

## The Role of Emotion Regulation Difficulties as a Mediator of the Relationship between Body Image Disturbance and Disordered Eating Behavior

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### **Abstract**

#### **Introduction**

The prevalence of disordered eating behaviors has been reported to increase in recent decades; therefore, the search for specific psychological variables that may contribute to the etiology of this disorder is of great importance. The current study examined the mediating role of the emotion regulation difficulties on the relationship between body image disturbance and disordered eating behavior among students.

#### **Materials and Methods**

This cross-sectional study was performed in 2015 upon a sample consisting of 264 students in Allameh Tabataba'ei University were selected based on a Morgan formula and multi-stage cluster random sampling. Then, participants responded to the questionnaires of emotion regulation difficulties of Gratz and Roemer (2004), The Multidimensional Body-Self Relations Questionnaire (MBSRQ) of Cash (2000) and eating attitudes test of Garner and Garfinkel (1979). The data were analyzed by correlation techniques and multiple regressions.

#### **Results**

The results showed that there was internal significant correlation among emotion regulation difficulties, body image disturbance and disordered eating behaviors ( $p < 0.01$ ). Also, regression analysis indicated that emotion regulation difficulties significantly mediated the relationship between body image disturbance and disordered eating behaviors ( $p < 0.01$ ).

#### **Conclusion**

According to the findings of the present study, considering the role of emotion regulation difficulties in the relationship between body image disturbance and eating disorders is important for prevention and therapy programs.

**Key Words:** Emotion regulation difficulties, Body image disturbance, Disordered eating behavior.

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## Introduction

Disordered eating (DE) comprises a wide range of abnormal eating behaviors with different severity that involve of fear of fatness, unhealthy weight control behaviors and preoccupation thinking about food; eating disorders are ranked at the extreme end of disordered eating spectrum and these unhealthy behaviors do not warrant meeting the diagnostic criteria for eating disorders (1). Almost 44 percent of adolescent girls exhibit some eating pathology, and the prevalence of binge eating behaviors in college women is almost 16–25% (2). In the college population, almost half of female students report being eating, self induced vomiting, laxative/diuretic use, fasting, or excessive exercise to compensate for food consumption or avoid weight gain at least weekly (3) and a significant percentage of male students also report Eating Disorder (ED) symptoms (4). College students in particular appear to be at risk, due to a variety of individual (e.g., body image) and environmental (e.g., peers who engage in or promote unhealthy eating habits) elements (5). The recognition of risk elements that specifically relate to the development of eating disorders has been a focus of recent studies (6). However, the elements related to eating disorders among students are poorly understood and studies are required to identify a suitable theoretical framework for their disordered eating (5, 6).

Disturbance of body image is diagnosed to be a key factor and often persistent symptom in eating disorders (7). Body image disturbance is a multidimensional concept, which includes several psychopathological dimensions, such as overestimation of body size or body parts, body dissatisfaction, overvaluation of weight and shape for self-esteem, body weight control and body checking behaviors, denial of outcomes of weight loss, and extreme reward experience when

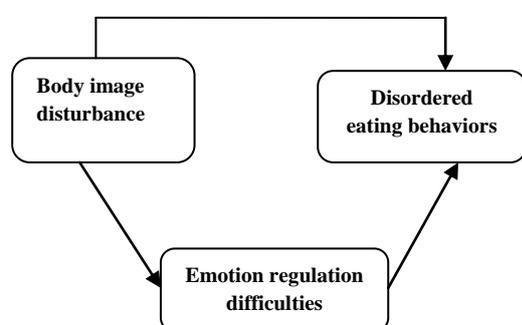
weight loss is obtained (8). Although body image disturbance is prevalent and important from a prognostic perspective, little studies were performed about its relationship with disordered eating behavior (9). Body image disturbance recognized as one of the most robust risk and maintenance elements for disordered eating behavior among female (10). Body image disturbance predicts a various range of negative consequences including depressive symptoms, low self-esteem and negativ emotions, dieting and eating pathology, weight gain, and reduced physical activity and fruit and vegetable intake (11). One of the issues investigated in the present study is the examination of the relationship between body image disturbance and disordered eating behaviors.

However, a number of psychological constructs might have a mediated role in the relationship between these variables and understanding mediated variables that may be responsible for the relationship between body image disturbance and eating disorders is important; because it may help identify which mechanisms to involve in prevention programs for body image disturbance in eating disorders (12, 13). One of these mediated variables is emotion regulation difficulties that are very relevant to eating disorders (14).

