



Relationship of Concern About Body Dysmorphia with External Shame, Perfectionism, and Negative Affect: The Mediating Role of Self-Compassion

Aliakbar Foroughi ¹, Sajad Khanjani ^{2,*} and Esmaeil Mousavi Asl²

¹Department of Clinical Psychology, Kermanshah University of Medical Sciences, Kermanshah, Iran

²Department of Clinical Psychology, Center of Excellence in Psychiatry and Clinical Psychology, School of Behavioral Science and Mental Health (Institute of Tehran Psychiatry), Iran University of Medical Sciences, Tehran, Iran

*Corresponding author: Ph.D. Candidate, Department of Clinical Psychology, Center of Excellence in Psychiatry and Clinical Psychology, School of Behavioral Science and Mental Health (Institute of Tehran Psychiatry), Iran University of Medical Sciences, Tehran, Iran. Tel: +98-9188588926, Fax: +98-2122431826, Email: khanjanis23@yahoo.com

Received 2018 June 05; Revised 2019 May 4; Accepted 2019 June 23.

Abstract

Background: With the advent of the third wave of cognitive-behavioral therapies, compassion and self-compassion were taken into consideration. Self-compassion serves as a protective factor against psychopathology. Shame, perfectionism, and negative affect are among the risk factors of body dysmorphic disorder (BDD). Self-compassion may decrease the negative effects of these factors on the dysmorphic concern.

Objectives: The aim of the current study was to examine the protective effect of self-compassion against perfectionism, negative affect, and external shame in relation to concern about body dysmorphia.

Methods: A convenience sampling method was used to select 210 students (103 males and 107 females) studying at Shahid Beheshti University of Medical Sciences. The dysmorphic concern questionnaire, self-compassion scale (short-form), external shame scale, negative affect scale, and perfectionism scale were applied as study tools. Pearson correlation coefficient and the path analysis of structural equation modeling were employed to analyze the data.

Results: External shame, perfectionism, and negative affect had significant positive relationships with concern about body dysmorphia. Accordingly, there was a significant negative relationship between self-compassion and concern about body dysmorphia. Moreover, the results of path analysis showed that self-compassion played a mediating role in the relationship of concern about body dysmorphia with perfectionism and negative affect. However, it did not have a significant mediating role in the relationship between external shame and concern about body dysmorphia.

Conclusions: Self-compassion can serve as a protective factor against perfectionism and negative affect to decrease the negative effects of these risk factors.

Keywords: Self-Compassion, Body Dysmorphic, Shame, Perfectionism, Affect

1. Background

In DSM-5, the body dysmorphic disorder (BDD) is classified as the obsessive-compulsive disorder and other relevant disorders. It is mainly characterized by a preoccupation with one or more imaginary flaws or defects in the appearance. People with BDD believe that they look ugly, unattractive, abnormal, or dysmorphic (1). The prevalence of BDD has been reported to be higher in some groups such as students (2, 3). It was reported as 4% among US students and 8.4% in Turkey (4, 5). According to the results of investigating the prevalence of BDD among students at Mashhad University of Medical Sciences, 34.4% of the participants expressed concerns about their appearances and the preva-

lence of BDD was 7.4% among the students (6).

Self-compassion is a variable considered by researchers in relation to dissatisfaction with body image and eating behaviors in recent years (7-14). Since 2003 when Kristin Neff introduced self-compassion as a structure and presented some tools to measure it, nearly 200 theses and papers have dealt with it (15). Self-compassion indicates that a person treats himself kindly in pain and difficulties, understands and acknowledges his transient nature, and considers his experience to be part of common human experiences. Neff introduced three components of self-compassion having internal relationships with each other. Each component consists of a positive aspect and a nega-

tive aspect, including self-kindness against self-judgment, common humanity against isolation, and mindfulness against over-identification (16).

MacBeth and Gumley investigated the relationship between self-compassion and psychopathology in a meta-analysis of 20 studies and obtained high effect size. Increasing evidence indicates that self-compassion is related to psychological well-being and it is regarded as an important protective factor (17). Studies showed that self-compassion is positively related to satisfaction with life, happiness, optimism, wisdom, personal innovation, and creativity. They also indicated that it is negatively related to depression, anxiety, negative affect, rumination, and thought suppression (16, 18, 19).

Kelly and Stephen found that daily within-person and interpersonal fluctuations in self-compassion of female students could affect their body image and eating behaviors. Such findings were also true after controlling for the role of self-esteem (7). In another study of the relationship between compassion and body image, the results indicated that self-compassion predicted a separate variance of preoccupation with the body, concern about weight, and feeling of guilt about eating regardless of self-esteem (10).

According to Braun et al., self-compassion can serve as a protective factor against poor body image and in the psychopathology of eating in different forms. First, self-compassion may directly decrease the adverse consequences of negative body image or the psychopathology of eating. Second, self-compassion may prevent risk factors from emerging. Third, self-compassion may interact with risk factors and stop their devastating effects. Finally, self-compassion may stop the mediating chain by which risk factors operate (11).

