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## Patients without psychopathology applying for aesthetic rhinoplasty may display elevated harm avoidance and reduced self-directedness: a cross-sectional, case–control study

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### ABSTRACT

**Objective:** The present study was intended to compare the body image, self-esteem, temperament and character traits of a group of patients who applied for aesthetic rhinoplasty with healthy controls subjects.

**Methods:** Thirty patients who applied the Plastic, Reconstructive and Aesthetic Surgery Clinic at the Firat University Hospital for aesthetic surgery were included in the present study. In addition, thirty healthy individuals who met the study criteria and were matched the patient group by age and gender were included in the study as the healthy control group. Temperament and Character Inventory (TCI), body image (BI) scale, The Rosenberg Self-Esteem Scale (RSES), and sociodemographic data form were applied to patient and control groups.

**Results:** The patients with aesthetic rhinoplasty had higher body image (BI) scores compared to the control group ( $t = 2.828, p = .006$ ), and had higher novelty seeking (NS) ( $p = .038$ ) and lower harm avoidance (HA) scores for temperament dimensions. The outcomes of the correlation analysis yielded a positive correlation between the RSES and BP scores and the HA temperament subscale scores were positively correlated with RSES ( $r = 0.389, p = .033$ ) and BP ( $r = 0.461, p = .010$ ) scores. In addition, a negative correlation ( $r = -0.496, p = .005$ ) was determined between the RSES scores and self-directedness (SD), which is a character subdimension.

**Conclusion:** The present study established that there existed differences in the aesthetic rhinoplasty patient group in terms of body image, self-esteem, temperament and character traits. The differences in temperament traits could indicate that the condition is hereditary. Determining such differences was considered significant for both identifying patients as candidates for surgery and predicting the level of satisfaction from surgery. In order to obtain better results, it is required to perform longitudinal studies with larger sample.

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temperament; character;  
self-esteem; body image

## Introduction

Aesthetic surgeries became highly prevalent in recent years [1]. External appearance is one of the most important factors that affect the life experience of an individual. The main objective of aesthetic surgery is to help the individual change his/her body image positively and increase self-confidence, hence become more productive, happy and successful in family, work and social life [2]. Nose and face are considered important for the identity image of an individual. Particularly, the appearance of a nose is fundamental for the physical identity and cosmetic appearance of an individual. Therefore, aesthetic rhinoplasty became the most commonly practiced facial plastic surgery [1]. It was reported that several psychiatric pathologies such as body dysmorphic disorder, anxiety disorders, depression and eating disorders could be present in

individuals who applied for aesthetic rhinoplasty [3,4]. However, there exists a limited number of studies that examine the personality disorders in individuals who applied for aesthetic rhinoplasty [2]. Yet, it is an issue that requires attention whether there are distinctive characteristics of individuals who apply to plastic surgery, despite the absence of distinctive psychiatric pathologies.

Appearance is an important part of individual's identity and it emerges in social situations. So, it is important for body image and self-esteem. Current global trends (including explosion of social media, increased mass media attention) made applying to plastic surgery increased [5,6]. Despite the increasing popularity of aesthetic surgery, only a limited percentage of individuals apply for aesthetic surgery. In addition, the presence of many non-surgical aesthetic

interventions could suggest that individuals who want aesthetic surgery could have different personality traits compared to the individuals who do not want aesthetic surgery. The most distinctive characteristic of individuals who want aesthetic surgery could be the likelihood of feelings and thoughts on their physical appearance. Previous studies examined the personality traits of aesthetic surgery and rhinoplasty patients and the relationship of these personality traits with factors such as satisfaction from the surgery and self-esteem [2,7].

Body image could be accepted as the reflection of all sensations of an individual, regarding his/her body, in the brain. It is a dynamic concept that includes the thoughts, images and emotions of an individual about his/her body [8,9]. One of the components of body image, the evaluation of the appearance, is related to being satisfied with one's body, and the other, investing in the appearance, is related to focusing the attentions, thoughts and behaviours on the body [10]. A poor body image is associated with poor self-esteem [11]. Particularly, the negativities in body image were suggested to be significant motivational factors in applying for plastic surgery [11]. Given the fact that the nose is an important influence for aesthetic concerns, it strongly affects the body image and self-esteem of an individual [12].

