



The Relation of Eating Disorder with Body Dissatisfaction and Emotion Regulation in Female University Students in Iran

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Quantitative Study

Abstract

Background: The aim of the present study was to predict eating disorder on the basis of body dissatisfaction and emotional regulation.

Methods: The participants were 200 female students (age range: 25 to 45 years) who were selected using convenience sampling from among the students of Karaj University in Iran. The instruments used consisted of Body Shape Questionnaire (BSQ), Cognitive Emotion Regulation Questionnaire (CERQ), and Eating Disorder Examination Questionnaire (EDE-Q). The Pearson correlation and stepwise regression methods, with inter and stepwise methods, were used during data analysis.

Results: The results of this study revealed that eating disorder has a strong relationship with body dissatisfaction and emotion regulation. In addition, both body dissatisfaction and emotional regulation predicted eating disorder, but body dissatisfaction, compared to emotion regulation, predicted more eating disorders in female students.

Conclusion: This study suggests that eating disorder can be predicted with both emotion regulation and body dissatisfaction.

Keywords: Emotion regulation, Body dissatisfaction, Eating disorder

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Introduction

In the past few decades, eating disorders have received growing attention (Polivy & Herman, 2002). Eating disorder has a relationship and comorbidity with depression, which substantiate the complexity of the problem (Burton, Stice, Bearman, & Rohde, 2007). Body image

dissatisfaction has also been recognized as one of the most powerful stimuli for controlled or uncontrolled food intake (Cash & Smolak, 2011). The cognitive-emotional and affective components of body image are effective on inducing dietary restraint, overeating, and maladaptive food patterns. The importance of emotional dysregulation on body image structure is wellknown, although its relationship has not been fully explored (Nejati, Sabahi, Rafienia, Esfehiani,

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2014). Previous research has demonstrated the role of body image disturbance in predicting the severity of eating disorders (Lu & Hou, 2009). Studies on disordered eating behaviors suggest that these behaviors are undertaken as an attempted to regulate or escape negative mental effects compared to healthy controls; individuals with anorexia nervosa report more difficulties with emotion regulation. However, no evidence has been provided as yet of a causal relationship between emotion regulation difficulties and disordered eating behaviors in these individuals. Shriver, Wollenberg, and Gates (2016) examined the prevalence of eating disorders and their relationship with emotional regulation in athletic females. They assessed emotional regulation using the Difficulties in Emotion Regulation Scale (DERS). They found that the prevalence of disordered eating was 6.6% and 10.6%, respectively, in female college athletes with no differences by sport type. Greater emotional regulation difficulties and body dissatisfaction were significant predictors of disordered eating. Further examination of emotional regulation and body dissatisfaction in relation to disordered eating in female college athletes is warranted. Caslini, Rivolta, Zappa, Carra, and Clerici, (2015) hypothesized that psychotherapeutic treatment of disordered eating will improve dissociative experiences and impulse regulation, but not alexithymia. They confirmed the effectiveness of psychotherapy in people suffering from eating disorder as regarding dissociative moments, impulsivity, and body dissatisfaction. However, alexithymia remains unchanged, possibly because of its deep emotional nature. Brechan and Kvaem (2015) believed that body dissatisfaction is associated with eating disorders. Their results showed that the effect of body dissatisfaction on disordered eating was completely mediated; however, the effect of body image importance was partly mediated. Moreover, self-esteem and depression were found to be significant

mediators. They also found that body image importance and self-esteem had a direct effect on restrained eating and compensatory behavior, and depression had a direct effect on binge eating, specially on women. Their results support emotion regulation and cognitive behavioral theories of eating disorders, and also confirm that self-esteem and depression are the most proximal factors in this respect, whereas the effect of body dissatisfaction is indirect. They showed that women may turn to both binge eating and restrained eating to escape awareness of negative emotions, whereas men focus on eating to a lesser extent than women. Therefore, the aim of the present study was to predict eating disorder on the basis of body dissatisfaction and emotional regulation.

Methods

Statistical Analyses: The Pearson correlation and stepwise regression methods, with inter and stepwise methods, were used during data analysis.

Sample: The sample consisted of 200 female students (age range: 25 to 45 years) selected using convenience sampling from among the students of Karaj University, Iran.

Psychological Measures

Eating Disorder Examination Questionnaire: The Eating Disorder Examination Questionnaire (EDE-Q). has been designed by Fairburn and Beglin (2008). EDE-Q is a self-report questionnaire that measures the presence and severity of eating disorder symptoms over the past 28 days (Fairburn & Beglin, 1994). The EDE-Q includes a total of 28 items and the 4 subscales of restraint subscale (RS; 5 items, e.g., "Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight [whether or not you have succeeded]?"), eating concern subscale (EC; 5 items, e.g., "Has thinking about food, eating, or calories made it very difficult to concentrate on things you are interested in [for example, working, following a conversation, or reading]?"), weight concern

subscale (WC; 5 items, e.g., "Has thinking about shape or weight made it very difficult to concentrate on things you are interested in [for example, working, following a conversation, or reading]?"), and shape concern subscale (SC; 8 items, e.g., "Have you had a definite desire to have a totally flat stomach?").