In addition to the protective role of self-compassion, a series of risk factors were also investigated in relation to body image and eating behaviors. Shame (20), perfectionism (21), and negative affect (22) are such risk factors. External shame and self-compassion are related to dissatisfaction with the body in public communities and eating disorders (23). In fact, there are two types of shame: internal shame and external shame. Regarding internal shame (the first component), an individual focuses on himself and sees himself as incompetent, faulty, or bad. Regarding external shame (the second component), an individual focuses on what others think about him. Here, the self is perceived as unattractive (24). Liss and Erchull found that body checking had strong significant relationships with body shame and negative attitudes among subjects with low self-compassion (25). Many studies indicated that higher levels of negative affect were related to dissatisfac-

tion with the body (26) and body image distortion (27, 28).

Other studies indicated a relationship between perfectionism and satisfaction with body image. In other words, perfectionism can serve as a risk factor for dissatisfaction with body image and eating behavior disorders (29-32). In a large nonclinical student sample, Bartsch found out that the two subscales of self-oriented perfectionism and socially prescribed perfectionism could predict concern about body dysmorphia (33). In a clinical sample, Buhlmann et al. reported that people with BDD had significantly higher scores than a control group on "concern over mistakes" and "doubt about actions" subscales of Frost's multidimensional perfectionism (34). Barnett and Sharp studied the mediating role of self-compassion in relationships of disordered eating behaviors with maladaptive perfectionism and satisfaction with body image. The results indicated that self-compassion played a mediating role in the relationship between maladaptive perfectionism and satisfaction with body image; however, this role was not observed in the relationship between maladaptive perfectionism and disordered eating behaviors (35).

2. Objectives

Overall, many studies indicated that shame, perfectionism, and negative affect could serve as risk factors for dissatisfaction with the body. Nevertheless, other studies showed the protective and mediating role of self-compassion. In this study, the path analysis was used to determine the mediating role of self-compassion in the relationship of concern about body dysmorphia with risk factors such as shame, perfectionism, and negative affect.

3. Materials and Methods

This is an applied-descriptive study in which structural equation modeling (SEM) was used as a multivariate correlation method. The SEM is actually the expansion of general linear modeling (GLM) enabling researchers to test a group of regression models at the same time. The statistical population included all Bachelor, Master, and Ph.D. students at Shahid Beheshti University of Medical Sciences. In the SEM, a sample size of greater than 200 is satisfactory (36). Thus, a convenience sampling method was used to select 210 students (103 males and 107 females).

3.1. Research Tools

3.1.1. Dysmorphic Concern Questionnaire (DCQ)

This questionnaire includes seven items measuring concern about physical appearance. They are rated on a

four-point Likert scale (0 - 3), with the highest score showing the highest level of concern. DCQ is a dimensional scale on concern about appearance. It has been used in many clinical settings (37-39). The scores of DCQ are strongly correlated with the scores of body dysmorphic disorder examination, which is a reliable and valid scale of BDD (40). Although DCQ does not measure BDD directly, it can evaluate clinical and subclinical concerns about appearance without any prejudgments on etiology and pathology (38). In Iran, research results supported the single-factor structure of concern about BDD in a national sample (RMSE = 0.07, NFI = 0.94, and CFI = 0.97), with Cronbach's alpha of 0.78 (41).

3.1.2. Self-Compassion Scale (SCS) Short-Form

This scale includes 12 items based on a five-point Likert scale from 1 (nearly never) to 5 (nearly always). The SCS measures three bipolar components in six subscales including self-compassion versus self-judgment, mindfulness versus over-identification, and common humanity versus isolation. The short-form SCS was correlated with its long form ($r = 0.97$) and its retest reliability was reported as 0.92 (42). In Iran, research results supported the three-factor structure of self-compassion in a national sample (RMSEA = 0.08, NFI = 0.94, and CFI = 0.97), with Cronbach's alpha of 0.78 (43).

3.1.3. External Shame Scale

This scale is an 18-item self-report tool designed by Gross et al. to measure external shame. It has been inspired by the *Internal Shame Scale*. It uses a five-point Likert scale (0 = never, 1 = seldom, 2 = sometimes, 3 = often, and 4 = nearly always) to score each item. The reliability of this scale was high with Cronbach's alpha and five-week retest reliability of 0.94 and 0.94, respectively. This scale was moderately correlated with the negative evaluation of fear; however, it was highly correlated with other shame measurement tools in clinical and student populations (44). In Iran, research results supported the three-factor external shame in a student sample (RMSEA = 0.09, NFI = 0.94, and CFI = 0.96), with Cronbach's alpha of 0.93 for the total scale (45).