Temperament is considered as the genetically transmitted structural traits and these traits barely change throughout life. Temperament dimensions reflect the genetically transmitted biological aspects of personality. Character dimensions are the traits that are influenced by the culture, past experiences and social learning [13-16]. In his psychobiological theory of personality, which defined the structure and development of personality, Cloninger defined temperament via four dimensions as novelty seeking (NS), harm avoidance (HA), reward dependence (RD), persistence (PS). Cloninger also defined character through three dimensions, namely, self-directedness (SD), cooperativeness (CO) and self-transcendence (ST). Personality structures, in other words temperament and character traits, significantly affect the emotions, behaviours, human relations and life style of individuals. Therefore, such traits could be effective in reaching to an important decision such as applying for aesthetic rhinoplasty and the realization aesthetic rhinoplasty surgery.

Given the scope above, the present paper focuses to compare the body image, self-esteem, temperament and character traits between patients who applied for aesthetic rhinoplasty and healthy controls and to examine the interaction of them each other.

## Method

Thirty patients who applied the Plastic, Reconstructive and Aesthetic Surgery Clinic at the Firat University

Hospital for aesthetic surgery were included in the present study. In addition, thirty healthy individuals who met the study criteria and were matched the patient group by age and gender were included in the study as the healthy control group. The study criteria for selecting the patients for the study were established as follows: being between the ages of 18 and 65, being literate and having no systemic, metabolic or psychiatric disorders. Voluntary participants, who have no clinical complaints and were not diagnosed with a systemic, metabolic or psychiatric disorder were selected as the control group. Subsequent to recording the sociodemographic characteristics of the patient and control groups, the participants were examined for psychiatric diagnoses according to the DSM-IV-TR diagnostic criteria. Prior to the initiation of the study, necessary permissions and approvals were obtained from the Ethics Committee of the Faculty of Medicine at Firat University. Local Ethics Committee approval was obtained, with the date-number of 12.12-04/04. The study was conducted between January 2013 and January 2016. Forty-five patients were invited to the study. Eleven of them did not meet the inclusion criteria having comorbid diseases. Four of the patients declared that they had wanted to retreat from the study. All patients and controls were informed prior to the study and their consents were obtained.

## Scales used in the study

**Sociodemographic Data Form:** The data form contained general information of the patient and control groups. Age, gender, marital status, level of education, level of income and habits were included in this form.

**Scale for the Structured Clinical Interview For DSM-IV Axis I Disorders (SCID-I):** DSM-IV-TR is a semi-structured clinical interview scale developed for the diagnosis of Axis I disorders. This scale was constituted through a re-evaluation of the test based on the diagnostic scale of DSM-III-R in 1997, according to DSM-IV-TR diagnostic criteria. It starts with a sociodemographic data guide and consists of seven diagnostic groups. It is used as the standard interview that facilitates the confirmation of diagnosis in clinical trials. Its adaptation and reliability studies for Turkish language were conducted by Çorapçıoğlu et al. [17].

**Temperament and Character Inventory (TCI):** Cloninger attempted to develop a psychobiological model on temperament and character in 1987 and based on this model provided the Tridimensional Personality Questionnaire as the first scale, and in 1993 Cloninger and his colleagues added one temperament dimension and three character dimensions to this scale and changed its name to Temperament and Character Inventory (TCI) [14-16]. TCI is a self-evaluation scale composed of 240 items responded via "right" or

“wrong”. It consists of seven main scales. Except the PS, all scales are divided into three to five subscales. It has four temperament scales: NS, HA, RD and PS. The character traits are evaluated through three scales, namely, SD, CO and ST. The adaptation and reliability studies of the Temperament and Character Inventory (TCI) for Turkish language were conducted by Köse et al. [18]. In this study, the Turkish version of the TCI scale Cronbach’s alpha values were found to be .66 in the temperament dimension, between .82 and .83 in the character dimension [18].

