

Predicting the Tendency towards Rhinoplasty Based on Obsessive-Compulsive Personality Disorder and Body image

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Abstract

Background: The prevalence of mental disorders and injuries among cosmetic surgery applicants is higher than normal people.

Aim: The aim of the present study was to predict the tendency towards rhinoplasty based on obsessive compulsive personality disorder and body image.

Methods: The study population consisted of 100 people (30 males and 70 females) applicants for rhinoplasty who were selected by convenience sampling method by referring to three limited surgery clinics in Tehran. The instruments included the Millon Clinical Multiaxial Inventory-III (MCMI-III) and the Multidimensional Body-Self Relations Questionnaire-Appearance Scales (MBSRQ). Data analysis was performed using Pearson correlation test and multiple regressions in SPSS ver.21.

Results: The findings showed a significant positive relationship between obsessive compulsive personality disorder and body image, AE subscale, AO subscale, and BAS subscale with tendency towards rhinoplasty. Also, the results of regression analysis showed that obsessive compulsive personality disorder (16.3% ($R^2 = 0.163$)) and body image (14% ($R^2 = 0.141$)) and altogether explain 54% ($R^2 = 0.540$) of the tendency towards rhinoplasty.

Conclusion: Most people who refer to cosmetic surgery clinics have obsessive-compulsive tendencies and negative body image, and, therefore, it is recommended that clients undergo psychological evaluation in these clinics before surgery.

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Introduction

Rhinoplasty consists of the two Greek words rhino, meaning nose, and plasikos, meaning to shape the tissue. The history of rhinoplasty dates back to 500 BC when one type of punishment is cutting off the nose, which has been repaired by reoperation (1-3). There seems to be three reasons for rhinoplasty, first, a structural disorder in the nose that makes it

difficult to breathe. Second, deformity in the external or internal structures of the nose and lastly, changes the appearance of the nose for aesthetic reasons (4).

Overall, women are 85% more likely than men to seek rhinoplasty, and most applicants for rhinoplasty are 29 years old. Rhinoplasty has been performed increasingly in Iran. Findings show that only 10% of rhinoplasty surgeries are

due to impaired function and abnormal appearance of the nose, and other cases include only for the greater beauty of the nose (5). In fact, psychological components play an important role in the demand for cosmetic surgery as well as in prognosis and postoperative satisfaction. Therefore, psychological problems and disorders are common among cosmetic surgery applicants. Among the psychological components that can play a great role in people's tendency towards rhinoplasty are personality characteristics and body image. Body image perception is a type of perception of one's body and appearance. Since the motivation for cosmetic surgery is based on a combination of cognitive, personality, and interpersonal factors, it is directly related to people's thoughts and beliefs about their sense of self-worth. Thus, the higher the scores of negative beliefs about appearance, the more people feel inferior and psychologically seek to conceal or overcome this feeling and seek cosmetic surgery (6).

Body image is one of the most important aspects of self-appearance and self-evaluation during adolescence and is often defined as a degree of satisfaction with physical appearance (size, shape and general appearance), which is considered important at this age during adolescence since the complex psychological effects affect the whole concept (7, 8). The concept of body image is not fixed and has a dynamic essence. A person's ideal body image changes due to variables such as media representation, cultural customs, and friends' attitudes. This change in attitudes is usually accompanied by a change in feelings and thoughts, and even leads to a change in behavior under certain situations (9). In fact, cosmetic surgery is a cosmetic surgery of body image and psychological improvement is achieved by improving the body shape through surgery (10, 11).

Regarding the prognosis of surgery in people with minor deformities, it has been shown that even people with minor deformities benefit

from surgery and feel better about themselves after surgery (12); however, it is difficult to decide whether to perform surgery on normal-looking people. In these people, appearance dissatisfaction will continue after surgery and there is a possibility of re-requesting surgery (9). Body image expresses a person's attitude towards him/herself, along with feelings and thoughts that can change his/her behavior under various situations and in positive or negative directions, and is influenced by factors such as physical growth, interactions with the social environment, accidents, physical injuries and injuries (13). One of the characteristics of body image is the image that a person has of him/herself as fat, thin, short or tall, and this characteristic is called body mass index (BMI). People with high BMI are dissatisfied with their body image (8, 14).

