

Avoiding Psychological Pitfalls in Aesthetic Medical Procedures

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Abstract

Objective To assess the prevalence of body dysmorphic disorder (BDD) in an aesthetic surgery setting in the region of Southwest China, and to ascertain the differences in terms of body images between patients in the aesthetic setting and general Chinese population. This study tracked patient satisfaction with their body image changes while undergoing aesthetic medical procedures to identify whether the condition of patients who were presenting with BDD symptoms or their psychological symptoms could be improved by enhancing their appearance. Additionally, this study explored whether there was improvement in quality of life (QoL) and self-esteem after aesthetic medical procedures.

Methods A total of 106 female patients who were undergoing aesthetic medical procedures for the first time (plastic surgery, $n = 26$; minimally invasive aesthetic treatment, $n = 42$; and aesthetic dermatological treatment, $n = 38$) were classified as having body dysmorphic disorder symptoms or not having body dysmorphic disorder symptoms, based on the body dysmorphic disorder examination (BDDE), which was administered preoperatively. These patients were followed up for 1 month after the aesthetic procedures. The multidimensional body self-relations questionnaire-appearance scales (MBSRQ-AS) and rosenberg self-esteem scale (RSE-S) were used to assess patients' preoccupation with appearance and self-esteem pre-procedure and 1 month post-procedure. Additionally, 100 female healthy control participants were recruited as a

comparative group into this study and they were also assessed using BDDE, MBSRQ-AS, and RSE-S.

Results A total of 14.2 % of 106 aesthetic patients and 1 % of 100 healthy controls were diagnosed with BDD to varying extents. BDDE scores were 72.83 (SD \pm 30.7) and 68.18 (SD \pm 31.82), respectively, before and after the procedure for the aesthetic patient group and 43.44 (SD \pm 15.65) for the healthy control group ($F = 34.28$; $p < 0.001$). There was a significant difference between the groups in subscales of MBSRQ-AS, i.e. appearance evaluation ($F = 31.31$; $p < 0.001$), appearance orientation ($F = 31.65$; $p < 0.001$), body areas satisfaction ($F = 27.40$; $p < 0.001$), and RSE-S scores ($F = 20.81$; $p < 0.001$). There was no significant difference, however, in subscales of MBSRQ-AS, i.e. overweight preoccupation ($F = 1.685$; $p = 0.187$), self-classified weight ($F = 0.908$; $p = 0.404$) between groups. All the subscales of MBSRQ-AS showed significant differences between the aesthetic patients (pre-procedure) and female adult norms from Dr. Cash's result given in Table 4 ($p < 0.001$). The study also showed that there were no significant differences in the scores of BDDE, MBSRQ-AS, and RSE-S of those fifteen aesthetic patients diagnosed with BDD after aesthetic procedures lasting one month.

Conclusion There was a high prevalence rate (14.2 %) of body dysmorphic disorder in aesthetic procedure seekers, and it seemed that those patients suffering from BDD were more likely to be dissatisfied with the results of the aesthetic medical procedures. However, general aesthetic patients showed improvement in most assessments which indicated that aesthetic medical procedures could not only enhance patient appearance, but also patient low self-esteem and QoL. Self-satisfaction could also be promoted. A screening procedure for BDD including suitable screening questionnaires might be considered for routine use in

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aesthetic clinical settings to minimize dissatisfaction and complaints.

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Keywords Body image · Body dysmorphic disorder · Aesthetic medical procedures · Plastic surgery · Minimally invasive aesthetic procedures · Aesthetic dermatologic procedures

Introduction

Increasing popularity of aesthetic medical procedures has been seen over the last decade. According to the American society of aesthetic plastic surgery (ASAPS), in 1992, over 400,000 Americans underwent cosmetic surgery [1] and there has been a dramatic increase in that total to 12,792,377 aesthetic procedures performed in 2015 [2]. As an emerging economy, aesthetic medical procedures in China have been booming in recent years, and since 2009, it has become the country with the third highest aesthetic procedures total in the world [3].

According to the research of Cash and Henry, about half of American females have a negative evaluation of their own appearance [4]. In German population-based surveys, approximately 40 % of female participants reported that they had a preoccupation with one part of their body appearance [5]. This is arguably the main reason for people undergoing aesthetic procedures. Culturally, Chinese people would like to have a particular body image because this may have positive effects in many ways (i.e., producing more job opportunities, finding a partner more easily and enhancing self-confidence). Hence, more Chinese are undergoing body image change using aesthetic procedures. Nevertheless, not all these people have the correct perspective on their physical appearance, such as patients with body dysmorphic disorder.

