]. The questionnaire contained 31 items that were scored on a 1-5 point Likert scale. A minimum score of 31 and a maximum of 155 points could be achieved. A BDD score from 31 to 62 is defined as low, between 62 to 93 as moderate and greater than 93 as high. According to the scores obtained from participants, each group of abdominoplasty and applicants for other cosmetic surgeries were divided into three subgroups with low, medium and high level of BDD. In both groups, the score of patients with severe level was compared with a physical examination.

This research was approved by the Biomedical Research Ethics Committee of Islamic Azad University of Mashhad (code: IR.IAU.MSHD.REC.1396.28).

Statistical analysis

Descriptive statistics and statistical indices such as mean and frequencies were used to analyze the data. In the data analysis section, the normality of data was first evaluated using a one-sample Kolmogorov-Smirnov test with Lei-Frees correction. The student's *t*-test was used for data with normal distribution and Mann-Whitney test for data with the abnormal distribution. A Chi-square test was employed for the analysis of data at the nominal scale. Mantel-Hansel test was utilized to control confounders. The software used in this study was SPSS v.20 (IBM Corp., Armonk, NY, USA) and a significance level of less than 0.05 was considered in all tests.

RESULTS

Overall, 80% of the participants were in the group of other cosmetic surgeries and 20% of them belonged to the group of abdominoplasty. As it can be seen from Figure 1, in the group of other cosmetic surgeries, the share of facial cosmetic surgeries was

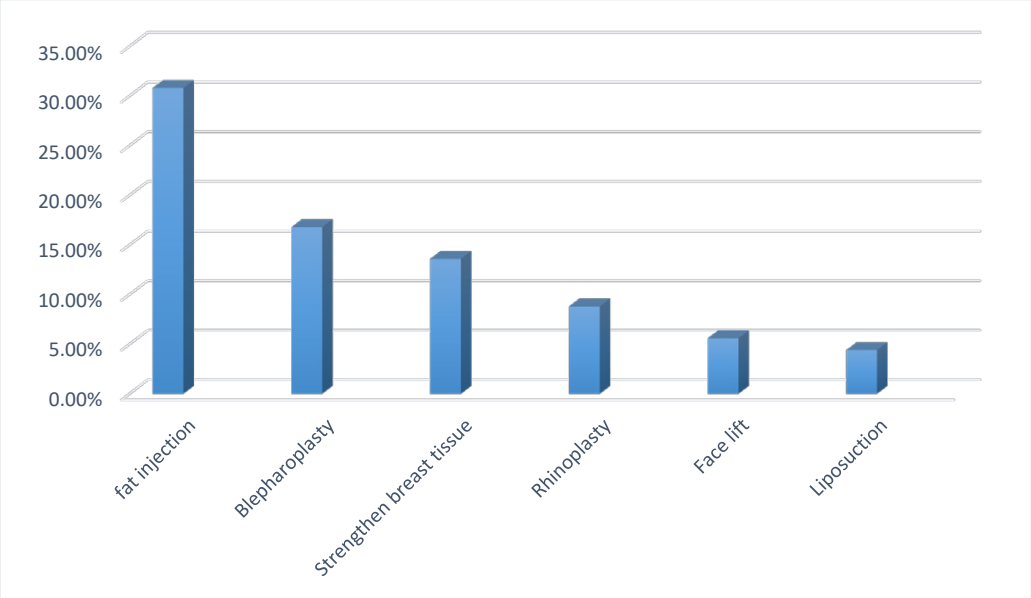

Fig. 1: Frequency distribution of other cosmetic surgeries requested in women applying for abdominoplasty and other cosmetic surgeries

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Table 1: Frequency of distribution of education level and marital status in women applying for abdominoplasty and other cosmetic surgeries

Variables	Groups	Other cosmetic surgery	Abdominoplasty	*P* value
		Number (Percent)	Number (Percent)	
Educational Level	Diploma and less than diploma	68 (34)	22 (44)	
	Post-diploma and bachelor	96 (48)	18 (36)	0.415
	Masters and PhD	36 (18)	10 (20)	
Marital status	Married	135 (67.5)	41 (82)	0.037
	Single	65 (32.5)	9 (18)	