RS and EC describe abnormalities in eating behavior and WC and SC both measure aspects of a negative body image (Hilbert, de Zwaan, & Braehler, 2012). Frequency is rated on a scale ranging from 0 (no days/not at all) to 6 (every day/markedly intensive). Many previous studies have shown the good internal consistency, high validity, and good reliability of the EDE-Q (Reas, Grilo, & Masheb, 2006; Hilbert, Tuschen-Caffier, Karwautz, Niederhofer, & Munsch, 2007).

Body Shape Questionnaire (BSQ): The items of the Body Shape Questionnaire (BSQ) were developed by women for women. The BSQ is a self-report measure used to assess concerns about body shape, specifically the experience of feeling fat (Cooper, Taylor, Cooper, & Fairburn, 1987). The BSQ consists of 34 items which are scored on a scale ranging from 1 (never) to 6 (always) (e.g., "Has feeling bored made you brood about your shape?" and "Has being with thin women made you feel self-conscious about your shape?").

The BSQ scores are classified into 4 categories of not worried about body shape (< 81), slightly worried (81-110), moderately worried (111-140), and extremely worried (> 140) (Cooper & Taylor, 1988). The BSQ has a good test-retest reliability and validity (Cooper et al., 1987). Furthermore, it has been used in many studies on body dissatisfaction and is also generally recommended for assessing eating disorder pathology in clinical settings (Dowson & Henderson, 2001).

Cognitive Emotion Regulation Questionnaire: The Cognitive Emotion Regulation Questionnaire (CERQ) is a 36-item questionnaire consisting of the 9 subscales of self-blame (e.g., "I feel that I am

the one to blame for it"), other-blame (e.g., "I feel that others are to blame for it"), rumination (e.g., "I often think about how I feel about what I have experienced"), catastrophizing (e.g., "I often think that what I have experienced is much worse than what others have experienced"), putting into perspective (e.g., "I think that it could all have been much worse"), positive refocusing (e.g., "I think of nicer things than what I have experienced"), positive reappraisal (e.g., "I think I can learn something from the situation"), acceptance (e.g., "I think that I have to accept that this has happened"), and planning (e.g., "I think of what I can do best") (Garnefski, Kraaij, & Spinhoven, 2001).

Each subscale consists of 4 items and each subscale refers to what someone thinks after the experience of threatening or stressful life events (Garnefski & Kraaij, 2007). The CERQ is scored on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). A good internal consistency ranging from 0.68 to 0.86 has been reported for the CERQ (Garnefski & Kraaij, 2007).

Positive and Negative Affect Schedule: The Positive and Negative Affect Schedule (PANAS) consists of 20 items in the 2 subscales of positive affect (PA) and negative affect (NA). The scale is rated on a 5-point Likert scale ranging from 1 (very slightly) to 5 (very much) which indicates the extent of experiencing each mood state (Watson, Clark, & Tellegen, 1988). PA represents the extent to which an individual experiences pleasurable engagement with the environment and high NA indicates distress and unpleasurable engagement that comprises a variety of aversive mood states (Watson et al., 1988; Crawford & Henry, 2004). It has been suggested that less than 5% of the PA scores indicates abnormally low PA and higher than 95% of the NA scores indicates abnormally high NA (Crawford & Henry, 2004). Previous studies have reported good validity and reliability for the PANAS (Spoon, Bekker, Van Strien, & van Heck, 2007; Ostir, Smith, Smith, & Ottenbacher, 2005).

Results

To find the correlation between variables, the Pearson correlation was used. The results presented in table 1 indicate that eating disorder has a negative correlation with body dissatisfaction ($r = -.739, P < 0.001$) and emotion regulation ($r = -.270, P < 0.001$).

Table 1. Pearson correlation between eating disorder, and emotion regulation and body image

Prediction variables	Criteria variable Eating disorder	
	Correlation (R)	P-value
Negative affect	-.225	< 0.001
BS	-.739	< 0.001
CER	-.270	< 0.001

BS: Body shape; CER: Cognitive emotion regulation

To predict eating disorder based on the predictor variables of body shape and emotion regulation, stepwise regression analysis was used. The results are presented in table 2.

The results presented in table 2 show that body shape and emotion regulation had the ability to predict eating disorder. The amount of F for the two models were $F_1 = 295.861$ ($P < 0.001$) and $F_2 = 156.693$ ($P < 0.001$) which are significant with sufficient ability to predict eating disorder. Moreover, according to the adjusted coefficient of determination, they are characterized by body shape and emotion regulation strategy. This is consistent with the finding that 56% of the variance in eating disorders among female students predict eating disorder ($R^2 = 0.561$).

The results presented in table 3 show that, with attention to Beta, body shape and emotion regulation have appropriate relation with eating disorder. A series of hierarchical

regression analyses indicated that both body dissatisfaction and emotion regulation predicted eating disorder. Body dissatisfaction in comparison to emotion regulation predicted more eating disorders ($P > 0.01$) in female students.