Body dysmorphic disorder (BDD) is characterized by preoccupation with disfigurement or slight defects in physical appearance and results in significant social, occupational, and other important functional impairment and distress, [6–9] such as up to 80 % suicidal ideation and up to 24 % suicide attempts being reported [10, 11]. BDD was first officially elucidated in the DSM-III-R [12]. Nevertheless, prior to DSM-III-R being published, Edgerton et al. had concluded some cases in the cosmetic clinical setting in the 60 s [13, 14].

From my long professional experience, some patients in plastic surgery or cosmetic dermatology settings show

similar symptoms to BDD, such as excessive preoccupation with the appearance of their hair, nose, skin, or body. However, although BDD is a severe psychiatric disorder, it is still being under-reported and under-diagnosed [9, 15]. Moreover, in spite of numerous studies having investigated a higher prevalence of BDD in plastic surgery [16–21] and cosmetic dermatological [22–24] seekers than in the general population, there is still a dearth of Chinese-based data. The reality is that it is difficult to draw a firm conclusion regarding the typical psychological characteristics of aesthetic patients [25]. It is, therefore, essential for plastic surgeons to be aware of BDD, and using effective questionnaires to screen candidates for aesthetic medical procedures is very useful to identify those suffering from BDD. Moreover, it has been considered unreliable in some cases only relying on comparisons of aesthetic outcomes by photographic images [26]. There are limited studies using BDDE, MBSRQ-AS, and RSE-S together as a screening tool for BDD which assess the correlation between scores on the screening tool and patient satisfaction after cosmetic treatment [27]. Moreover, none of these studies are based on China.

Materials and Methods

Subjects

This study was approved by the Research Ethics Committee of the institution and was conducted between September 2015 and January 2016. Written informed consent was obtained from all patients prior to their inclusion in the study and anonymity was ensured.

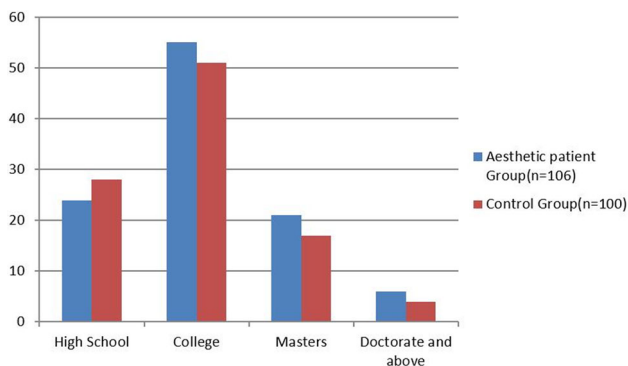
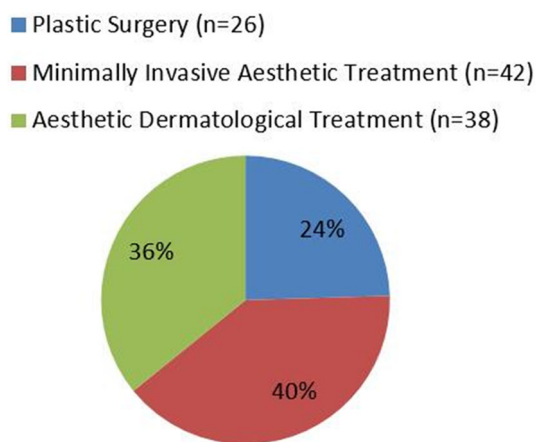
A total of 106 female outpatients (mean age 33.13 ± 12.37 years, age of range 16–67 years) who were attending for the first time in an aesthetic clinical setting were selected in this study. Moreover, these patients were followed up 1 month after aesthetic procedures. In addition, 100 female healthy participants (mean age 33.83 ± 14.43 years, age of range 17–70 years) were enrolled as a control group. Demographic information included participants' age, individual status, and educational level as well as the treatment choice and are shown in Table 1 and Figs. 1, 2, and 3.

