



Original Article

Psychometric evaluation of the perfectionism scale's characteristics regarding physical appearance in patients seeking rhinoplasty surgery

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ABSTRACT

Introduction: This study aimed to investigate the psychometric characteristics of the perfectionism scale regarding physical appearance in patients seeking rhinoplasty.

Methods: This cross-sectional study involved 250 individuals seeking rhinoplasty in Kermanshah beauty clinics. Participants were purposively selected. Tools included perfectionism, social comparison, and body image acceptance scales. Divergence and convergence were assessed using various scales. Data analysis was performed using SPSS version 25 and LISREL.

Results: The obtained value for the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.83, indicating that the sample adequacy was desirable, and the data in this study had the potential for factor analysis. The significance level for Bartlett's test of sphericity was also less than 0.0001, demonstrating the appropriateness of factor analysis for identifying the structure (factor model). Furthermore, the Cronbach's alpha-coefficient for the entire scale was 0.853, indicating acceptable questionnaire reliability.

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Internal consistency among the perfectionism subscales was confirmed. Additionally, the correlation between perfectionism subscales and measures of interindividual sensitivity and body appearance acceptance was confirmed ($p < 0.001$). Results supported the convergent validity of perfectionism with appearance acceptance and the divergent validity of perfectionism with interindividual sensitivity.

Conclusion: This questionnaire, a self-report tool for measuring perfectionism traits in individuals seeking rhinoplasty, is recommended for use alongside interviews and observations for a thorough assessment. However, results may be influenced by individual biases. Despite this, the acceptable validity and reliability of this questionnaire make it suitable for research.

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Introduction

Humans have always appreciated beauty, and the inclination toward beauty has been inherent in human nature for a long time. A pleasing appearance enhances an individual's self-perception and boosts their self-confidence, leading to more socially acceptable interactions.¹ The fusion of beauty with industrial and medical advancements has transformed beauty from solely a natural and biological characteristic into an acquired attribute.² Today, cosmetic surgery is one of the most common surgical procedures worldwide, and its utilization is increasing.³ Rhinoplasty refers to any type of plastic surgery performed to reconstruct or enhance the aesthetic aspects of the nose. Rhinoplasty, or nasal cosmetic surgery, is the most challenging and complex cosmetic surgery procedure that aims to improve the appearance of the nose.⁴

In a study conducted in the United States in 1997, 56% of women and 43% of men were dissatisfied with their appearance. In 2007, 11.7 million people in the United States underwent cosmetic surgery, representing a growth of 142% compared with 1997.⁵ Compared with Western countries, the number of rhinoplasty candidates in Iran, especially among the young generation aged under 30 years, is remarkably high and shows an annual upward trend. This trend could impose substantial costs on the healthcare system.⁶ The popularity of rhinoplasty in Iran has increased more than in any other country in the past 10 years. Research has indicated that the undesirable spread of cosmetic operations in society is influenced by psychological factors.⁷

Perfectionism is a personality trait defined as the pursuit of flawlessness. On one hand, individuals with perfectionistic personalities make up most candidates for cosmetic surgery, especially rhinoplasty, and a significant portion of post-operative dissatisfaction is associated with these individuals. Psychologically, perfectionism pertains to individuals who set high and unattainable standards for themselves.⁸ On the other hand, body dissatisfaction, as confirmed by all researchers, is a motivator for the desire for cosmetic surgery. Physical appearance is a significant part of body image because it is the primary source of information that others use for social interactions with that individual.⁹

Body image is the internal representation of external appearance involving physical, cognitive, and attitudinal dimensions. It includes personal evaluation, investment in external appearances, and feelings indicating the significance of inner appearance. The expanding scope of body image concerns, particularly among young individuals, consumes time and resources daily. Many are engaged in the tireless pursuit of external beauty as part of their quest for perfection.¹⁰ Therefore, according to the individual, perfectionism is the pursuit of an impeccable and flawless existence, which can lead to a transformation of one's appearance and make one more beautiful.¹¹ It can be said that cosmetic surgery is a powerful tool for achieving an idealized and desired self, where feelings of undesirability

or self-discontent are addressed. Thus, in line with these findings, body dissatisfaction, perfectionism, and early maladaptive patterns can significantly influence the desire for rhinoplasty.¹²

Therefore, the objective of this study was to investigate the psychometric characteristics of the perfectionism scale regarding physical appearance in patients seeking rhinoplasty in Kermanshah.