Although factors such as variety seeking, financial resources, changes in facial components and the increasing focus of the mass media on the body image are also effective on the widespread use of cosmetic surgery, body image dissatisfaction is also considered and confirmed by most researchers (15) (16). Research has shown that cosmetic surgery applicants have a negative perception of themselves and this deformity disorder causes a tendency to cosmetic surgery (17). Feeling of a defect in physical appearance and especially in the face when the defects are imaginary or very minor and mild are the main diagnostic criterion of negative body image.

Body dysmorphic disorder is one of the characteristics that are present in most applicants for such surgeries; it often causes anxiety and a decline in individual functions in the areas of interpersonal, family, social and occupational relationships (18). Some studies have suggested that people who undergo cosmetic surgery despite minor defects in their appearance often suffer from psychological distress, low self-esteem, and distorted body image, and that their psychological profile is different from that of normal individuals (19).

Personality disorders are also very common in these people. Findings have shown that 48% to 57% of people with body dysmorphic disorder (BDD) have diagnostic criteria for at least 2 types of personality disorders. A total of 26% and 4% of them suffer from three and four types of concurrent personality disorders, respectively.

Clusters B and C of personality disorders have a higher prevalence in these individuals (12%-76%) and Cluster A has a lower prevalence (10%-40%). The findings of a study by Grossbart and Sarvar also showed that 71% of cosmetic surgery applicants were diagnosed with personality disorder. The most common of these personality disorders include narcissistic (25%), obsessive-compulsive personality disorder (12%), dramatic (10%) and borderline (9%). The high prevalence of narcissistic and obsessive-compulsive personality disorder has also been reported by other researchers (20).

Some researchers have found BDD and negative body image are more common in people seeking cosmetic surgery than normal people (21). Also, friends, family and classmates are the major important motivators for surgery (22). It seems that there is not much gender difference in the desire for cosmetic surgery, and the average age is 26 years and the most common personality trait of cosmetic surgery applicants has been a narcissistic personality pattern (9). In his research, Rayegan has also shown that when people's self-esteem decreases, it creates a negative perception, and these people seek to compensate for their BDD and increase their self-esteem by performing cosmetic surgery. For example, a study of eight people with BDD showed that only two surgeries out 25 surgeries, improved the symptoms of the disease, and the symptoms were exacerbated in other remaining 20 cases (23). It seems that most of the previous studies in Iran have been conducted on the consequences of cosmetic surgery and there have been a very limited number of studies on factors and personality disorders among the

cosmetic surgery applicants.

Due to the increasing demand of men and women for cosmetic surgeries, especially rhinoplasty, there was a need for the present research; therefore, the aim of the present study was to investigate the prediction of tendency towards rhinoplasty based on obsessive compulsive personality disorder and body image. The main question of the present study was whether obsessive compulsive personality disorder and body image can predict the tendency towards rhinoplasty among rhinoplasty applicants.

Methods

The current study was a descriptive correlation. The statistical population of the study included all rhinoplasty applicants in 2018 that referred to cosmetic surgery clinics in Tehran. After referring to three cosmetic surgery clinics (Bahman, Pouya, Mirdamad), a total of 100 people (30 male and 70 female applicants) were selected within six months. Due to the uncertainty of the statistical population of the number of rhinoplasty applicants referred to cosmetic surgery clinics in Tehran, the sample size was determined 100 people with reference to relevant articles published in reputable journals and the knowledge that based on the literature, the minimum number of samples in regression research is equal to 100 people, as well due to having difficulty in accessing the sample members and the executive restrictions. Also, the minimum sample size was estimated to be 114 people in regression research ($m8 + 50$) according to Tabakhtik and Fidel formulas. Moreover, according to the number of predictor variables and subscales and considering the possible drop-out in the final sample, the population sample of the present study was 125 people rhinoplasty applicants who were selected by non-random convenience sampling from eligible individuals. Therefore, after referring to three cosmetic surgery clinics in Tehran (Bahman Clinic, Pouya Clinic, Mirdamad Clinic), due to the drop-out and non-