3.1.4. Negative Affect Scale

This scale has been driven from the *20-Item Negative and Positive Affect Scale* designed by Watson et al. The negative affect subscale includes 10 items rated on a five-point scale (from 1 = very low to 5 = very high). Cronbach's alpha and eight-week retest reliability were 0.87 and 0.71, respectively. The correlations of this scale with *Beck's Depression Inventory* and the *State Anxiety Questionnaire* (taken from

the *State-Trait Anxiety Questionnaire*) were 0.58 and 0.51, respectively (46). In a study conducted in Iran, the results of confirmatory factor analysis and SEM indicated that the two-factor model was the most appropriate one (47).

3.1.5. Ahvaz Perfectionism Scale

This is a 27-item self-report scale in which each item is scored based on the four-point Likert scale (0 = never, 1 = seldom, 2 = sometimes, and 3 = often). The scores of all items are summed up to obtain the total score of perfectionism. Higher scores indicate higher levels of perfectionism. Cronbach's alpha and four-week retest reliability were reported as 0.89 and 0.68, respectively. According to the Pearson correlation coefficient, the scores of subjects on perfectionism were correlated with the scores on Cooper-Smith self-esteem inventory ($r = 0.39$) and the symptom checklist-90 ($r = 0.41$) (48).

After making necessary coordination, the data were collected to determine the mediating role of self-compassion in the relationships of concern about body dysmorphia with external shame, perfectionism, and negative affect. The inclusion criteria included being a student, and willingness to cooperate in research, not having severe mental disorders and physical illnesses, and not taking psychiatric drugs. The exclusion criteria included unwillingness to continue participation in the study. Before filling out the research tools, the participants were provided with both oral and written explanations (as in an attachment to questionnaires) to highlight the importance of research into concern about body dysmorphia and relevant factors. All of the participants were free to take part in this study. For the sake of ethical considerations, they were reassured that the collected information would be analyzed in groups. The research goals were explained to them, too. Then, the Pearson correlation coefficient and SEM path analysis were conducted to analyze the obtained data in SPSS V. 18 and LISREL V. 8.

4. Results

There were 210 students aged between 18 and 32 years (mean age: 39.2 ± 10.22), including 131 bachelor students (62.4%), 53 master students (25.2%), and 26 Ph.D. students (4.12%). Table 1 shows the total score of concern about body dysmorphia in males and females, which shows no significant difference between the groups ($P > 0.05$).

Table 2 shows the relationships of concern about body dysmorphia with self-compassion, external shame, perfectionism, and negative affect. There was a significant negative relationship between concern about body dysmorphia

Table 1. Comparing the Scores of Concern About Body Dysmorphia in Females and Males

Gender	Number of Samples	Mean	SD	Standard Error of Mean	t	df	P Value
Females	107	12.19	3.15	0.30	-0.999	208	0.321
Males	103	11.72	3.65	0.36			

Abbreviations: df, degree of freedom; SD, standard deviation.

and self-compassion ($P < 0.01$ and $r = -0.33$). The more concern about body dysmorphia was related to a higher rate of external shame ($P < 0.01$ and $r = 0.37$), perfectionism ($P < 0.01$ and $r = 0.25$), and negative affect ($P < 0.01$ and $r = 0.32$). Self-compassion had significant negative relationships with external shame ($P < 0.01$ and $r = -0.33$), perfectionism ($P < 0.01$ and $r = -0.36$), and negative affect ($P < 0.01$ and $r = -0.44$).

In this study, we considered the mediating role of self-compassion in the relationship of concern about body dysmorphia with external shame, perfectionism, and negative affect to investigate the assumed model. First, the pre-assumptions of SEM were checked. According to these assumptions, the data level should be an interval for all variables and data should be normal. Moreover, there should not be any outliers and data should be linear without any multiple collinearities. The pre-assumptions were all checked. The fitness indicators were obtained after testing the proposed model ($\chi^2 = 15.635$, $df = 339$, $P = 0.001$, CFI = 0.93, RMSEA = 0.06, IFI = 0.93, NNFI = 0.93, and GFI = 0.82). Therefore, the proposed model fitted the data adequately.

According to Figure 1, external shame had direct ($\beta = 0.40$, $P = 0.001$) and indirect ($\beta = 0.02$, $P = 0.1$) coefficients in concern about body dysmorphia. Moreover, negative affect had direct ($\beta = 0.15$, $P = 0.05$) and indirect ($\beta = 0.12$, $P = 0.05$) coefficients in concern about body dysmorphia. Likewise, perfectionism had direct ($\beta = 0.12$, $P = 0.05$) and indirect ($\beta = 0.11$, $P = 0.05$) coefficients in concern about body dysmorphia. Finally, self-compassion had only a direct coefficient ($\beta = 0.32$, $P = 0.001$) in concern about body dysmorphia. External shame ($\beta = 0.06$, $P = 0.1$), negative affect ($\beta = 0.37$, $P = 0.001$), and perfectionism ($\beta = 0.35$, $P = 0.001$) had direct coefficients in self-compassion.