Materials and Methods

This was a cross-sectional study. After three clinical psychologists translated the perfectionism scale regarding physical appearance, a harmonized version of the three translations was provided in the next stage. Any semantic and conceptual inconsistencies were resolved through consultation with the original questionnaire author.

After preparing an initial version, the questionnaire was administered to a sample of 50 individuals, and issues such as incomprehensible phrases were addressed. In the final stage, 250 individuals seeking rhinoplasty in beauty clinics in Kermanshah were purposively selected as the sample. Many researchers in this field, such as Fidell and Tabachnick,¹³ recommended that a minimum sample size of 200 individuals be used for confirmatory factor analysis (CFA).

In this study, a sample size of 250 individuals was chosen, considering that some questionnaires may not be completed fully or may be completed randomly and accidentally. Subsequently, the tools used included the perfectionism scales regarding physical appearance: the Social Comparison Scale (SCS) and the Body Image Acceptance and Action Questionnaire (BI-AAQ). The SCS, Interindividual Sensitivity Measure (IPSM) for conformity scale, and the BI-AAQ were used to assess convergence and divergence.

SCS

Festinger (1954)¹⁴ emphasized social comparison as a primary variable in social relationships and developed the first comprehensive theory of social comparison. Social comparison, in the service of forming social ranks, utilizes dimensions such as lower-upper and weaker-stronger.¹⁵ However, in humans, the following two main dimensions of social rankings have emerged: (1) comparisons of power, strength, and relative aggression (i.e., the ability to win in conflicts and challenges) and (2) attractiveness and social talent (i.e., the ability to excel in competitions where others choose in their favor).

IPSM

The IPSM (Rejection Sensitivity Questionnaire [RSQ]) was developed by Downey and Feldman (1996)¹⁶ to assess people's anxiety/worry and expectations of acceptance.¹⁷ This scale consists of 18 hypothetical situations in which rejection from an important person (friend, girlfriend/boyfriend, or parents) occurs. For each of the 18 situations, participants first evaluate their own level of concern/anxiety about such an event. In the same scenarios, participants then assess how likely it is for another person's support to help them.

BI-AAQ

Concerns related to body image are typically associated with negative consequences such as eating disorders and decreased well-being. However, despite being dissatisfied with their bodies, some individuals can demonstrate psychological flexibility and remain committed to their valuable goals. This increased flexibility is measured by the BI-AAQ.¹⁸

Determining the sample size is crucial in factor analysis for collecting data related to structural equation modeling. According to Kline (2010)¹⁹, in exploratory factor analysis (EFA), 10 to 20 samples are required per variable, but a minimum sample size of 200 is justifiable.²⁰ The recommended sample size for CFA is about 200 samples for 10 factors. Based on this, the research sample included 250 individuals applying for rhinoplasty. To determine the sample size, the following formula for modeling was used, where 20f represents the number of variables used in the model: $5f \ll n \ll 15f$, which means the sample size should be at least 200 individuals. The sampling method is convenient (accessible) and purposeful.

Table 1
Average, standard deviation, correlation of each item with the total score and Cronbach's alpha if each item is removed.

| Questionnaire item | Mean | SD | Total correlation test | Cronbach's alpha |
|--------------------|------|------|------------------------|------------------|
| 1 | 1.90 | 0.91 | 0.44 | 0.85 |
| 2 | 1.97 | 1.09 | 0.61 | 0.84 |
| 3 | 1.90 | 0.99 | 0.51 | 0.85 |
| 4 | 2.25 | 1.18 | 0.65 | 0.83 |
| 5 | 2.08 | 0.97 | 0.68 | 0.83 |
| 6 | 2.26 | 1.13 | 0.64 | 0.84 |
| 7 | 2.21 | 1.13 | 0.63 | 0.84 |
| 8 | 2.00 | 1.00 | 0.63 | 0.84 |
| 9 | 2.04 | 0.99 | 0.61 | 0.84 |
| 10 | 1.80 | 0.91 | 0.61 | 0.84 |
| 11 | 2.04 | 1.08 | 0.66 | 0.83 |
| 12 | 2.26 | 1.28 | 0.69 | 0.83 |

Table 2
Assumptions of using exploratory factor analysis.

| Kaiser-Mayer-Olkin | Bartlett's Test | | |
|--------------------|--------------------|---------|----------|
| | Degrees of freedom | p value | χ^2 |
| 0.832 | 1121.067 | 66 | 0.000 |

Data analysis

In the present study, CFA methods were used to analyze the data to determine the fit of the factor analysis model of the perfectionism scale regarding physical appearance. Additionally, Pearson's or Spearman's correlation coefficients were utilized to assess the convergent and discriminant validity of this scale (based on the Kolmogorov-Smirnov test result), and Cronbach's alpha was employed to determine internal consistency. All analyses were conducted using SPSS version 25 and LISREL.