By carrying out a focused review of BDD screening measurements, choice of measurement, reliability, validity, and sensitivity of these psychological assessment tools were considered, and a patient-centered method was adopted. One psychologist took part in the interview and diagnosis. Subjects in both the groups (106 of the outpatient group and 100 of the healthy control group) underwent the body dysmorphic disorder examination (BDDE), the multidimensional body self-relations questionnaire-

Table 1 Subject demographics of all participants

	Aesthetic patient group	Control group
Total number	106	100
Female	106	100
Age range (years)	16–67	17–70
Average ages (years)/SD	33.13/± 12.37	33.83/± 14.43
Marriage (n/ %)	36/34.0 %	48/48 %
Single (n/ %)	50/47.2 %	37/37 %
Divorced (n/ %)	20/18.9 %	15/15 %
Employed(n)	45	56
Unemployed(n)	20	11
Studying(n)	30	21
Retired(n)	11	12

N number of participants, SD standard deviation

**Fig. 1** The educational levels of the aesthetic patient group and healthy control group**Fig. 2** Proportion of aesthetic participants in different aesthetic procedures

appearance scales (MBSRQ-AS), and the rosenberg self-esteem scale (RSE-S). These three questionnaires were translated into Chinese by two English language professors

and were retranslated into English by a professional translator to ensure precise expression.

Those who lacked understanding of the interview and questionnaires and those who had a psychiatric history and status or suffered from severe medical disorders were excluded as those were aesthetic outpatients who had previously undergone aesthetic procedures.

Screening Measurements

Body Dysmorphic Disorder Examination (BDDE)

According to the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition) [28], body dysmorphic disorder is currently characterized as an anxiety disorder and might be comorbid with other anxiety disorders such as obsessive-compulsive disorder (OCD). This provides a challenge for psychiatrists and psychologists and is even more difficult for other general physicians and specialists. Additionally, Rosen and Reiter suggested that it was necessary to differentiate BDD from normal body image concerns, revealing the dimensional aspect of the disorder using a clinical significance criterion [29]. Due to the difficulty of drawing firm conclusions regarding the psychological characteristics of aesthetic surgery patients and discovering how these characteristics relate to postoperative outcome, it is essential for aesthetic practitioners to make use of effective screening measurements to identify those with body dysmorphic disorder.

The body dysmorphic disorder examination (BDDE) is a specific measurement that deals solely with body image dysfunctions. The full questionnaire includes 34 items that assess the degree of dissatisfaction and assists physicians in the diagnosis of body dysmorphic disorder [29]. The BDDE is valid and reliable and has already been used in several languages [30]. Therefore, BDD symptoms were summarized (Table 2) and then assessed by the BDDE. Higher scores on the BDDE imply a high risk of body dysmorphic disorder.

The Multidimensional Body Self-Relations Questionnaire-Appearance Scales (MBSRQ-AS)

MBSRQ-AS is the most widely used and well-validated self-reporting tool to investigate different aspects of body image. It focuses on assessing appearance-related aspects of body image [31]. The questionnaire contains multidimensional evaluations of 5 subscales: Appearance Evaluation (7 items), Appearance Orientation (12 items), Body Areas Satisfaction (9 items), Overweight Preoccupation (4 items), and Self-Classified Weight (2 items). The MBSRQ-AS has been translated into many languages, such as French and German [32, 33]. The advantage of