Emotions provide valuable information needed for the survival of human (15). Emotion regulation is a multifaceted construct that refers to the ways in which persons respond to, and manage psychological distress (16). The research of Gratz and Tull (2010) showed that emotion regulation includes of the (1) awareness and acceptance of emotion; (2) capacity to pursue goal-directed behavior when distressed; (3) flexible use of emotion-regulation strategies to respond to difficult emotions, as opposed to avoiding difficult emotions; and (4) willingness to

experience difficult emotions. People who experienced substantial difficulty in regulating their emotional responses to situations are likely to experience greater, and more intense, psychosocial distress (17). The previous studies hypothesized that persons with disordered eating behavior are vulnerable to engaging in emotional overload because they lack adaptive emotion regulation strategies and skills, including being able to clearly identify and adaptively cope with emotional situations (18). Initial researchers suggest that emotion regulation difficulties explain a significant percent of the variance of disordered eating behaviors in a non-clinical college sample and a non-clinical sample of children (19). The results obtained of studies underline the role of emotion in disordered eating behaviors and support the negative affect and emotion dysregulation theories of eating disorders (20, 21).

In attention to above materials and prior researches has been accomplished on the Iranian population and reflects the high prevalence of disordered eating behavior in Iran, the aim of current research was to systematically investigate the mediatory role of emotion regulation difficulties on the relationship between body image disturbance and disordered eating behaviors.



**Fig. 1:** The relationships between research variables

## Materials and Methods

This descriptive study on 264 students was administrated from Jan to Feb 2015 in Allame Tabatabaie University, Tehran-Iran. The sample was selected based on a Morgan formula and multi-stage cluster random sampling. Initially, five faculties were selected from the schools of Allameh Tabatabai University and then, 100 students from each school that is from each class 25 students were selected randomly. The inclusion criteria of the study were the desire of the student to participating in this study and studying in the university. The exclusion criteria of the study were the unwillingness of the student to participate in research and lack of studying in university at the time of this study. Informed consent was obtained from each participant and was approved the research by the appropriately constituted Ethics Committees at Allame Tabatabaie University. After the selection of participants based on inclusion and exclusion criteria, they were responded the questionnaires of the current research.

### Measurements

Validated instruments were used for data emotion regulation difficulties, body image disturbance, and disordered eating behaviors. At first, all questionnaires were translated from English into Persian and independently back-translated into English by a second translator. The few discrepancies between the original English and the back-translated version resulted in adjustment in the Persian translation based on direct discussion between the translators. At next step, psychometric characteristics of instruments were examined. Linguistic validation was performed by three experts of psychology department and five experts of health departments. Thus, the questionnaires were piloted and finalized with an advisory group of students to ensure that the scales items were comprehensible and appropriate to the context. Moreover,

conceptual analysis was confirmed the content validity of all instrument. The questionnaires were distributed to participants with the help of researchers. Participants were assured of confidentiality and informed consent in written format was acquired from each them. The following questionnaires were used:

1) **Difficulties in Emotion Regulation Scale (DERS)**: is a 36-item self-report measure designed to evaluate patterns of emotion regulation. Participants respond to questions on a five-point scale with responses ranging from 1(*Almost Never*) to 5(*Almost Always*). Gratz and Roemer (16) report that the total scale demonstrates good scale score reliability ( $\alpha = .9$ ), construct validity and test-retest reliability. In addition to its total score, the DERS is made up of six subscales that were theoretically formulated and confirmed through factor analysis. The six subscales include the following: (1) lack of emotional awareness (awareness; six items), (2) lack of emotional clarity (clarity; five items), (3) difficulties engaging in goal-directed behaviors (goals; five items), (4) impulse control difficulties (impulse; six items), (5) non-acceptance of emotional responses (non-acceptance; six items), and (6) limited access to emotion regulation strategies (strategies; eight items). Higher scores on this scale represent greater emotion regulation difficulties, with possible scores ranging from 36 –180 college student and community adult samples report average scores of 75 to 80 (16). In their research, the DERS instrument yielded adequate scale score reliability for its total and all subscales, with Cronbach alphas ranging from 0.80 to 0.90 and confidence intervals ranging from 0.70 to 0.90 across both gender groups. Evidence of reliability of this scale, as administered to Iranian relevant populations, in this research, by alpha coefficient is 0.81 and by split-half is 0.79. The validity coefficients of

questions are between 0.24 and 0.85 that all the validity coefficients are significant at  $p < 0.0001$ .