The study was approved by the board of the ethical committee of Kermanshah University of Medical Sciences, Kermanshah, Iran (IR.KUMS.MED.REC.1402.032).

Results

In the first step, to measure and assess the reliability of the questionnaire, the Cronbach's alpha method was used. Table 1 shows the statistical characteristics of the questionnaire item of the perfectionism scale regarding physical appearance, including the mean, standard deviation (SD), correlation of each item with the total score, and impact of removing each questionnaire item on Cronbach's alpha.

The EFA of the questionnaire was conducted using the principal component analysis (PCA) and the varimax rotation method. To ensure the appropriateness of using factor analysis in this study, two tests, Bartlett's test and Kaiser-Meyer-Olkin (KMO) test, were used. The purpose of conducting Bartlett's test is to ensure the lack of a unit matrix in the correlation matrix. A unit matrix is a matrix in which all elements are zero, except for the diagonal elements, which are all one. In this test, it should be noted that if the significance level is less than 0.05, then the correlation matrix will not be a unit matrix; from this perspective, it is suitable for factor analysis. Furthermore, the KMO test was also used to compare the observed correlation values with pairwise correlation coefficients. The smaller this index is, the more it indicates that the variables are unsuitable for factor analysis, and values of 0.6 and above are the conditions for conducting factor analysis (Fidell and Tabachnick, 1996)¹³. The Bartlett's and KMO test results are reported in Tables 2 and 3. In Table 2, the obtained value for the KMO test was 0.83. Therefore, the sampling adequacy was satisfactory, and data were suitable for factor analysis. The p value for Bartlett's test was also less than 0.0001, indicating the suitability of factor analysis for identifying the structure (factor model).

Table 3
Content and factor loading of perfectionism subscales.

| Questionnaire item | Scale 1 | Factor analysis |
|--------------------|---------|-----------------|
| 10 | | 0.787 |
| 11 | | 0.783 |
| 5 | | 0.708 |
| 9 | | 0.702 |
| 8 | | 0.568 |
| Questionnaire item | Scale 2 | |
| 4 | | 0.771 |
| 12 | | 0.762 |
| 7 | | 0.736 |
| 6 | | 0.731 |
| 2 | | 0.616 |
| Questionnaire item | Scale 3 | |
| 3 | | 0.804 |
| 1 | | 0.660 |

Table 4
Average, standard error, maximum, minimum, skewness, kurtosis and Cronbach's alpha of subscales of perfectionism about physical appearance.

| | Min | Max | Mean | SD | Skew | Kurtosis | α |
|---------|------|------|------|--------|-------|----------|----------|
| Scale 1 | 1.00 | 5.00 | 1.99 | 0.9532 | 0.910 | 0.62 | 0.827 |
| Scale 2 | 1.00 | 5.00 | 2.19 | 0.889 | 1.33 | 1.39 | 0.818 |
| Scale 3 | 1.00 | 5.00 | 1.89 | 0.794 | 1.32 | 2.53 | 0.550 |

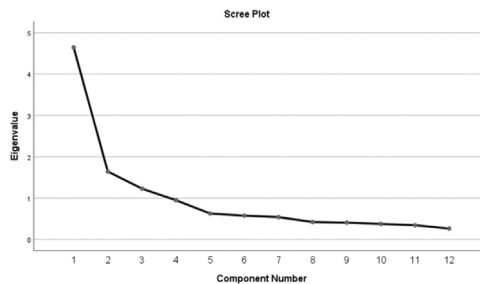


Figure 1. Scree plot diagram – the size of the eigenvalues of the factors of the questionnaire.

In the first step of factor analysis, three factors were extracted, each with an eigenvalue greater than 1. The eigenvalues for each of these extracted factors are shown. In Figure 1, from factor 3 onward, the eigenvalues of the remaining factors experienced a rapid decrease, followed by a gradual decline in the eigenvalues. Based on the eigenvalues, the percentage of variance and the cumulative percentage of variance for each extracted factor were obtained. The extracted factors explained 62.63% of the total variance. Furthermore, the largest eigenvalue corresponded to the first factor (2.87), accounting for 23.9% of the total variance.