**Body Image Scale (BI):** It is a 40-item scale, self-responded by the participants and is designed to indicate how individuals perceive different parts of their body and their physiological functions [19]. The higher overall score indicates that the satisfaction of the individual with his/her body parts or functions is lower. The validity and reliability studies of the scale in Turkish language was performed by Hovardaoğlu [20]. When Cronbach’s Alpha values are considered, the internal consistency coefficients of the two halves of the scale were found to be 0.79 and 0.87, respectively. The internal consistency coefficient of the whole scale was 0.95.

**The Rosenberg Self-Esteem Scale (RSES):** The scale consists of 12 subscales and the present study employed the first subscale of the Rosenberg Self-Esteem Scale (RSES), which includes ten items [21]. The validity and reliability studies of the scale, which measures self-esteem, was conducted by Çuhadaroglu [22]. In the adaptation study of the scale the reported Cronbach alpha reliability coefficient was 76.

**Statistical Evaluation:** The data obtained in the present study were statistically analysed via SPSS for Windows 18.0 (Statistical Package for Social Sciences). Subsequent to the testing of visual and statistical normal distribution, parametric tests were used for statistical analysis. Chi-square test, student’s t-test and Pearson correlation test were used for statistical analysis. Linear regression analysis was performed for the

study. Statistically significance value was accepted as  $p < 0.05$  for all results.

## Results

The study included 30 patients who applied for aesthetic surgery and 30 healthy subjects who met the study criteria, were age- and gender-matched with the patient group and who had no past and present incidence of psychiatric or neurological disorders. The average age for the patient group was determined as  $30.37 \pm 9.45$  and for the control group this value was found to be  $32.97 \pm 10.57$  ( $p = .319$ ). Except marital status, being single, ( $\chi^2 = 5.455$ ,  $p = .020$ ), no significant difference was determined for the patient group based on age, gender, level of education and habit of smoking (Table 1). Once the patient group was compared to the control group, no significant difference was determined for self-esteem, yet there was a statistically significant difference in the body image scores ( $t = 2.828$ ,  $p = .006$ ). The body image scores of the patient group indicate lower satisfaction with their body when compared to that of the control group.

The higher NS scores in the patient group in comparison to the control group was found to be statistically significant ( $p = .038$ ). Moreover, HA scores were found to be lower for the patient group, although the scores were not statistically significant. In the subscale analysis, it was determined that the highness of the extravagance and resourcefulness scores were statistically significant ( $p = .019$  and  $p = .034$ , respectively). Although not statistically significant, self-acceptance scores were determined to be low ( $p = .497$ ) for the patient group (Table 2).

The Pearson correlation analysis indicated that there was a positive correlation between the BP scores and HA ( $r = 0.461$ ,  $p = .010$ ). It also presented the positive correlation between the RSES scores and HA ( $r = 0.389$ ,  $p = .033$ ) and the negative correlation between the RSES scores and SD ( $r = -0.496$ ,  $p = .005$ ). In

**Table 1.** Sociodemographic characteristics of the patient and control groups.

	Case		Control		Statistics	p
	n:30	%	n:30	%		
Gender						
Female	19	63.3	15	50	$\chi^2 = 1.086$	$p = .297$
Male	11	36.7	15	50		
Marital status						
Single	21	70	12	40	$\chi^2 = 5.455$	$p = .020^*$
Married	9	30	18	60		
Education level						
Under University	12	40	10	33.3	$\chi^2 = .287$	$p = .592$
University	18	60	20	66.7		
Cigarette						
User	11	36.7	6	20	$\chi^2 = 2.052$	$p = .152$
Not	19	63.3	24	80		
Age	$30.37 \pm 9.45$	$32.97 \pm 10.57$	$t = -1.004$	$p = .319$		
RSE	$0.817 \pm 0.664$	$0.581 \pm 0.634$	$t = 1.407$	$p = .165$		
Body image	$94.07 \pm 23.73$	$77.57 \pm 21.39$	$t = 2.828$	$p = .006^*$		

Note:  $\chi^2$ : ki kare testi, t: student t testi.