Fig. 3 The aesthetic procedures undergone by 106 aesthetic patients

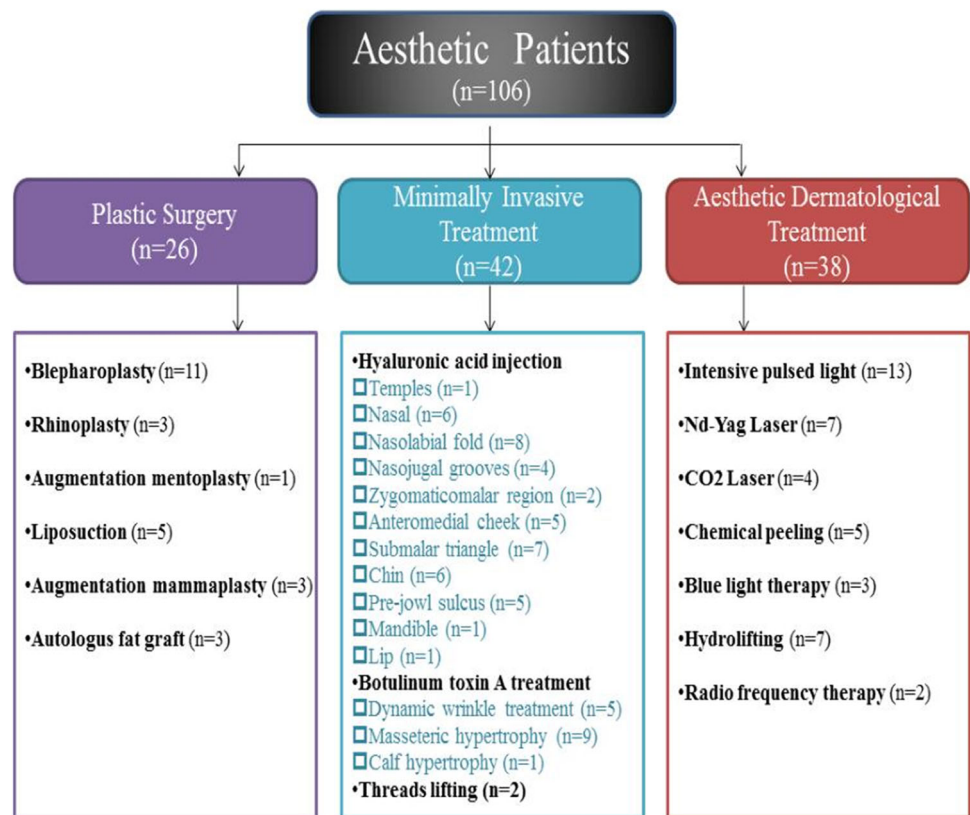


Table 2 Symptoms of the presence or risk of body dysmorphic disorder in aesthetic patients

Symptoms*	BDDE items	Score
Poor insight and perceived defect	2 or 1	0
Unusual and unrealistic demanding behavior	4, 9	≥4
Body dissatisfaction and excessive requests for aesthetic procedures	6, 7, 8	≥4
Expectation that aesthetic treatments will solve all problems	33	≥4
Selective perception	30, 31	≥4
Impairment in affective, social relationships and other functions	10, 11, 16, 17	≥4
Excessive importance given to appearance in self-evaluation	23, 24, 25, 26	≥4
Persistent reassurance of perceived defect	18, 19, 20	≥4
Attempting to hide or divert attention from the perceived defect/Camouflaging	21, 32	≥4
Belief that all people’s comments and behavior are related to their appearance	12, 13, 27,28, 29, 13, 14, 15	≥4
The preoccupation is not better accounted for by another mental disorder (e.g., anorexia or bulimia nervosa)	34	0

* American Psychiatric Association. Obsessive–compulsive and related disorders. In: Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Arlington, Va: American Psychiatric Association; 2013

BDDE items and meaningful rating for BDD

Based on the *diagnostic and statistical manual of mental disorders* (Fifth Edition) diagnostic criteria for body dysmorphic disorder

MBSRQ-AS is that there is a development of the conceptual basis, and this can also be used for comparison with one-month test–retests for both sexes. We compared and analyzed the participants’ result with the conceptual basis in Table 3.

Rosenberg Self-esteem Scale (RSE-S)

RSE-S is one of the earliest self-report instruments for evaluating individual self-esteem. It consists of 10 items. Items 1, 3, 4, 7, and 10 use a strongly agree to strongly

Table 3 Multidimensional body self-relations questionnaire-appearance scales (MBSRQ-AS) and rosenberg self-esteem scale (RSE-S)

Variable	Patient group		Healthy control Group mean (SD)	F	p Value
	Preoperation mean (SD)	Postoperation mean (SD)			
Appearance evaluation (AE)	3.09(.27)	3.46(.39)	3.44(.45)	31.31	<.00001
Appearance orientation (AO)	4.07(.34)	4.11(.32)	3.78(.30)	31.65	<.00001
Body areas satisfaction (BAS)	2.85(.28)	3.11(.35)	3.15(.34)	27.40	<.00001
Overweight preoccupation (OP)	3.33(.36)	3.25(.36)	3.25(.43)	1.685	= 0.187
Self-Classified weight (SCW)	3.24(.56)	3.16(.46)	3.14(.59)	.908	= 0.404
RSE-S	18.1(3.81)	19.93(3.17)	16.85(3.25)	20.81	<.00001
BDDE	72.83(30.70)	68.18(31.82)	43.44(15.65)	34.28	<.00001

Illustration Fisher's exact test and t test were used to determine whether there was a significant difference in MBSRQ-AS scores between the aesthetic patients and healthy control participants

disagree scale ranging from 1 to 4. The other items are reverse scored [34]. Usually, high self-esteem leads to happier and positive outcomes regardless of stress or other life events [35].