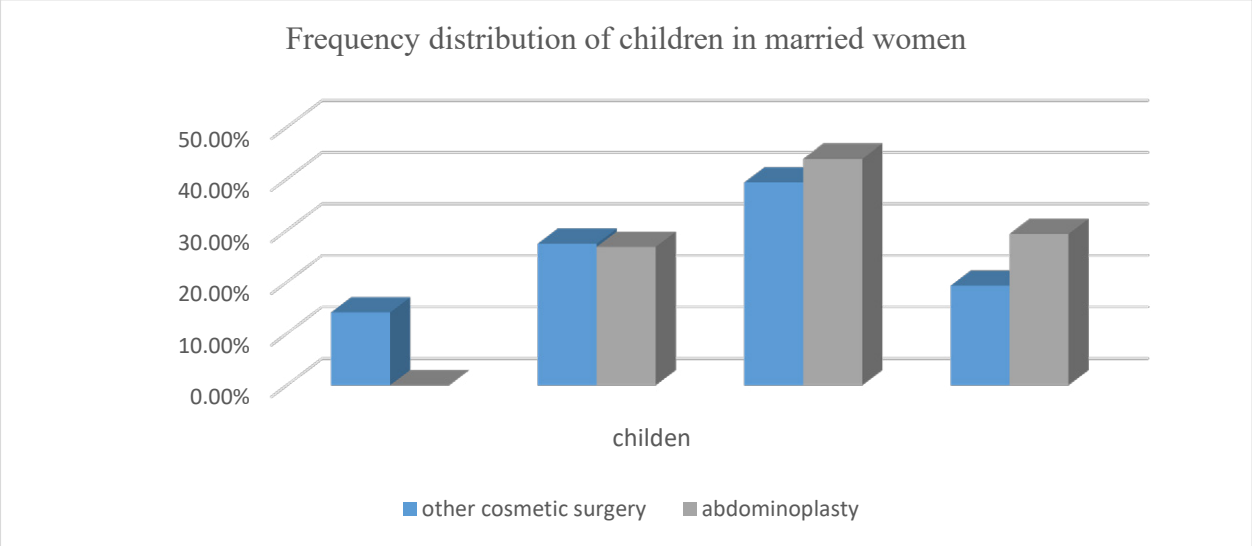

Fig. 2: Frequency distribution of children in married women in women applying for abdominoplasty and other cosmetic surgeries

62% and the share of breast and liposuction cosmetic surgeries was 38%.

The mean age of patients undergoing abdominoplasty was 38.2 ± 7.1 years and the mean age of patients in the other group was 38 ± 11.1 years. The two groups were not significantly different in terms of age (*P*-value = 0.91). As shown in Table 1, the two groups did not differ significantly in terms of educational level (*P*-value = 0.41). However, the two groups had significant differences in terms of marital status (*P*-value = 0.037).

In the abdominoplasty group, all applicants had at least one child, and as the number of children increases to two and more, the demand for abdominoplasty increases. This trend was also seen in another group, but it was more prevalent in the group of abdominoplasty in the subgroup of applicants with three children and above, there was a demand for abdominoplasty with a difference of 10% compared to another one (Figure 2).

The mean score of BDD was 93.6 ± 23.5 in the abdominoplasty group and 75.5 ± 25.8 in other plastic surgeries group. The deformity score in the abdominoplasty group was significantly higher (*P*-value < 0.001) (Figure 3).

Figure 3 shows a significant difference in BDD score between the two groups (*P*-value < 0.001). Physical examination of patients in the abdominoplasty group with a severe level of BDD and consider the aesthetic criteria of the abdomen in terms of symmetry and appearance demonstrated that 88% (22 patients) of patients in the abdominoplasty group suffer from a severe form of BDD (grade 4 and above). Of these, 52% (13 people) of patients, in addition, to belonging to 4 and above classes, had accompanying cosmetic problems in the breasts and other parts of the trunk. Twelve percent (3 people) of them in a physical examination located in 3 and lower classes,

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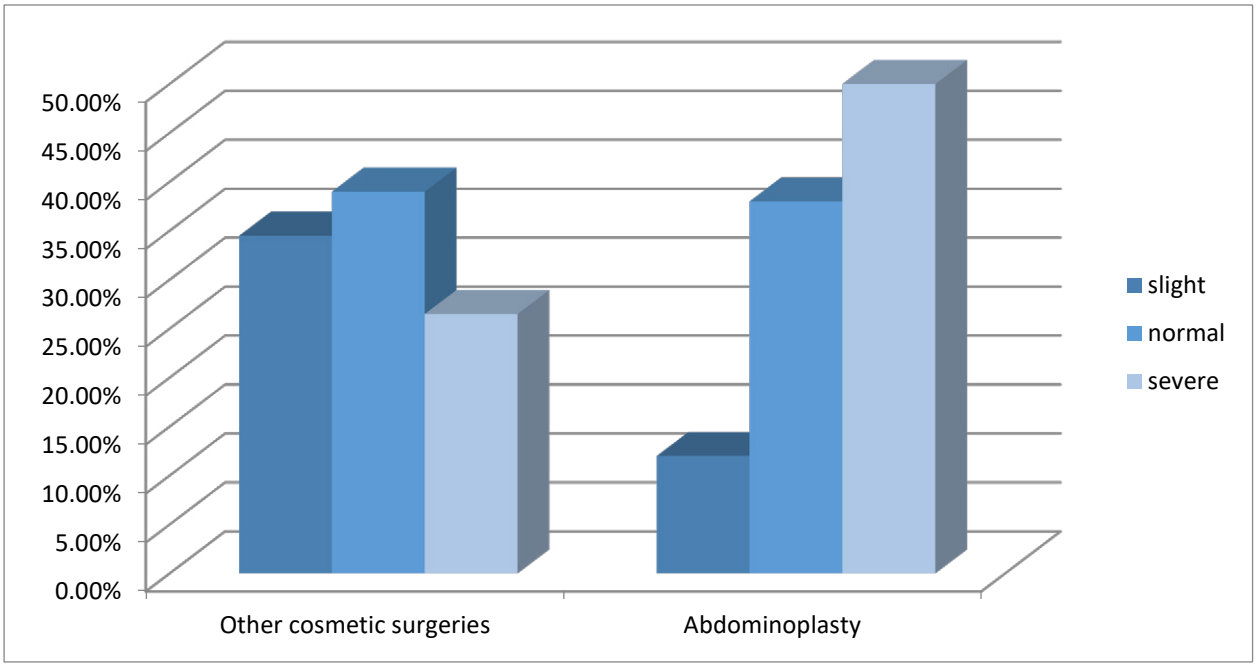