\* $p \leq .05$ .

**Table 2.** Temperament and character inventory scores for the patient and control groups.

	Case group <i>n</i> :30	Control group <i>n</i> :30	<i>t</i>	<i>p</i>
<i>Mood</i>				
Novelty-seeking	20.13 ± 5.05	17.23 ± 5.51	2.122	0.038*
Feeling excited by discovery	6.00 ± 1.89	5.33 ± 1.72	1.424	0.160
Impulsivity	4.53 ± 2.19	4 ± 1.91	1.004	0.320
Extravagance	5.56 ± 1.86	4.3 ± 2.16	2.423	0.019*
Disorder	4.03 ± 1.71	3.60 ± 2.20	0.850	0.399
Harm avoidance	16.8 ± 6.34	17.06 ± 6.10	−0.166	0.869
Concern for expectation	5.26 ± 2.44	5.43 ± 2.06	−0.285	0.777
Fear of uncertainty	4.46 ± 1.75	4.33 ± 1.51	0.315	0.754
Shyness with strangers	3.03 ± 2.26	3.2 ± 2.18	−0.290	0.773
Easy fatigability	4.03 ± 2.26	4.1 ± 2.44	−0.110	0.913
Reward dependence	14.26 ± 3.77	14.13 ± 2.86	0.154	0.878
Affectivity	7.2 ± 1.78	7.4 ± 1.69	−0.445	0.658
Commitment	4.96 ± 1.88	4.26 ± 1.70	1.511	0.136
Dependence	2.1 ± 1.58	2.46 ± 1.22	−1.003	0.320
Persistence	4.83 ± 1.82	4.66 ± 1.76	0.360	0.720
<i>Character</i>				
Self management	27 ± 6.99	26.46 ± 7.13	0.292	0.771
Taking responsibility	4.56 ± 2.31	4.46 ± 2.16	0.173	0.863
Intentionality	5.56 ± 1.43	5.43 ± 1.92	0.305	0.762
Skillfulness	3.20 ± 1.15	2.56 ± 1.10	2.169	0.034*
Self-acceptance	5.03 ± 2.42	5.46 ± 2.48	−0.683	0.497
Compatible sec. temperaments	8.63 ± 2.10	8.53 ± 2.25	0.177	0.860
Collaboration	28.46 ± 5.80	30.16 ± 5.33	−1.181	0.242
Social approval	5.80 ± 1.71	6.13 ± 1.97	−0.698	0.488
Empathy	4.46 ± 1.52	4.60 ± 1.37	−0.355	0.724
Charitableness	4.50 ± 1.25	4.83 ± 1.23	−1.038	0.303
Sympathy	6.83 ± 2.85	7.50 ± 2.12	−1.025	0.310
Virtuousness	6.86 ± 1.79	7.10 ± 1.29	−0.577	0.566
Getting over oneself	20.36 ± 5.73	18.73 ± 4.83	1.193	0.238
Self-loss	6.73 ± 2.54	6.03 ± 2.47	1.081	0.284
Self-transcendence	5.43 ± 2.47	5.03 ± 2.32	0.645	0.521
Spiritual acceptance	8.20 ± 2.15	7.66 ± 2.53	0.877	0.384

Note: *t*: student *t* testi.\**p* ≤ .05.

addition, a positive correlation was determined between the BP and RSES scores ( $r = 0.619$ ,  $p < .001$ ). When the factors determining the rhinoplasty procedure were examined by linear regression analysis, BI ( $p = .034$ ) and SD3 ( $p = .016$ ) were determined.

## Discussion

In the present study, NS scores of the patient group, who applied to the plastic surgery outpatient clinic with the purpose of aesthetic rhinoplasty, were found to be high for temperament and character components. The extravagance and resourcefulness scores were determined to be high based on the subscale analysis. Harm avoidance and self-acceptance scores were found to be low, although these results were not statistically significant. Furthermore, the body image scores of the patients, who considered aesthetic surgery, were found to be high and patients with high body image scores were found to be less satisfied with their bodies, in other words, these patients were determined to be dissatisfied with their bodies.