5. Discussion

The aim of the current study was to investigate the mediating role of self-compassion in the relationship of concern about body dysmorphia with external shame, negative affect, and perfectionism. The results showed a significant positive relationship between external shame and concern about body dysmorphia, which is consistent with the results of previous studies conducted by Weingarden

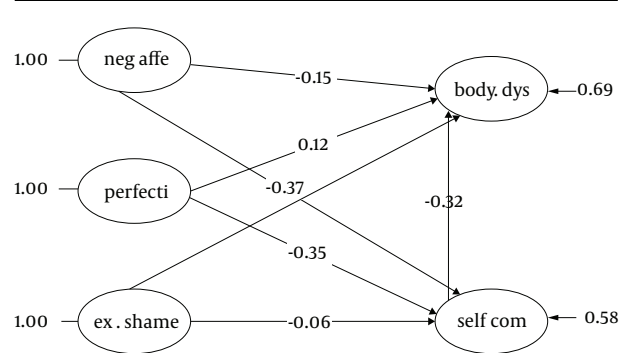


Figure 1. The mediating role of self-compassion in the relationship of concern about body dysmorphia with external shame, perfectionism, and negative affect

et al. (20). As discussed, some authors considered the two aspects of shame: external shame and internal shame (24). It appears that an individual's evaluation of what others think about him (external shame) is related to concern about body dysmorphia. In external shame, the *self* is perceived as unattractive. External shame consists of three factors: feeling of inferiority, feeling of emptiness, and being ashamed of making mistakes. In both the Iranian sample and the original sample, most items of the scale are about the feeling of inferiority (44). Accordingly, it appears that the majority of the individuals that have the feeling of shame and humiliation very often are more concerned about their physical shapes.

Moreover, there was a significant positive relationship between negative affect and concern about body dysmorphia. This finding is consistent with the results of previous studies (26, 49) showing that positive/negative affect was related to concern about body image and body dysmorphia. Many studies indicated that dissatisfaction with the body could influence a negative mood. Nevertheless, findings show that the negative mood is a risk factor and a maintaining factor for dissatisfaction with the body (50). Theoretically, the negative mood can result in dissatisfaction with the body because it may increase the focus on negative feelings, for example, about weight and appearance (51).

According to the results of the current study, a higher

Table 2. The Correlation of Concern About Body Dysmorphia and Self-Compassion, External Shame, Negative Affect, and Perfectionism

Variable	Mean \pm SD	1	2	3	4	5
1. Concern about body dysmorphia	11.74 \pm 3.40	-	-0.33 ^a	0.37 ^a	0.25 ^a	0.32 ^a
2. Self-compassion	37.00 \pm 6.83		-	-0.33 ^a	-0.36 ^a	-0.44 ^a
3. External shame	19.92 \pm 11.84			-	0.18 ^a	0.54 ^a
4. Perfectionism	53.77 \pm 14.99				-	0.45 ^a
5. Negative affect	25.66 \pm 6.81					-

^aP < 0.01.

level of perfectionism is related to more concern about body dysmorphia. This finding is consistent with the results of previous studies (29, 32, 33). Buhlmann et al. studied the relationship between BDD and perfectionism. They described the common idea of such patients as: “*I will not be able to be happy until I look imperfect*” (34). It appears that perfectionism is a major component of BDD because such patients insist that a specific part of their bodies must look totally imperfect.

There was a significant negative relationship between self-compassion and concern about body dysmorphia. Moreover, self-compassion could significantly mediate the relationships of concern about body dysmorphia with perfectionism and negative affect. This finding is consistent with the results of previous studies indicating that self-compassion plays a protective role in body image and eating behaviors (7, 10). Self-compassion consists of three dual-aspect components. The healthy aspects of these three components are self-kindness, common humanity, and mindfulness (16), all of which can serve as a protective factor against perfectionism and negative affect. According to Shafran's model for perfectionism, the self-esteem of perfectionists depends on high criteria they define for themselves. If such criteria are not met, they start self-blaming (52). Self-compassion helps these people to admit their mistakes and treat themselves kindly in difficulties instead of criticizing themselves. It should also be taken into account that everyone has certain flaws, and pain and discomfort are common human experiences. Another healthy aspect of self-compassion is mindfulness that can serve as a protective factor against negative affect and perfectionism. It can also moderate the chains of effects on concern about body dysmorphia. Mindfulness helps people acknowledge the transient nature of experiences and do not regard them as facts, instead of engaging in over-identification with experiences and ruminating about them (53).

However, self-compassion could not significantly mediate the relationship between external shame and con-

cern about body dysmorphia. This finding is inconsistent with the results of studies conducted by Liss and Erchull (25) and Ferreira et al. (23). One reason for this incongruence may be that external shame was used in the current study. It appears that external shame is an interpersonal component rather than a within-person component. Therefore, self-compassion could not play a mediating role. Gee and Troop found that the feeling of shame measured by external shame was more related to the symptoms of depression (54). However, the predicted variable of the current study was the concern about body dysmorphia.