The results show that satisfaction with areas of the body with $\beta = 0.739$ was the best predictor of eating disorder symptoms among female students. In other words, with increase in satisfaction with body parts, the symptoms of eating disorders in students are reduced.

Discussion

The results of this study revealed that eating disorder has strong relationships with body dissatisfaction and emotion regulation. In addition, both body dissatisfaction and emotional regulation predicted eating disorder, but body dissatisfaction, compared to emotion regulation, predicted more eating disorders in female students. These findings are in line with previous researches which reported that body dissatisfaction is correlated with eating disorders among adolescent girls (Johnson & Wardle, 2005; Stice, 2001; Stice, Presnell, & Spangler, 2002; Wertheim, Koerner, & Paxton, 2001), among college women (Cooley & Toray, 2001a; Cooley & Toray, 2001b) and among middleaged women (Tiggemann, 2004). They also reported that people suffering from body dissatisfaction may show a slightly more adaptive pattern compared to those suffering from emotion regulation. It seems that negative emotions and maladaptive emotion regulation strategies play an important role in the onset and maintenance of eating disorder (Dingemans, Danner, & Parks, 2017).

Table 2. Summary of stepwise regression analysis for predicting eating disorder based on the predictor variables of body shape and cognitive emotion regulations

Model	Sum of square	R	R ²	df	Mean Square	F	P-value
1	Regression			1	1816.454	295.861	< 0.001a
BS	Residual	0.729a	0.546	246	6.140		
	Total			247			
2	Regression			2	933.554	156.693	< 0.001b
BS	Residual	0.749b	0.561	245			
	Total			247			

BS: Body shape; CER: Cognitive emotion regulation; df: Degrees of freedom

Table 3. The result of regression coefficients for prediction of eating disorder

Model		Unstandardized coefficients		Standardized coefficients	t	P-value
		B	Std Error	Beta		
1	Constant	-1.26	0.356		-3.157	0.002
BS	Sum_BSQ	-0.70	0.004	0.739	17.201	< 0.001
2	Constant	-3.687	0.949		-3.897	< 0.001
Bs	Sum_BSQ	-0.67	0.004	0.714	16.516	< 0.001
CER	Sum_CERQ	-0.27	0.009	0.126	2.916	0.004

BS: Body shape; CER: Cognitive emotion regulation

Moreover, anger and sadness, along with negative emotions related to interpersonal experiences (i.e., disappointment, being hurt, or loneliness), seem to play a role in this regard. Lewer, Bauer, Hartmann, and Vocks (2017) showed that a disturbed body image in binge eating disorder (BED) is present in the form of overconcern with body weight and shape. In addition, it is known that body dissatisfaction, as well as body-related checking and avoidance behavior, are also impaired behaviour. Furthermore, Svaldi, Griepenstroh, & Tuschen-Caffier, Ehring (2012) found higher levels of emotion intensity and increased use of dysfunctional emotion regulation strategies which support the present study findings. The study by Davodi, Firoozi, and Zargar (2016) indicated that concern regarding body image was correlated with negative cognitive emotion. Their results also showed that concern about body image and negative cognitive emotion regulation strategies are significant in the regression equation, predicting 19% of the variance in eating disorder symptoms. Alizade, Mohammadzadeh, and Babai (2016) showed that cognitive emotion regulation and body image and its dimensions have a significant relationship with eating disorders. There is a significant negative correlation between body satisfaction and eating disorder symptoms.

Moreno-Domínguez, Rodríguez-Ruiz, Fernández-Santaella, Jansen, and Tuschen-Caffier (2012) revealed that mirror exposure is effective on the reduction of body dissatisfaction. BED is very common and is also related with psychological symptoms. The prevalence of BED is around 2% in

different countries (Kessler et al., 2013). A study revealed that the prevalence of BED is almost the same among men and women (Raevuori, Keski-Rahkonen, and Hoek, 2014). The belief of being thin, thin-ideal internalization, and elevated body mass are affective on the increase in the risk of subsequent body dissatisfaction. There is evidence that body dissatisfaction is a risk factor for eating pathology and that this relation is mediated by increases in dieting and negative affect (Stice & Shaw, 2002). In summary, the results suggested that emotion regulation and body image assist in the prediction of eating disorder.

Conclusion

Eating disorders, as a life-threatening condition, are serious disturbances in eating and body image and are very common among women (Agras, 2010). Eating disorder is a heterogeneous multidimensional syndrome and the result of neurobiological, psychological, social, and cultural functions (Garner & Myerholtz, 2000).

Sharan and Sundar (2015) believed that eating disorders have been classically described in young females in the western population, and recently, in developing countries. The new classification of BED has a multifactorial etiology. The genetic factor seems to have a major role in BED; more evidences in neurobiology have improved our understanding of these conditions and may help to develop more effective treatments in the future. Premorbid personality traits and cultural factors are also effective in this disorder. As shown in this research, body dissatisfaction plays a

significant role in predicting eating disorder among female students in Iran.

Conflict of Interests

Authors have no conflict of interests.

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