The literature comprises only a limited number of studies that examine the personality traits of patients who apply for aesthetic surgery and aesthetic rhinoplasty. One of the studies, which focus on the above-mentioned subject, determined emotional disorders in 20% of the aesthetic surgery patient group, however,

no psychotic disorders were detected [5]. In another study, conducted by Edgerton et al. [6], personality problems were determined in 50% of the patient group. Zojaji et al. [2] conducted a study with rhinoplasty patients and highlighted that these patients highly had obsessive compulsive and hypochondriac characteristics. These studies emphasized the relationship between the personal traits and satisfaction with the surgery.

Novelty seeking is one of the components of temperament in the TCI and is related to the hereditary tendency to exploration, impulsive decision-making, reward clues and exploratory excitability, rapid irritation and active avoidance from hindrance. NS is associated with low dopaminergic activity. In the present study, high NS scores in the patient group could be evaluated as a factor that rendered the processes of aesthetic rhinoplasty decision easier. Pecorari et al. [7] studied the relationship between the aesthetic rhinoplasty and temperament, character and body dysmorphic disorders and determined that the subjects in the patient group with higher NS had high impulsivity and were more invested in their external appearance. Higher NS scores related to impulsivity and excitability in reward clues in the patient group, who applied for aesthetic rhinoplasty, were both consistent and compatible with the literature [7,23,24]. Such outcome indicates that the high NS scores in the patient



group could indicate higher willingness for aesthetic surgery. In studies that scrutinized the personality traits of aesthetic surgery patients highlighted the existence of behavioural disorders rather than the psychotic personality disorders [2,13]. Related findings overlapped with the findings of the present research.

HA score, which is another component of temperament, was determined to be low in the present study. Individuals with a low HA score could commonly be defined as the courageous, enjoyable, energetic and optimistic individuals. Higher HA scores, on the other hand, were identified in individuals who are passive, pessimistic, stressful and who have the tendency to self-prevention [15,16]. Psychiatric disorders were associated with elevated HA scores in depression and anxiety disorders, and it was reported that these conditions could be associated with difficulty in decision-making and reduction in energy levels [25,26]. The present study considers the courageous and challenging nature of the individuals with lower HA scores as a facilitating factor in making the decision for a surgery. Sharif et al. [23] conducted a study on nasal surgery patients and determined differences between the patient and control groups based on the ST scores and the temperament subscales NS, HA and PS. Contrary to the reports of Sharif et al. [23], the present study determined lower HA scores. Higher HA scores were interpreted as low self-esteem and submission to the dominating social views on beauty. Considering that temperament dimensions are hereditarily reflected on personality, temperament differences in the patient group could be referring to possible genetic traits.

Contrary to the temperament dimensions, the character dimensions in TCI are considered to be reflected on personality through the influence of culture. Self-acceptance, one of the subscales of the character dimension SD, was determined to be low for the patient group of the present study, yet the resourcefulness subscale was found to be high. Resourcefulness subscale is related to cooperation and agreement with other individuals. Moreover, the present study determined a negative correlation between the SD scores and self-esteem. The individuals with lower scores of self-acceptance were reported to not to take responsibility and not to be in peace with themselves [16]. It could be considered that the patients applied for surgery in order to find a resolution for such situations.

Body image includes thoughts, images and emotions related to an individual's body. The image of body in mind is about body image [8]. In the present study, the higher values for body image in the patient group indicated that the patients were not satisfied with their bodies. Therefore, body image in the patient group was considered to be related to applying for aesthetic surgery. Conducted studies indicated that dissatisfaction with body image was one of the most important reasons of applying for plastic surgery

[27,28]. Successful aesthetic interventions are considered to have positive effects on the body image, hence the relative self-esteem [10]. Such positive effect is also reflected on the mental and physical health. In a study conducted with aesthetic rhinoplasty patients, surgical intervention was emphasized to have positive effects on body image and life qualities [29].