5.1. Research Limitations

There were some research constraints that can be considered for future studies. First, this study utilized a cross-sectional correlational design that could not lead to causality. Thus, experimental designs can be used in future studies. Second, the research data were obtained by self-report tools in which the responses might be biased with a chance of socially appropriate responses. Third, the research sample was selected from a nonclinical population of students. It is necessary to conduct similar studies on clinical and general populations. Fourth, only was the external shame measured in this study. Therefore, further studies can investigate both aspects of shame (internal and external).

5.2. Clinical Application

Given the relationships of concern about body dysmorphia with external shame, negative affect, and perfectionism, certain interventions can be designed to decrease concern about body image and body dysmorphia. According to the research results and the mediating role of self-compassion, certain treatments can be used to increase self-compassion such as the compassion-focused therapy (CFT) and mindful self-compassion (MSC) program to help such patients.

5.3. Conclusions

The results of the current study showed that external shame, negative affect, and perfectionism were the risk factors for concern about body dysmorphia. Self-compassion played a mediating role in relation to the above-mentioned factors. Therefore, it is necessary to design interventions to increase self-compassion and decrease concern about body dysmorphia.

Acknowledgments

We appreciate students at Shahid Beheshti University of Medical Sciences, who participated in this study. We wish them all the best in their future career in our beloved country.

Footnotes

Authors' Contribution: Aliakbar Foroughi conceived and designed the study, collected the data, and drafted the manuscript. Sajad Khanjani participated in designing the study, analyzing and interpreting the data, and writing the manuscript. Esmaeil Mousavi Asl participated in collected the data and revised the manuscript. All the authors read and approved the final manuscript.

Clinical Trial Registration Code: It is not declared by the authors.

Declaration of Interest: The authors declare that they have no conflict of interests.

Ethical Considerations: This study was approved by the Ethics Committees of Shahid Beheshti University of Medical Sciences (IR.SBMU.MSP.REC.1395.66).

Funding/Support: This study is entirely self-funded by the author, there is no external funding.