compliance with the inclusion criteria, a sample of 100 people was selected. That is, these individuals were first interviewed, consulted with ENT specialists and were identified as rhinoplasty candidates. Then, a total of 100 applicants referring to these three clinics were selected as the sample of rhinoplasty after requesting and filing a case. Inclusion criteria included age range 18-30 years (because according to medical experts, most rhinoplasty applicants are in this age range), no history of illness and use of psychiatric drugs, no medical illness in order to determine the effectiveness of these cases, physical accidents, accidents and congenital cosmetic defects. Exclusion criteria also included invalid test, canceling rhinoplasty without a valid reason, and incomplete questionnaires.

Millon Clinical Multiaxial Inventory-III

This is a standardized self-assessment questionnaire that measures a wide range of personality information and emphasizes personality disorders. The original version of the test was developed in 1977 and has been revised twice since. The current version of the questionnaire consists of 17 items (24).

In the present study, the obsessive-compulsive personality disorder subscale of the mentioned 17-item questionnaire was used. Various studies show relatively good reliability of this questionnaire in clinical and non-clinical samples. Its reliability has been reported 0.67-0.89 and 0.88-0.93 using Cronbach's alpha and test-retest methods, respectively. The validity of the scale is estimated to be 0.90 to 0.96 (25). The validity and reliability of the Persian version of the questionnaire is as follows; a high retest validity coefficient with a median of 0.91 has been reported. Moreover, Cronbach's alpha coefficient for depression and obsessive-compulsive personality disorder subscales is higher than 0.90 and 0.66, respectively (26).

Multidimensional Body-Self relations Questionnaire [MBSRQ]

This is a 46-item self-assessment scale developed by Kash et al. to assess body image

(27). In the present study, its final form was used (28). The original version of the above scale consists of 6 subscales, which include: 1. Appearance evaluation (AE), 2. Appearance orientation (AO), 3. Fitness assessment (FA) or fitness evaluation (FE), 4. Fitness orientation (FO), 5. Subjective weight or self-classified weight (SW), and 6. Body areas satisfaction (BAS).

The internal consistency of the appearance evaluation (AE), and fitness orientation (FO) subscales was equal to 0.88 and 0.89, respectively (29). The validity and reliability of the Persian version of this questionnaire are equal to 0.84 and 0.98, respectively (30). The sub-scales are scored in such a way that, for example, the possible score range of AE subscale (7 questions) is 7 and 35 (each question has a minimum and maximum scores of 1 and 5, respectively). Similarly, the possible score range of AO subscale (12 questions), FA subscale (3 questions), FE (13 questions), SW (2 questions), and BAS (9 questions) is 12 and 60, 3 and 15, 13 and 65, 2 and 10, and 9 and 45, respectively. Data analysis was carried out using SPSS-21 software and mean, standard deviation for descriptive statistics, and Pearson correlation coefficient and multiple regression analysis for the inferential statistics. P-value < 0.05 was considered as the significance level. Moreover, data normality was determined using Kolmogorov-Smirnov test, to check whether the data were parametric or non-parametric, indicating that the research variables have a normal distribution. Error independence test indicates the absence of self-correlation, which is the optimal state in the main hypotheses related to residuals in regression analysis. In fact, the statistic value is in the range of 1.5 to 2.5; therefore, the null hypothesis (no correlation between errors) is accepted. Tolerance and VIF indices also show no multilinearity between the predictor variables. Each can play an independent role in explaining the scatter of scores of tendency towards rhinoplasty.