Table 3 displays the rotated component matrix after one varimax rotation, including the factor loadings of the 12 items and the 3 extracted factors. Considering that factor loadings exceeding 0.5 in the factor analysis were considered suitable for placement in a factor, Table 3 shows the factor loading values for statements whose factor loadings were 0.4 and greater. Table 4 presents the statistical characteristics, including the eigenvalues for Cronbach's alpha for the three subscales. In Table 5, the Cronbach's alpha for the subscales was calculated, and the Cronbach's alpha for the overall scale was 0.853, indicating an acceptable reliability of the questionnaire. Considering that the skewness and

Table 5
Internal consistency of perfectionism subscales based on Pearson's correlation.

| | 2 | 3 | Social comparison | Apparent acceptance | Interpersonal sensitivity |
|---------------------|-------|-------|-------------------|---------------------|---------------------------|
| 1 | 0.477 | 0.414 | 0.018 | 0.339 | 0.311 |
| 2 | | 0.314 | 0.039 | 0.253 | 0.384 |
| 3 | | | 0.033 | 0.243 | 0.384 |
| Social comparison | | | | -0.014 | 0.069 |
| Apparent acceptance | | | | | 0.147 |

kurtosis of all subscales were between 2+ and 2-, the normality of the data was also confirmed. To assess the internal consistency of the subscales and calculate the convergent and divergent validity, Pearson's correlation was used, as shown in Table 5. The internal consistency of the perfectionism subscales was confirmed. The correlation of perfectionism subscales with the scales of interpersonal sensitivity and body acceptance was confirmed ($p < 0.001$).

Furthermore, based on the calculations, the correlation of the total perfectionism scale with the interpersonal sensitivity scale, body acceptance scale, and SCS were 0.416, 0.355, and 0.024, respectively, with the first two being significant at the 0.001 level. These results confirmed the convergent validity of perfectionism with appearance and the divergent validity of perfectionism with interpersonal sensitivity.

Discussion

In Iran, there is an increasing demand for cosmetic surgery, particularly rhinoplasty, with psychological factors influencing these requests. Studies, such as Niknam et al. (2012)²¹, indicated that individuals seeking rhinoplasty often exhibit negative perfectionism. Perfectionism, a noteworthy personality trait, has garnered attention in recent decades, leading to theoretical discussions and practical investigations on its relationship with personality components, yielding valuable insights.^{22,18} One personality factor that plays a significant role in psychological and social adaptation is self-dissatisfaction, especially among individuals seeking rhinoplasty.¹⁹ The predominant approach often attributes cognitive impairment to perfectionism and the lack of a suitable theoretical framework for non-cognitive perfectionism.^{21,23} Therefore, reconsidering existing theories of perfectionism, a spiritual/religious perfectionism theory has been proposed.²⁴ Confirming or rejecting a new construct requires the availability of appropriate and valid tools to measure that construct.²⁵

Factor analysis is a term used for structuring and reducing data. This method involves a large set of variables and seeks to reduce or summarize them using a smaller set of factors or components.²⁶ In this study, EFA was conducted using PCA and varimax rotation. To validate the applicability of factor analysis, Bartlett's and KMO tests were employed. Bartlett's test checks for nonunity in the correlation matrix; if the significance level is less than 0.05, it supports the suitability of the correlation matrix for factor analysis. The KMO test, assessing correlation values, yielded a value of 0.83 in this study, indicating suitability for factor analysis with satisfactory sample adequacy. Bartlett's test significance level (<0.0001) further supported the appropriateness of factor analysis. Three factors were extracted in the initial stage, each with an eigenvalue greater than 1, collectively explaining 62.63% of the total variance. The first factor, with the largest eigenvalue (2.87), explained 23.9% of the total variance. After a varimax rotation, factor loadings above 0.5 in the rotated component matrix indicated suitability in factor analysis. The overall scale's Cronbach's alpha was 0.853, signifying acceptable reliability. Skewness and kurtosis values within the range of 2+ to 2- confirmed data normality.

Internal consistency among perfectionism subscales was confirmed using Pearson's correlation. Significant correlations ($p < 0.001$) with interpersonal sensitivity and physical appearance acceptance scales validated convergent and discriminant validity. Total perfectionism score correlated with interpersonal sensitivity (0.416) and physical appearance acceptance (0.355), both significant at the 0.001 level, supporting convergent and discriminant validity.