Statistical Analysis

The main statistical analysis is descriptive and includes the whole population of participants who agreed to answer the questionnaires. All these data were expressed as n (%) and compared using a χ^2 test. When necessary, Fisher's exact test was employed for correction using the software SPSS (version 20.0, IBM; Chicago, IL). All p values were 2-tailed, and a p value less than 0.05 was considered statistically significant.

Results

Overall, 15 of 106 (14.2 %) aesthetic patients and 1 of 100 (1 %) healthy participants met DSM-V criteria for BDD. The averages of BDDE in the aesthetic patient group and healthy control group were 72.83 (SD \pm 30.70) and 43.44 (SD \pm 15.65), respectively, with significant differences between groups ($p < 0.05$). These fifteen aesthetic patients with BDD had a significantly high BDDE score of 132.80 (SD \pm 5.86) with $p < 0.05$ (Fig. 4).

There were significant differences in some subscales of MBSRQ-AS when comparing aesthetic patients to the healthy control group: Appearance Evaluation ($F = 31.31$; $p < 0.001$), Appearance Orientation ($F = 31.65$; $p < 0.001$), Body Areas Satisfaction ($F = 27.40$; $p < 0.001$). However, there were no apparent differences in the other two subscales, Overweight Preoccupation ($F = 1.685$; $p = 0.187$), and Self-Classified Weight

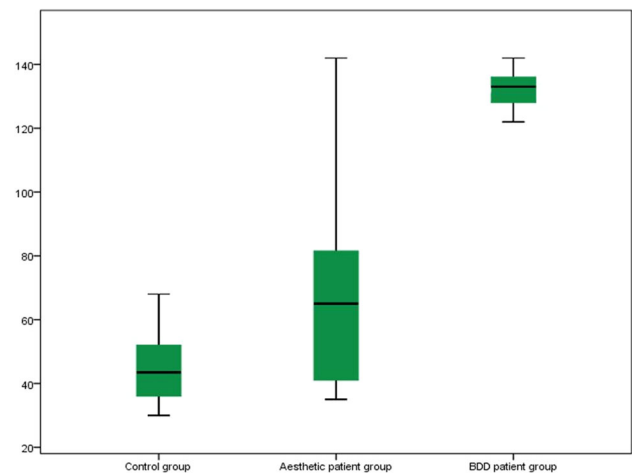


Fig. 4 Body dysmorphic disorder examination (BDDE) scores of healthy control group, aesthetic patient group, and aesthetic BDD patients. *Illustration* The patients in the aesthetic patient group were those who were about to undergo aesthetic procedures ($n = 106$). The BDD patient group were those who were diagnosed with BDD by a psychologist from the aesthetic patient group ($n = 15$). The p value was less than 0.05 %

($F = 0.908$; $p = 0.404$), when comparing the two groups and comparing preoperation and postoperation. Similarly, significant differences in the control group and the patient group (before procedures and after procedures) of RSE-S scores ($F = 20.81$; $p < 0.001$) and BDDE scores ($F = 34.28$; $p < 0.001$) were observed, as shown in Table 3.

Following Dr. Cash, the subscales of MBSRQ-AS were compared between female adult norms and our pre-aesthetic procedure patients, as shown in Table 4. There were significant differences in all subscales of MBSRQ-AS ($p < 0.001$). Furthermore, fifteen BDD aesthetic patients were compared pre- and post-procedure using BDDE,

Table 4 The comparison of the subscales of MBSRQ-AS between aesthetic patients and Norms

The Item of Subscales	Aesthetic patient group mean (SD)	Norms mean (SD)	p Value
Appearance evaluation (AE)	3.09(.27)	3.36(.87)	<.00001
Appearance orientation (AO)	4.07(.34)	3.91(.60)	<.00001
Body areas satisfaction (BAS)	2.85(.28)	3.23(.74)	<.00001
Overweight preoccupation (OP)	3.33(.36)	3.03(.96)	<.00001
Self-classified weight (SCW)	3.24(.56)	3.57(.73)	<.00001

Illustration Norms for all except two subscales are derived from the U.S. national survey data [36, 37], based on 996 males and 1070 females. Exceptions are the BAS and Self-Classified Weight, whose items or response format were altered subsequent to the 1985 survey. These two subscales' norms are derived from several combined samples studied by the author with Ns = 804 women and 335 men. Sample participants were 18 years of age or older

MBSRQ-AS and RSE-S. However, there was no significant difference between the pre- and post-procedure in any of the BDD patients' scores, as shown in Table 5.