Results

Descriptive findings indicated that most study participants were in the age range of 22-25 years (56%, n=56 people) with a mean \pm SD of 22.61 ± 20.02 years (range=18-30.67). A total of 67% of them were women and 33% (n=33) were men. 84% (n=84) were single, 14% (n=14) were married and 2% (n=2) were divorced. Moreover, more than 58% of them were students (n=58) or people with university

education and the monthly income of 74% of them (n=74) was more than 1,500,000 tomans per month. A total of 51% (n=51) of participants did not have any job and 91% (n=91) also had no history of disorder and drug use. Pearson correlation coefficient was used to obtain the relationship between the research variables. The results of the calculated correlations between the variables and subscales are presented in Table 3.

Table 1. Kolmogorov–Smirnov test, error independence test and linearity indices

Variable	Kolmogorov - Smirnov Test				Error independence test	Test of linearity indices of the model	
	Number	Mean	Z	Sig.		Durbin-Watson	Tolerance
	Obsessive personality	100	3.450	1.117	0.147		
Body image	100	2.449	1.027	0.173	1.913	0.570	3.876

Table 2. Mean and standard deviation of scores of rhinoplasty applicants for in research variables

Variables / statistical index	Mean	Standard deviation
Obsessive-compulsive personality disorder	2.18	14.68
Body image	170.36	18.69
Appearance evaluation(AE)	26.52	4.71
Appearance orientation (AO)	49.26	4.34
Fitness assessment (FA)	10.94	2.45
Fitness orientation (FO)	43.52	7.40
Subjective weight or self-classified weight (SW),	8.86	1.06
Body areas satisfaction(BAS)	34.30	6.51

As shown in Table 3, there is a significant positive relationship between obsessive-compulsive personality disorder (OCPD) and body images with AE and OCPD with AO apparent, OCPD with BAS. Also, there is a positive and significant relationship between these three subscales of body image with the body image component ($\alpha = 0.05$). Therefore, there is a significant positive and direct relationship between the tendency towards rhinoplasty with OCPD, body image in general

and the dimensions of AE and overall BAS of body image; however, there is no significant relationship between other components and dimensions. In order to investigate the role of OCPD and body image in predicting the tendency towards rhinoplasty, stepwise multiple regression analysis was used. Findings show that the F value (21.129) is statistically significant with degrees of freedom 1 and 96, which indicates that OCPD and body image provide a significant explanation of the

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tendency towards rhinoplasty. Information about the coefficient of determination and the resulting ratios of regression analysis of OCPD and body image (Table 4) shows that OCPD and body image together can explain 54% ($R^2 = 0.540$) of the tendency towards rhinoplasty. Also, OCPD alone can explain 16.3% ($R^2 =$

0.163) of the tendency towards rhinoplasty. Body image alone can explain 14% ($R^2 = 0.141$) the tendency towards rhinoplasty, which means that six subscales of body image (1. AE, 2. AO, 3. FE, 4. FO, 5. SW, and 6. BAS), in total, explains 14% of the variance of people's tendency towards rhinoplasty.

Table 3. Correlation matrix of research variables

Statistical indices	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Obsessive personality	1								
(2) Body image	0.468*	1							
(3) Appearance evaluation(AE)	0.412*	0.290*	1						
(4) Appearance orientation (AO)	0.310*	0.311*	0.253	1					
(5) Fitness evaluation (FE)	0.170	0.153	0.220	0.139	1				
(6) Fitness orientation (FO)	0.141	0.134	0.123	0.117	0.174	1			
(7) Subjective weight (SW)	0.123	0.147	0.200	0.100	0.186	0.165	1		
(8) Body areas satisfaction (BAS)	0.391*	0.293*	0.160	0.167	0.190	0.134	0.161	1	
(9) Tendency towards Rhinoplasty	0.321*	0.245	0.391*	0.091	0.112	0.087	0.151	0.261	1

$\alpha = 0.05$

Table 4. Results of stepwise multiple regression analysis in predicting the tendency towards rhinoplasty based on obsessive-compulsive personality disorder and body image