Another study concluded that body image was not functional and was related to depression in aesthetic surgery patients. In addition, it was indicated that this relationship could be effective on the post-surgery care and satisfaction levels [9]. In their study, Maulton et al. [28] determined that the higher levels of dissatisfaction on body image were related to young age, level of depression and low self-esteem in patients who applied for aesthetic surgery. Studies that focus on body image in aesthetic surgery patients emphasized that self-esteem was one of the most significant psychiatric variables [30,31]. Pecorari et al. [7], in their study that supports the relationship between body image and self-esteem, focused on a patient group prior to the aesthetic rhinoplasty and concluded that low self-esteem was related to the dissatisfaction related to the body image. The findings of the present study also established the positive correlation between the body image scores and self-esteem scores, hence supported the findings of previous studies. A study that reported the findings that individuals with positive body image had good self-esteem, lower depressive symptoms and such conditions were gender-independent supported the body image and self-esteem relationship highlighted in the present study [32].

The dissatisfaction of body image in the patient group of the present study was considered to play a significant role in applying for the aesthetic surgical interventions, acknowledged to positively affect the body image scores [7,10,29,33,34]. Considering the positive effects of successful aesthetic surgical interventions on the body image and self-esteem, it could be concluded that these criteria could play a significant role in patient selection.

The present study also determined a negative correlation between the body image scores and HA scores. A conducted study indicated that the dissatisfaction of body image in the aesthetic surgery patient group was related to the depressive symptoms and interpersonal relations [28]. HA scores, which were related to behaviours such as pessimism, decrease in self-esteem, passive avoidance, were negatively correlated with body image in the present study and therefore supported the findings of Moulton et al. [28]. In this respect, HA scores, related to being courageous and staying active, could be expected to be higher for the patient group of the present study, who were dissatisfied with their body image. On the other hand, the present study determined a positive correlation

between the BP and RSES scores, and as expected self-esteem was found to be high in the patient group, dissatisfied with body image. Moreover, RSES scores were found to be positively correlated with the temperament dimension HA and negatively correlated with the character dimension SD. Self-acceptance for own choices, resourcefulness in problem-solving and development of self-confidence are considered to be related to the SD component of the character dimensions. Higher SD score in the patient group with lower self-esteem scores could be related to taking responsibility in solving problems, thus facilitates the option of aesthetic surgery. There exist studies in the literature which emphasized high SD scores for aesthetic surgery patients [23]. Such high scores were interpreted as the tendency of self-sufficient and mature individuals towards surgery in order to increase their quality of life and to better their state of mind.

There are several limitations to the present study. The fact that the study is cross-sectional in nature, the possibility that the number of patients studied could influence the interpretations and several scales used in the study were self-reported-scales could be reported as the limitations to the present study. Another limitation was the lack of power analysis. Despite these limitations, significant findings were obtained based on the body image and personality traits of the aesthetic rhinoplasty patients. Finally, reduced external generalizability for other clinical populations and for patients applying for functional rhinoplasty should be added as another limitation of the present study.

It is considered that determining the body image, temperament and character traits of aesthetic rhinoplasty patients is highly significant both in selecting the candidate patients for surgery and in predicting the level of satisfaction after the surgery. Such findings could be significant in terms of decreasing treatment costs, labour loss and preventing unnecessary interventions.

The results of the present study indicated that BP scores and NS scores were higher and HA scores were lower in aesthetic rhinoplasty patients when compared to those of the control group. The results of the correlation analysis presented a positive correlation between the RSES and BA scores, and the HA subscale scores of the temperament dimension were positively correlated with RSES and BA results. In addition, a negative correlation was determined between the RSES scores and the SD subscale scores of the character dimension. Such results could indicate that aesthetic rhinoplasty patients were capable of presenting differences in temperament traits and such desire for change could be inherited. In order to achieve improved results, it is essential to determine the objectivity criteria in the success of the surgical procedure, to take the possibility of change during the long-term follow-up studies into consideration and to conduct studies with a larger number of participants.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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