References

1. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 2013. 455 p. doi: [10.1176/appi.books.9780890425596](https://doi.org/10.1176/appi.books.9780890425596).
2. Crerand CE, Franklin ME, Sarwer DB. Body dysmorphic disorder and cosmetic surgery. *Plast Reconstr Surg*. 2006;**118**(7):167-80. doi: [10.1097/01.prs.0000242500.28431.24](https://doi.org/10.1097/01.prs.0000242500.28431.24). [PubMed: [17102719](https://pubmed.ncbi.nlm.nih.gov/17102719/)].
3. Fitts SN, Gibson P, Redding CA, Deiter PJ. Body dysmorphic disorder: implications for its validity as a DSM-III-R clinical syndrome. *Psychol Rep*. 1989;**64**(2):655-8. doi: [10.2466/pro.1989.64.2.655](https://doi.org/10.2466/pro.1989.64.2.655). [PubMed: [2710902](https://pubmed.ncbi.nlm.nih.gov/2710902/)].
4. Böhne A, Keuthen NJ, Wilhelm S, Deckersbach T, Jenike MA. Prevalence of symptoms of body dysmorphic disorder and its correlates: A cross-cultural comparison. *Psychosomatics*. 2002;**43**(6):486-90. doi: [10.1176/appi.psy.43.6.486](https://doi.org/10.1176/appi.psy.43.6.486). [PubMed: [12444232](https://pubmed.ncbi.nlm.nih.gov/12444232/)].
5. Cansever A, Uzun O, Donmez E, Ozsahin A. The prevalence and clinical features of body dysmorphic disorder in college students: A study in a Turkish sample. *Compr Psychiatry*. 2003;**44**(1):60-4. doi: [10.1053/comp.2003.50010](https://doi.org/10.1053/comp.2003.50010). [PubMed: [12524637](https://pubmed.ncbi.nlm.nih.gov/12524637/)].
6. Talaei A, Fayazi Bordbar MR, Nasiraei A, Rezaei Ardani A. [Assessment of symptom pattern and frequency of body dysmorphic disorder in university students]. *Med J Mashhad Univ Med Sci*. 2009;**52**(1):49-56. Persian. doi: [10.22038/mjms.2009.5496](https://doi.org/10.22038/mjms.2009.5496).
7. Kelly AC, Stephen E. A daily diary study of self-compassion, body image, and eating behavior in female college students. *Body Image*. 2016;**17**:152-60. doi: [10.1016/j.bodyim.2016.03.006](https://doi.org/10.1016/j.bodyim.2016.03.006). [PubMed: [27081748](https://pubmed.ncbi.nlm.nih.gov/27081748/)].
8. Toole AM, Craighead LW. Brief self-compassion meditation training for body image distress in young adult women. *Body Image*. 2016;**19**:104-12. doi: [10.1016/j.bodyim.2016.09.001](https://doi.org/10.1016/j.bodyim.2016.09.001). [PubMed: [27664531](https://pubmed.ncbi.nlm.nih.gov/27664531/)].
9. Daye CA, Webb JB, Jafari N. Exploring self-compassion as a refuge against recalling the body-related shaming of caregiver eating messages on dimensions of objectified body consciousness in college women. *Body Image*. 2014;**11**(4):547-56. doi: [10.1016/j.bodyim.2014.08.001](https://doi.org/10.1016/j.bodyim.2014.08.001). [PubMed: [25195124](https://pubmed.ncbi.nlm.nih.gov/25195124/)].
10. Wasylikiw L, MacKinnon AL, MacLellan AM. Exploring the link between self-compassion and body image in university women. *Body Image*. 2012;**9**(2):236-45. doi: [10.1016/j.bodyim.2012.01.007](https://doi.org/10.1016/j.bodyim.2012.01.007). [PubMed: [22406200](https://pubmed.ncbi.nlm.nih.gov/22406200/)].
11. Braun TD, Park CL, Gorin A. Self-compassion, body image, and disordered eating: A review of the literature. *Body Image*. 2016;**17**:117-31. doi: [10.1016/j.bodyim.2016.03.003](https://doi.org/10.1016/j.bodyim.2016.03.003). [PubMed: [27038782](https://pubmed.ncbi.nlm.nih.gov/27038782/)].
12. Kelly AC, Vimalakanthan K, Miller KE. Self-compassion moderates the relationship between body mass index and both eating disorder pathology and body image flexibility. *Body Image*. 2014;**11**(4):446-53. doi: [10.1016/j.bodyim.2014.07.005](https://doi.org/10.1016/j.bodyim.2014.07.005). [PubMed: [25113286](https://pubmed.ncbi.nlm.nih.gov/25113286/)].
13. Raque-Bogdan TL, Piontkowski S, Hui K, Ziemer KS, Garriott PO. Self-compassion as a mediator between attachment anxiety and body appreciation: An exploratory model. *Body Image*. 2016;**19**:28-36. doi: [10.1016/j.bodyim.2016.08.001](https://doi.org/10.1016/j.bodyim.2016.08.001). [PubMed: [27597725](https://pubmed.ncbi.nlm.nih.gov/27597725/)].
14. Webb JB, Fiery MF, Jafari N. "You better not leave me shaming!": Conditional indirect effect analyses of anti-fat attitudes, body shame, and fat talk as a function of self-compassion in college women. *Body Image*. 2016;**18**:5-13. doi: [10.1016/j.bodyim.2016.04.009](https://doi.org/10.1016/j.bodyim.2016.04.009). [PubMed: [27236471](https://pubmed.ncbi.nlm.nih.gov/27236471/)].
15. Neff KD, Dahm KA. Changing characteristics of statin-related cIMT trials from 1988 to 2006. In: Robinson M, Meier B, Ostafin B, editors. *Handbook of mindfulness and self-regulation*. 246. New York: Springer; 2016. p. 121-9.
16. Neff KD. Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self Ident*. 2003;**2**(2):85-101. doi: [10.1080/15298860309032](https://doi.org/10.1080/15298860309032).
17. MacBeth A, Gumley A. Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clin Psychol Rev*. 2012;**32**(6):545-52. doi: [10.1016/j.cpr.2012.06.003](https://doi.org/10.1016/j.cpr.2012.06.003). [PubMed: [22796446](https://pubmed.ncbi.nlm.nih.gov/22796446/)].
18. Neff KD, Kirkpatrick KL, Rude SS. Self-compassion and adaptive psychological functioning. *J Res Pers*. 2007;**41**(1):139-54. doi: [10.1016/j.jrp.2006.03.004](https://doi.org/10.1016/j.jrp.2006.03.004).
19. Hollis-Walker L, Colosimo K. Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Pers Indiv Differ*. 2011;**50**(2):222-7. doi: [10.1016/j.paid.2010.09.033](https://doi.org/10.1016/j.paid.2010.09.033).
20. Weingarden H, Renshaw KD, Wilhelm S, Tangney JP, DiMauro J. Anxiety and shame as risk factors for depression, suicidality, and functional impairment in body dysmorphic disorder and obsessive compulsive disorder. *J Nerv Ment Dis*. 2016;**204**(11):832-9. doi: [10.1097/NMD.0000000000000498](https://doi.org/10.1097/NMD.0000000000000498). [PubMed: [26998694](https://pubmed.ncbi.nlm.nih.gov/26998694/)]. [PubMed Central: [PMC5026856](https://pubmed.ncbi.nlm.nih.gov/PMC5026856/)].
21. Hanstock TL, O'Mahony JF. Perfectionism, acne and appearance concerns. *Pers Indiv Differ*. 2002;**32**(8):1317-25. doi: [10.1016/S0191-8869\(01\)00120-9](https://doi.org/10.1016/S0191-8869(01)00120-9).