Model	Sum of squares (SS)	DF (degree of freedom)	MS	F	p-value			
Regression	445.314	1	445.314	21.129				
Residues	2023.296	96	21.076		0.001			
Total	2468.61	97						
Predictor variables	Step	R	R ² (coefficient of determination)	ΔR^2	Non-standard coefficients	t(p)		
					SE (standard error)	Beta		
Constant					4.935	0.788	-	0.160 (0.874)
Obsessive-compulsive personality disorder	1	0.425	0.180	0.160	0.075	0.240	0.425	3.183 (0.001)
Obsessive-compulsive personality disorder and body image	2	0.783	0.540	0.360	0.083	0.210	0.390	3.980 (0.001)
Body image		0.396	0.156	0.141	0.526	2.559	0.583	4.865 (0.001)

Discussion

The results of the study on the hypothesis that obsessive-compulsive personality disorder and body image predicted the tendency towards rhinoplasty showed that obsessive-compulsive personality disorder and body image play a role in the tendency towards rhinoplasty and the research hypothesis was confirmed. There was a significant direct relationship between the tendency towards rhinoplasty with obsessive-compulsive personality disorder and body image (Table 3). In the first step, obsessive-compulsive personality disorder alone can explain 16.3% of the tendency towards rhinoplasty, which with the addition of the variable of body image in the second step, the coefficient of determination reached 0.540, which shows that body image alone explains 14% of the tendency towards rhinoplasty.

To explain these findings, according to Frederick et al. (10), it can be stated that OCPD and body image are related as two psychological structures, both of which are somehow related to individual's cognition and perception. That is, a person who has a negative image of his/her body and face will have a negative view of most life events. Based on the obsessive exchange view, the person will experience more stress by negatively processing events, and, therefore, the more positive the body image is, the less stress and obsession will be experienced.

Also, since OCPD is the most important predictor of tendency towards rhinoplasty followed by body, as the results confirm, most people who go to the cosmetic surgery clinic have a negative body image and, therefore, it is better to perform psychological examination on them before surgery. Body dysmorphic disorder (BDD) is also very common in plastic surgery applicants and is often associated with axis I disorders such as major depression, OCPD, social phobia, panic disorder, and substance abuse (4).

Personality disorders are very common in these people. To explain this hypothesis, it can be said that about half of the rhinoplasty applicants have OCPD and negative body image, so, to the best knowledge of the researcher, there is no guarantee for their postoperative satisfaction, even if the surgery yields the best results, since the source of their problem is inside them and beyond their nasal appearance, which can be due to other disorders and problems. Therefore, about half of the rhinoplasty applicants do not have the indication (signs and conditions necessary to be selected as a candidate for rhinoplasty) to undergo rhinoplasty. Also, the results of stepwise multiple regression on the hypothesis that OCPD predicts the tendency towards rhinoplasty showed that the OCPD variable predicts the tendency towards rhinoplasty. The ratio of F value indicated the relationship between this variable and the tendency towards rhinoplasty. Data on the coefficient of determination and the ratios obtained from the regression analysis of OCPD showed that OCPD alone can explain 16% of the tendency towards rhinoplasty.

Furthermore, to explain this hypothesis, it can be said that the results of this part of the study are consistent with the results of Friedrich et al. (10) and Swami et al. (24) who showed that 48%-57% of people with BDD have diagnostic criteria for at least 2 types of personality disorders. A total of 26% of them suffer from 3 types and 4% of them suffer from 4 types of concurrent personality disorders. Cluster B and C of personality disorders are more common (12%-76%) in these people and cluster A is less common (10%-40%).

The results are also consistent with the findings of a study by Sarvar (2), which showed that 71% of cosmetic surgery applicants have diagnostic criteria for personality disorder. The most common of these are narcissistic (25%), OCD (12%), dramatic (10%) and borderline (9%) personality disorders. The high prevalence of narcissistic and OCPD has also been reported by other researchers (20).