2) **The Multidimensional Body-Self Relations Questionnaire (MBSRQ)**: The MBSRQ is a self report questionnaire consisting of 69 items and 10 subscales: Appearance Evaluation, Appearance Orientation, Fitness Evaluation, Fitness Orientation, Health Evaluation, Health Orientation, Illness Orientation, Body Areas Satisfaction, Overweight Preoccupation and Self-Classified Weight. Items 1–57 are rated on a 5- point Likert-type scale anchored at 1 = definitely disagree to 5 = definitely agree. Items 58–60 have five options and items 61– 69 are again rated on a 5-point Likert-type scale anchored 1 = very dissatisfied and 5 = very satisfied. Good reliability has been demonstrated for the MBSRQ, Cronbach's index of internal consistency ranging between .70 and .99 for males (22). Internal consistencies (Cronbach's alpha) in Iran were 0.74, which was good for this scale (23).

3) **Eating Attitudes Test-26 (EAT-26)**: The EAT-26 of Garner and Garfinkel (24) is 26-item scale, widely used, standardized, and self-reported scale to identify abnormal eating attitudes. To complete the EAT-26, participants rate their responses on a 6- point scale (always, usually, often, sometimes, rarely, or never). The scale is divided into three subscales: Dieting (13 items), Bulimia and Food Preoccupation (6 items), and Oral Control (7 items). The higher the final score, the more the individual is preoccupied by food consumption. A score of 20 or more considered as disordered eating attitudes (24). Primarily, EAT-26 was translated into Persian by help of psychologists and health experts, then was given 10 students and rewritten according to students comments on unclear questions. The validity and reliability of this scale was assessed in a pilot study.

Test-retest coefficient for the EAT-26 was 0.80. The scale's Cronbach's alpha was 0.76. The Score 20 or higher in this scale defined as disordered eating attitudes (19). Internal consistencies (Cronbach's  $\alpha$ ) in this study in Iran were 0.84, which was good for this scale.

*Statistical Analysis*

In order to test the mediating effect of emotion regulation difficulties on the relationship between body image disturbance and disordered eating behaviors, multiple regression analyses were performed separately for each three-variable system. According to Baron and Kenny (18), the following four conditions must be met to establish mediation: (a) The predictor variable must be related to the potential mediator, (b) the predictor must be related to the criterion variable and when the criterion variable is regressed on both the predictor and mediator variables, (c) the mediator must

be related to the criterion variable, and (d) the previously significant relation between the predictor and criterion variables is attenuated (25). All these requirements were examined and, in addition, the Sobel test (26) was used to test size and significance of the mediation effect. Data were analyzed using SPSS 15 software and p value less than 0.05 was considered statistically significant.

**Results**

Table.1 shows the descriptive statistics and internal correlations of the study variables. Emotion regulation difficulties was positively related to disordered eating behaviors ( $r=0.58, p<0.01$ ) and to body image disturbance ( $r=0.67, p<0.01$ ). Body image disturbance was positively related to disordered eating behaviors ( $r=0.62, p<0.01$ ).

**Table 1:** Mean, standard deviation, internal correlation between variables

Variables	Mean	SD	Correlations		
			1	2	3
1. Emotion regulation difficulties	87.26	9.23	1		
2. body image disturbance	54.75	7.41	0.67**	1	
3. Disordered eating behaviors	53.35	6.52	0.58**	0.62**	1

\*\* p<0.01

We used the approach proposed by Baron and Kenny (25) for testing mediation. In addition, in order to estimate significance and size of the indirect effect we employed the Sobel test (26). Regression analyses

was used to test the hypotheses about the mediating role of emotion regulation difficulties. The regression analysis results are shown in (Table.2).

**Table2:** Results of mediation analysis for disordered eating behaviors

Baron and Kenny (18) steps	B	SE	$\beta$	T	P
Direct and total effects					
Step 1: disordered eating behaviors regressed on body image disturbance	.64	0.04	.62	14.56	.000
Step 2: disordered eating behaviors regressed on Emotion regulation difficulties	.61	.05	.59	13.36	.000
Step 3: disordered eating behaviors regressed on body image disturbance, controlling for Emotion regulation difficulties	.42	.05	.41	7.51	.000
Indirect effect and significant using distribution					
Sobel test				Z	P
				3.31	0.026

Note. N = 464.