22. Lattimore P, Hutchinson R. Perceived calorie intake and state body-image satisfaction in women attempting weight loss: A preliminary investigation. *Body Image*. 2010;7(1):15-21. doi: [10.1016/j.bodyim.2009.08.002](https://doi.org/10.1016/j.bodyim.2009.08.002). [PubMed: [19783237](https://pubmed.ncbi.nlm.nih.gov/19783237/)].
23. Ferreira C, Pinto-Gouveia J, Duarte C. Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. *Eat Behav*. 2013;14(2):207-10. doi: [10.1016/j.eatbeh.2013.01.005](https://doi.org/10.1016/j.eatbeh.2013.01.005). [PubMed: [23557822](https://pubmed.ncbi.nlm.nih.gov/23557822/)].
24. Gilbert P. The evolution of shame as a marker for relationship security: A biopsychosocial approach. In: Tracy JL, Robins RW, Tangney JP, editors. *The self-conscious emotions: Theory and research*. New York, NY, US: Guilford Press; 2007. p. 283-309.
25. Liss M, Erchull MJ. Not hating what you see: Self-compassion may protect against negative mental health variables connected to self-objectification in college women. *Body Image*. 2015;14:5-12. doi: [10.1016/j.bodyim.2015.02.006](https://doi.org/10.1016/j.bodyim.2015.02.006). [PubMed: [25828840](https://pubmed.ncbi.nlm.nih.gov/25828840/)].
26. Annesi JJ, Gorjala S. Body satisfaction and overall mood: Effects of race in exercisers with obesity. *Soc Behav Pers*. 2010;38(8):1105-9. doi: [10.2224/sbp.2010.38.8.1105](https://doi.org/10.2224/sbp.2010.38.8.1105).
27. Taylor MJ, Cooper PJ. An experimental study of the effect of mood on body size perception. *Behav Res Ther*. 1992;30(1):53-8. [PubMed: [1540113](https://pubmed.ncbi.nlm.nih.gov/1540113/)].
28. Farrell C, Lee M, Shafran R. Assessment of body size estimation: A review. *Eur Eat Disord Rev*. 2005;13(2):75-88. doi: [10.1002/erv.622](https://doi.org/10.1002/erv.622).
29. Downey CA, Chang EC. Perfectionism and symptoms of eating disturbances in female college students: Considering the role of negative affect and body dissatisfaction. *Eat Behav*. 2007;8(4):497-503. doi: [10.1016/j.eatbeh.2007.02.002](https://doi.org/10.1016/j.eatbeh.2007.02.002). [PubMed: [17950939](https://pubmed.ncbi.nlm.nih.gov/17950939/)].
30. Welch E, Miller JL, Ghaderi A, Vaillancourt T. Does perfectionism mediate or moderate the relation between body dissatisfaction and disordered eating attitudes and behaviors? *Eat Behav*. 2009;10(3):168-75. doi: [10.1016/j.eatbeh.2009.05.002](https://doi.org/10.1016/j.eatbeh.2009.05.002). [PubMed: [19665100](https://pubmed.ncbi.nlm.nih.gov/19665100/)].
31. Siegling AB, Delaney ME. Toward understanding body image importance: Individual differences in a Canadian sample of undergraduate students. *Eat Disord*. 2013;21(2):117-29. doi: [10.1080/10640266.2013.761083](https://doi.org/10.1080/10640266.2013.761083). [PubMed: [23421695](https://pubmed.ncbi.nlm.nih.gov/23421695/)]. [PubMed Central: [PMC4118941](https://pubmed.ncbi.nlm.nih.gov/PMC4118941/)].
32. Choo SY, Chan CKY. Predicting eating problems among Malaysian Chinese: Differential roles of positive and negative perfectionism. *Pers Indiv Differ*. 2013;54(6):744-9. doi: [10.1016/j.paid.2012.11.036](https://doi.org/10.1016/j.paid.2012.11.036).
33. Bartsch D. Prevalence of body dysmorphic disorder symptoms and associated clinical features among Australian university students. *Clin Psychol*. 2007;11(1):16-23. doi: [10.1080/13284200601178532](https://doi.org/10.1080/13284200601178532).
34. Buhlmann U, Etcoff NL, Wilhelm S. Facial attractiveness ratings and perfectionism in body dysmorphic disorder and obsessive-compulsive disorder. *J Anxiety Disord*. 2008;22(3):540-7. doi: [10.1016/j.janxdis.2007.05.004](https://doi.org/10.1016/j.janxdis.2007.05.004). [PubMed: [17624717](https://pubmed.ncbi.nlm.nih.gov/17624717/)].
35. Barnett MD, Sharp KJ. Maladaptive perfectionism, body image satisfaction, and disordered eating behaviors among U.S. college women: The mediating role of self-compassion. *Pers Indiv Differ*. 2016;99:225-34. doi: [10.1016/j.paid.2016.05.004](https://doi.org/10.1016/j.paid.2016.05.004).
36. Kline RB. *Principles and practice of structural equation modeling*. Guilford publications; 2015.