The results of the present study are consistent with the findings of a study by Bellino & Goldfield (31) in which 73 subjects who wanted surgery were investigated. A total of 53% of the subjects were diagnosed with Axis II personality disorders. Common personality disorders included avoidant, narcissistic and borderline were schizotypal and OCPD. In general, there was a significant relationship between defects in their appearance and the decision to perform cosmetic surgery with the severity of personality disorders (31).

Also, consistent with the present study, Dr. Zojaji et al. referred to OCPD and antisocial personality disorders as the the most and least common personality disorders among rhinoplasty applicants, respectively. Qalebani and Afkham Ebrahimi (21) also stated that the prevalence of OCPD in rhinoplasty applicants is significantly higher than other personality patterns, which are consistent with the results of the present study. To explain this hypothesis, according to the researcher, it can be said that OCPD symptoms, including frequent referrals for preoperative counseling, repetitive questions, extreme idealisms, unreasonable expectations and high standards in rhinoplasty applicants are quite obvious in all previous stages before and after surgery, confirm the above hypothesis. This is due to high self-doubt and being satisfied with appearance provided that the defects of the nose are eliminating until reaching a state of perfectionism.

The results testing the hypothesis that body image predicts the tendency towards rhinoplasty, showed that body image predicts the tendency towards rhinoplasty. The results of stepwise multiple regression analysis showed that body image alone can explain 14% of the tendency towards rhinoplasty and, therefore, the research hypothesis was confirmed. This prediction was obtained with obsessive-compulsive personality disorder at 0.54. Consistent with the findings of this hypothesis, some researchers, Qalebani et al. (21), also concluded that the BDD and more negative

body image is more common in people seeking cosmetic surgery than normal people. Friends, family and classmates are also the main motivators for surgery (22). Some believe that cosmetic surgery is in fact cosmetic surgery of body image and psychological improvement is achieved by improving the body shape through surgery (31). The results of this study are consistent with the present study. A total of 56 applicants of cosmetic surgery (11 men, 45 women) were investigating. Results of two types of diagnostic interviews (interviews for personality disorders, psychotic and mood disorders, BDD interviews) showed that impaired body image has the highest prevalence compared to the general population (53%).

This finding is consistent with the findings of a study by Frederick et al. (10) that investigated issues related to cosmetic surgery and body image and attitudes of men and women throughout life in the United States. They concluded that people who were interested in cosmetic surgery had poorer body image than those who were not interested in this surgery. These results can be explained to some extent based on the selection hypothesis. In this way, performing such surgeries attracts a special group of people and not everyone performs surgery, even in spite of their appearance defects. As the results of previous research have shown, the majority of the applicants have abnormalities in their mood and psychological profile. Although these abnormalities may not reach morbid levels, they are a sign of immaturity and mental immaturity.

To explain this hypothesis, it can be said that in many rhinoplasty applicants, self-perceived ugliness and inappropriate body image lead them to cosmetic surgery clinics, because, for many years, our surgical team has been wanting all patients to give a score to their beauty before surgery. This score is then compared with the standard beauty scores and results usually show a huge difference (less than the standard score) that confirms the above hypothesis.

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One of the limitations of the present study was the non-random sampling method which can increase the probability of error. There were no comprehensive control and comorbid clinical disorders, such as anxiety disorders and sociocultural factors with obsessive-compulsive personality disorder. Therefore, future studies with random sampling method can reduce the probability of error and also a detailed study of the psychological history of individuals to identify possible comorbid disorders can help to solve this limitation. Therapists and counselors who deal with people seeking cosmetic surgery are advised to pay attention to personality traits and mental disorders associated with this disease, because being aware of these variables can help provide better and more appropriate services to these patients.

Conclusion

According to the results of the present study suggesting a relationship between obsessive-compulsive personality disorder with other disorders, it is suggested to pay attention to the treatment of comorbid disorders in these patients, because reconsideration of patient selection, examination, and treatment from a psychological point of view, according to the findings of the present study, can prevent personal and social damage caused by subsequent problems.

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Conflict of Interest

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