The research confirmed perfectionism's structure, contributing to theories on psychological well-being. This validated questionnaire, recommended for developmental, clinical, and educational re-

search, enriches personality and spiritual growth theories. Despite focusing on students and general samples, alignment with previous research suggested its potential for exploratory studies, offering insights into processes influencing psychological health.²⁷ Until validated in diverse cultures, particularly Western ones, this questionnaire bears cultural limitations. Researchers are urged to implement it in various cultural contexts. Validating this tool is crucial for the psychology community because it offers a valuable scale for measuring perfectionism related to physical appearance, social comparison, acceptance, and body image action.²⁸ This tool not only opens avenues for research on personality and spiritual health but also fills a gap in normative perfectionism conceptualization. Preliminary findings suggested its potential as a promising instrument for assessing perfectionism in appearance, social comparison, acceptance, and body image action.

Appearance perfectionism, the first tool for measuring perfectionism in beauty and mental health, is a suitable substitute for normative perfectionism. Research results showed its adequate validity and reliability, making it applicable to other studies. Individuals with high standards believe in the benefits of setting lofty goals but downplay their achievements even when successful.²⁷ Perfectionistic individuals have excessive concerns about their potential mistakes, and making a mistake brings shame to them. Even the smallest mistake leads to feelings of unhappiness, and they underestimate their abilities, feeling less than average. If they face failure, they experience excessive feelings of worthlessness. Moreover, perfectionistic individuals often hold high standards for others as well, expecting others to be perfect and faultless. If others fail to meet their standards and expectations, they may criticize them.²⁸ Perfectionists consistently seek flawlessness, never feeling satisfied with themselves or others. Their self-evaluation is distorted, leading to negative assessments. This mindset reduces satisfaction and fosters hostility. Perfectionists' rigidity reflects cognitive distortions, impacting their quality of life. Negative self-judgment contributes to lower life satisfaction and depression.^{29,30}

Conclusion

This questionnaire measures perfectionism traits in individuals seeking rhinoplasty, providing a necessary assessment. For a comprehensive evaluation, it is recommended to use this tool alongside interviews and observations. Be mindful of social desirability bias. Despite this, the acceptable validity and reliability of this questionnaire make it suitable for research. Health psychologists are advised to incorporate this questionnaire, along with other tools, to assess perfectionism in individuals seeking surgery.

Human and animal rights

No animals were used in this research. All human research procedures followed were by the ethical standards of the committee responsible for human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2013.

Approval of the research protocol: N/A

Informed Consent: Informed consent was obtained from each participant.

Consent for publication

Informed consent was obtained from each participant.

Availability of data and materials

All relevant data and materials are provided in manuscript.

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Contributors' Statement Page

Dr. Mohammad Bagher Heydari: conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript.

Dr. Behzad Hemmatpour: Designed the data collection instruments, collected data, conducted the initial analyses, and reviewed and revised the manuscript.

Dr. Mina Rabieenia.: Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

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Conflict of interest

The authors deny any conflict of interest in any terms or by any means during the study.