37. Oosthuizen P, Lambert T, Castle DJ. Dysmorphic concern: Prevalence and associations with clinical variables. *Aust N Z J Psychiatry*. 1998;32(1):129-32. doi: [10.3109/00048679809062719](https://doi.org/10.3109/00048679809062719). [PubMed: [9565194](https://pubmed.ncbi.nlm.nih.gov/9565194/)].
38. Jorgensen L, Castle D, Roberts C, Groth-Marnat G. A clinical validation of the dysmorphic concern questionnaire. *Aust N Z J Psychiatry*. 2001;35(1):124-8. doi: [10.1046/j.1440-1614.2001.00860.x](https://doi.org/10.1046/j.1440-1614.2001.00860.x). [PubMed: [11270446](https://pubmed.ncbi.nlm.nih.gov/11270446/)].
39. Kiselty S, Morkell D, Allbrook B, Briggs P, Jovanovic J. Factors associated with dysmorphic concern and psychiatric morbidity in plastic surgery outpatients. *Aust N Z J Psychiatry*. 2002;36(1):121-6. doi: [10.1046/j.1440-1614.2002.00981.x](https://doi.org/10.1046/j.1440-1614.2002.00981.x). [PubMed: [11929448](https://pubmed.ncbi.nlm.nih.gov/11929448/)].
40. Rosen JC, Reiter J. Development of the body dysmorphic disorder examination. *Behav Res Ther*. 1996;34(9):755-66. [PubMed: [8936758](https://pubmed.ncbi.nlm.nih.gov/8936758/)].
41. Kazemini M, Foroughi AA, Khanjani S, Mohammadi A. [Factor structure and psychometric properties of Persian version of dysmorphic concern questionnaire]. *Navid No J*. 2015;18(60):56-65. Persian.
42. Raes F, Pommier E, Neff KD, Van Gucht D. Construction and factorial validation of a short form of the Self-Compassion Scale. *Clin Psychol Psychother*. 2011;18(3):250-5. doi: [10.1002/cpp.702](https://doi.org/10.1002/cpp.702). [PubMed: [21584907](https://pubmed.ncbi.nlm.nih.gov/21584907/)].
43. Khanjani S, Foroughi AA, Sadghi K, Bahrainian SA. [Psychometric properties of Iranian version of self-compassion scale (short form)]. *Pajooohande*. 2016;21(5):282-9. Persian.
44. Goss K, Gilbert P, Allan S. An exploration of shame measures I: The other as Shamer scale. *Pers Indiv Differ*. 1994;17(5):713-7. doi: [10.1016/0191-8869\(94\)90149-x](https://doi.org/10.1016/0191-8869(94)90149-x).
45. Foroughi AA, Khanjani S, Kazemini M, Tayeri F. [Factor structure and psychometric properties of Iranian version of external shame scale]. *Shenakht J Psychol Psychiatry*. 2015;2(2):49-58. Persian.
46. Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: The PANAS scales. *J Pers Soc Psychol*. 1988;54(6):1063-70. [PubMed: [3397865](https://pubmed.ncbi.nlm.nih.gov/3397865/)].
47. Bakhshpour A, Deikam M. [Confirmatory factor analysis the positive and negative affect schedule]. *J Psychol*. 2006;9(4):351-65. Persian.
48. Najarian B, Attarian Y, Goldsmith Y. [Construction and validation of Ahvaz perfectionism scale]. *J Educ Psychol*. 2001;3(4):43-58. Persian.
49. Lucas M, Koff E. Body image, impulse buying, and the mediating role of negative affect. *Pers Indiv Differ*. 2017;105:330-4. doi: [10.1016/j.paid.2016.10.004](https://doi.org/10.1016/j.paid.2016.10.004).
50. Bearman SK, Martinez E, Stice E, Presnell K. The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *J Youth Adolesc*. 2006;35(2):217-29. doi: [10.1007/s10964-005-9010-9](https://doi.org/10.1007/s10964-005-9010-9). [PubMed: [16912810](https://pubmed.ncbi.nlm.nih.gov/16912810/)]. [PubMed Central: [PMC1540456](https://pubmed.ncbi.nlm.nih.gov/PMC1540456/)].
51. Keel PK, Mitchell JE, Davis TL, Crow SJ. Relationship between depression and body dissatisfaction in women diagnosed with bulimia nervosa. *Int J Eat Disord*. 2001;30(1):48-56. [PubMed: [11439408](https://pubmed.ncbi.nlm.nih.gov/11439408/)].
52. Shafran R, Cooper Z, Fairburn CG. Clinical perfectionism: A cognitive-behavioural analysis. *Behav Res Ther*. 2002;40(7):773-91. [PubMed: [12074372](https://pubmed.ncbi.nlm.nih.gov/12074372/)].
53. Barnard LK, Curry JF. Self-compassion: Conceptualizations, correlates, and interventions. *Rev Gen Psychol*. 2011;15(4):289-303. doi: [10.1037/a0025754](https://doi.org/10.1037/a0025754).
54. Gee A, Troop NA. Shame, depressive symptoms and eating, weight and shape concerns in a non-clinical sample. *Eat Weight Disord*. 2003;8(1):72-5. [PubMed: [12762628](https://pubmed.ncbi.nlm.nih.gov/12762628/)].