Fig. 3: Frequency distribution of deformity disorder score in women applying for abdominoplasty and other cosmetic surgeries

but their BDD was severe, which means that the deformity of the abdomen as the patient's main complaint was not approved by the surgeon based on physical examination. Afterward, 88% of them were recommended to perform abdominoplasty, while only 12% of them were not recommended for surgery who were not in the upper classes in terms of appearance based on physical examination. In the group of other cosmetic surgeries, 26.5% of patients were classified in the high level of BDD class. Overall, 45% of them were recommended cosmetic surgery after the examination. In the severe BBD level subgroup, the total number of facial cosmetic surgeries such as fat injection, rhinoplasty, blepharoplasty, and rhytidectomy was 39 (5.73%), and the total of liposuction and breast augmentation was 14 (5.26%).

DISCUSSION

In terms of body dysmorphic disorder score, the two groups were significantly different from each other. Abdominoplasty group received the highest score in the severe form of BDD compared to another group. This finding is aligned with other studies that reported a high prevalence of BDD in abdominoplasty candidates[9, 10]. In the moderate BDD subgroup, both groups were similar to each other, and conversely, in the mild subgroup, the other cosmetic surgeries group had the highest percentage. Kuhn et al., had focused only on the clinical manifestations of BDD, impaired functioning, and poor quality of life although the score obtained in the severe grade and physical examination of patients with this disorder was not taken into account[17]. Contrary to previous studies, our study compared the high scores of patients with BDD in the abdominoplasty group with the surgeon's findings in the physical examination of the abdomen in terms of cosmetic surgery criteria and the surgeon's opinion regarding the appearance abnormality. In the current study, patients' physical examination was according to the new definition of BDD[18]. In the abdominoplasty group, for all individuals with severe BDD score (grade 4 and above and sometimes with other cosmetic problems in the trunk), the surgeon confirmed a high level of appearance deformity.

Two groups were not significantly different in terms of age. The mean age of patients in the abdominoplasty group is consistent with that of patients in another study [9, 10].The oldest patient in the abdominoplasty and other cosmetic surgeries groups was 65 and 56 years, respectively, which may explain the late diagnosis of the disorder. BDD normally appears in adolescence, this could be the cause of the emergence at an older age due to the prolonged dissatisfaction with one's body [19]. For this

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reason, the diagnosis of BDD as psychiatric disorder at this age, as established in various other studies, presumably may be due to the lack of screening at an early age among this population group, which contributes to its emergence at an elderly age.

However, the two groups were identical in terms of general education level without any significant difference. In the study of Javo et al., however, a low level of education was reported as a stimulating factor for all types of surgery [20, 21]. In our study, 44% and 34% of patients in the abdominoplasty and other surgeries groups had a high school diploma or lower, respectively. This is aligned with the results reported by Javo et al. regarding the relationship between low education and cosmetic surgery [20]. However, both groups were similar in terms of having an advanced university degree (MA and Ph.D.).

There was a significant difference in marital status between the two groups. In the abdominoplasty group, 82% of patients and in the other group, 67.5% of patients were married as noted by Javo et al.[20, 21]. Concerning the number of children, as the number of children exceeded two, the demand for cosmetic surgery in both groups increased. In the abdominoplasty group, this may be explained by the direct relationship between multiple pregnancies and the deformity in the abdomen, which could be seen as the main factor for abdominoplasty.

According to the high prevalence of body deformity disorder in both groups, especially the abdominoplasty group. Although high BDD score in this group of patients, the physical examination of these people also demonstrated a severe defect in their appearance. It was possible that by consulting a psychiatrist and further examination by a psychiatrist, these patients would also be indicated for surgery, and their physical disorder would be reduced by performing surgery because the defect for which they referred to a plastic surgeon was a justified and substantial defect. It is hoped that proper recognition, referral, and treatment of these patients reduce the poor results after repeated operations, the number of complaints to plastic surgeons, and the negative impact that surgery has on society, and enhance the quality of life of these patients.

The limitations of the present study were the impossibility of long-term postoperative evaluation in 1 year or more and the lack of evaluation of psychological personality using a questionnaire.

CONCLUSION

In the future studies, it is recommended to follow up for more time and evaluating the patients in terms of quality of life, interpersonal relationships, performance before and after surgery, or if referred to a psychiatrist for medication or psychotherapy. Studies in our country in a larger sample size in the male group at a younger age or adolescents are also of great importance to be investigated.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest in this study.

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