Discussion

Regarding the prevalence in the general population, a similar result of 1 % was achieved as in other studies [5, 38]. Our study showed that the rate of BDD in the aesthetic setting was 14.2 %, which was relatively higher than some other international studies, which ranged from 9.1 to 16 % of aesthetic patients [21, 39]. BDD patients had significantly higher BDDE scores than the healthy control group. This is, therefore, strong evidence that aesthetic practitioners should be aware of the possibility of BDD in their clinical reception.

There were no significant differences between aesthetic patients and healthy participants in Overweight Preoccupation and Self-classified Weight. One reason for this may be that there were only four patients seeking fat reduction in the group concerned resulting in less influence in these two aspects. Another reason may be, as Nevill et al. reported, that being overweight appeared to be linked to

instability in self-report measures of body image [40]. In addition, in spite of the general Chinese population suffering much less from being overweight or from obesity than many other national groups, it appears that the Chinese are just as sensitive and conscious about weight, just as Roberts suggested, showing that the relationship between Black–White ethnicity and body image was more complex than previously suggested [41].

Generally, aesthetic procedures can constitute an acceptable approach not only to enhance the body appearance, but also to effectively enhance patients' self-esteem and QoL, which is verified by our results. Nevertheless, some reports indicate that there is a significant possibility of surgeons being threatened by dissatisfied BDD patients legally or physically [42]. Regarding the results in the present study, although the aesthetic procedures were carried out correctly and professionally, the BDDE, MBSRQ-AS, and RSE-S scores in BDD patients did not improve. Therefore, there might be a correlation between BDD and dissatisfaction in aesthetic patients. Consequently, it is indispensable to assess the patients' body image perspective to avoid any cause for dissatisfaction. BDD is usually comorbid with obsessive–compulsive disorder (OCD) and significant depression, anxiety,

Table 5 The comparison of BDDE, MBSRQ-AS and RSE-S in BDD patients before aesthetic procedure and after procedure

	BDD Patient		p value	
	Pre-procedure mean (SD)	Post-procedure mean (SD)		
BDDE	132.80 (5.86)	133.60 (7.71)	= 0.568	
MBSRQ-AS	AE	2.83(.16)	2.79(.23)	= 0.580
	AO	4.65(.15)	4.66(.20)	= 0.805
	BAS	2.49(.20)	2.39(.19)	= 0.110
	OP	3.78(.38)	3.70(.36)	= 0.560
	SW	3.5(.76)	3.4(.78)	= 0.486
RSE-S	17.53(6.59)	19.40(4.66)	= 0.071	

Illustration T tests were used to determine whether there was a significant difference in BDDE, MBSRQ-AS and RSE-S scores in fifteen BDD patients between pre-procedure and post-procedure. Confidence interval (CI) was 95 %

and other psychological disorders. It is essential to assess these further and, if necessary, refer to a mental health professional.

The strength of the present study was that we were able to compare aesthetic participants with a healthy general control group and there was one clinical psychologist who assisted in our interviews and diagnosis. Importantly, widely used instruments of BDDE, MBSRQ-AS, and RSE-S were used to assess participants' psychological symptoms.

However, there were limitations in this study. For example, only female participants were involved which meant that it was not possible to detect prevalence bias between genders. Furthermore, the sample size was still relatively small. There might also be issues relating to lexical, semantic, and cultural equivalents in the Chinese translation of the psychological questionnaires into Chinese. In addition, body dysmorphic disorder symptoms were not categorized (e.g., mild, moderate or severe) to evaluate the differences in symptom improvement after aesthetic procedures between different categories. Finally, there was only one time retest for the aesthetic patients and the follow-up was only one month later.

Conclusion

Aesthetic practitioners should be very careful with patients affected by body dysmorphic disorder. These patients, due to their psychiatric problems, will be difficult to satisfy regarding the postoperative outcomes, even if the aesthetic interventions were ideal. The routine use of questionnaires, such as MBSRQ-AR, BDDE-SR, and RSE-S, is recommended for the identification of patients who have underlying body image disorders. Screening can improve the identification of individuals at risk of developing BDD. Moreover, these measurement scales could be helpful for subjective outcome comparisons before and after aesthetic treatment.

Further research and investigation into the differences of BDD prevalence involving different aesthetic procedures and different genders in the Chinese population are suggested. In addition, there is a need to assess whether the prevalence of BDD is different between different nationalities, cultures, and ethnicities.

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Compliance with Ethical Standards

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

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