References

1. Wolpe PR. Treatment, enhancement, and the ethics of neurotherapeutics. *Brain and Cognition*. 2002;50(3):387–395.
2. Patton GC, Selzer R, Coffey C, Carlin JB, Wolfe R. Onset of adolescent eating disorders: population based cohort study over 3 years. *BMJ*. 1999;318(7186):765–768.
3. Hwang PH. Surgical rhinology: recent advances and future directions. *Otolaryngol Clin North Am*. 2004;37(2):489–499.
4. Zahiroddin AR, Shafiee-Kandjani AR, Khalighi-Sigaroodi E. Do mental health and self-concept associate with rhinoplasty requests? *J Plast Reconstr Aesthet Surg*. 2008;61(9):1100–1103.
5. Farahani PK. Application of tissue engineering and biomaterials in nose surgery. *JPRAS Open*. 2024;40:262–272.
6. Hassani M. *The study of epidemiology of body dimorphic concern in students of Shahid Chamran University and the effect of group narrative therapy on it*. Ahwas: University of Shahid Chamran; 2009.
7. Masoudzadeh A, Karkhaneh Yousefi M, Targari A. The comparison between personality models and Rhinoplasty applicants' general health status and control group. *Journal of Shahed University*. 2009;16(82):53–58.
8. Fakhri MS, Karimi F, Rezvafar K, Mardmomen D, Gholami P, Amini Z, Amiri K, Zamanabadi MN. Comparison of the effects of vitamin D and nasal calcitonin spray with nasal calcitonin spray on postoperative abdominal pain: a randomised controlled trial. *International Journal of Surgery Open*. 2023;59:100687.
9. Zamanabadi MN, Zamanabadi TN, Alizadeh R. Measuring serum sodium levels using blood gas analyzer and auto analyzer in heart and lung disease patients: a cross-sectional study. *Ann Med Surg (Lond)*. 2022;78:103713.
10. Khademi M, Vaziri-Harami R, Mashadi AM, Seif P, Babazadehdezfoley A. The effectiveness of telephone-based psychological services to COVID-19. *Clin Pract Epidemiol Ment Health*. 2023;19:e174501792307270.
11. Vaziri-Harami R, Vaziri-Harami S, Tarom M. Prevalence of anxiety and depression among engineering students consuming cannabis. *Ann Med Surg (Lond)*. 2022;80:104144.
12. Khosheghbal M, Eesazadeghan A, Mikaeli MF. Examination of the relationship between perfectionism and body image dissatisfaction in nose beauty surgery's applicants: role of early maladaptive schemas. *Int J Psychol Behav Sci*. 2015;5(3):109–114.
13. Fidell LS, Tabachnick BG. Preparatory data analysis. *Handbook of Psychology: Research Methods in Psychology*. 2003;2:115–141.
14. Festinger L. Social comparison theory. *Selective Exposure Theory*. 1957;16:401.
15. Rasooli SS, Lavasani MG. Relationship between personality and perfectionism with body image. *Procedia Soc Behav Sci*. 2011;15:1015–1019.
16. Downey G, Feldman SI. Implications of rejection sensitivity for intimate relationships. *J Pers Soc Psychol*. 1996;70(6):1327–1343.
17. Garrusi B, Garousi S, Baneshi MR. Body image and body change: predictive factors in an Iranian population. *Int J Prev Med*. 2013;4(8):940–948.
18. Azarian Z, Fatehizade M. *Isfahan: 8th Congress of Research Week*. Relationship between self steam and perfectionism among girl and boy students; 2003.
19. Kline P. *An easy guide to factor analysis*. Routledge; 2014.
20. Hosseini SE, Ghasemi N, Gonbadi GM, Rezayi L. Comparison of the level of stress and body image among individuals aged 20-30 seeking and not seeking cosmetic surgeries in Ahvaz Province.
21. Marziyeh N, Mohammad F, Ali K, Narges F, Ali M. Comparison of perfectionism in people who have cosmetic rhinoplasty surgery and control group in Yasouj City. *Payavard Salamat*. 2012;6(1).
22. Izaadi A, Karimi J, Rahmani M. Psychometric analysis of Persian version of Body Image flexibility Questionnaire (BI-AAQ) among university students. *Hayat*. 2013;19(3).
23. Hewitt PL, Sherry SB, Flett GL, Shick R. Perfectionism and cosmetic surgery. *Plast Reconstr Surg*. 2003;112(1):346.
24. Swami V, Mammadova A. Associations between consideration of cosmetic surgery, perfectionism dimensions, appearance schemas, relationship satisfaction, excessive reassurance-seeking, and love styles. *Individual Differences Research*. 2012;10(2):81–94.
25. Cash TF, Phillips KA, Santos MT, Hrabosky JJ. Measuring "negative body image": validation of the Body Image Disturbance Questionnaire in a nonclinical population. *Body Image*. 2004;1(4):363–372.

26. Besharat MA, Farahani H, Naghipoor M. Spiritual/Religious Perfectionism Scale in Iran: psychometric evaluation. *J Relig Health*. 2021;60(5):3640–3657.
27. Besharat MA. Development and validation of Spiritual/Religious Perfectionism Scale: a preliminary study. *Rooyesh-e-Ravanshenasi Journal (RRJ)*. 2019;7(12):399–415.
28. Talaei S, Jafari Roushan M. Psychometric properties of Weisman and Beck dysfunctional attitude scale and its relationship with Hill perfectionism scale. *Journal of Psychology New Ideas*. 2021;9(13) 1-0.
29. Nyland JE. Dysfunctional cognitions: associations with perfectionistic thinking utilizing the positive and negative perfectionism construct. *McNair Scholars Journal*. 2004;8(1):8.
30. Pooria A, Azadbakht M, Khoshdani-Farahani P, Pourya A. Sigmoid volvulus after CABG surgery. *Clin Case Rep*. 2020;8(4):606–611.