Disordered eating behaviors (first step) regressed on body image disturbance; body image disturbance was found to significantly predict disordered eating behaviors ( $\beta = .62$ ;  $p < 0.01$ ). Disordered eating behaviors (second step) regressed on emotion regulation difficulties; emotion regulation difficulties was found to significantly predict disordered eating behaviors ( $\beta = .59$ ;  $p < 0.01$ ). The effect of body image disturbance to disordered eating behaviors was reduced (although it was still significant) after emotion regulation difficulties was entered in the equation ( $\beta = .41$ ;  $p < 0.01$ ). This result was consistent with the presence of a partial mediation effect. The significance of the mediation effect was further confirmed by the significance of the Sobel test for body image disturbance ( $z = 3.31$ ,  $p < 0.05$ ). Hence, the analysis provided support for the hypothesis of the mediating role of the emotion regulation difficulties on the relationship between body image disturbance and disordered eating behavior.

## Discussion

The result of the current research showed body image disturbance significantly predicted disordered eating behavior among students. The result is consistent with the findings of the previous studies (27-30) and can be interpreted on the basis of the following possibilities: Studies evidence indicates that there was the current societal standard of attractiveness for women is a thin ideal body. This ideal is so prevalent that body image concerns and dieting behaviors are widespread among both adolescent and young adult females. Socio-cultural perspectives propose that social ideals for body weight and shape emphasize a thin-ideal body. For example, Tripartite Influence Model which integrates a number of theoretical perspectives on body image disturbance and disordered eating behavior, family members, peers and the

media are important predictors to the development of body image disturbance, with their influence being mediated by the mechanisms of social comparison and internalization of the thin-ideal (28). Subsequently, body image disturbance directly affect the disordered eating behaviors of dietary restraint and bulimic behaviors. When utilized to examine familial influences, the Tripartite Influence Model provides a helpful theoretical framework to understanding the development of body image disturbance and disordered eating within young females (29). The body image disturbance is an "essential precursor" to eating disorders (30). Disordered eating includes a wide variation of disordered eating behaviors with different severity and eating disorders ranking at the extreme end of it. Fear of fatness, unhealthy weight control behaviors and preoccupation thinking about food is samples of disordered eating (1). The previous studies showed body image disturbance to remain considerably stable across the adult women lifespan and commonly reported among younger females associated with dieting and disordered eating behaviors (31, 32).

Also, the present results indicated that emotion regulation difficulties have a mediating role on the relationship between body image disturbance and disordered eating behavior. This is consistent with the findings of the previous studies (14, 35) and can be interpreted on the basis of the following possibilities:

Emotions, particularly emotion dysregulation, play an important role in the development and maintenance of eating disorders, particularly those involving binge eating (36). Difficulties in emotion regulation (especially limited access to emotion regulation strategies and non acceptance of emotional responses) were found to be significant predictors for disordered eating behavior. Prior

researches in clinical situations have found non-acceptance of emotional responses to be related to some forms of disordered eating symptoms (37). Young girls are very receptive to the views of the media and their friends and their definition of charm and beauty affect the self-esteem of them. So they seek to confirm their own with social comparisons. If they do not reach positive results by these comparisons are experiencing negative feelings and bitterness (38, 39). When they do not have a strategy to deal with these negative feelings, involve in destructive behaviors such as exercising, disordered eating behaviors extremist to compensate for these feelings (40, 41). If individuals can regulate these negative emotions through appropriate strategies, they are less involved in destructive health behaviors (42). Emotion regulation models of disordered eating propose that persons engage in special behaviors (i.e., purging, excessive exercise) as a tool for regulating unwanted or negative emotions. For example, the previous studies indicated that individuals who have difficulties in adaptive emotion regulation strategies may be more likely to engage in disordered eating behaviors in an attempt to reduce or avoid negative emotions. The construct of emotion regulation include of the ability to adaptively recognize and cope with negative emotions, not just the experience of a negative emotion itself. The emotion regulation hypothesis of disordered eating development proposes that symptoms such as binge eating are initiated in an effort to distract one from negative emotions or self-soothe (43). Disordered eating behaviors in these models are conceptualized as a maladaptive tool for dealing with negative emotions, and thus imply poor emotion regulation strategies (36, 43).

## Conclusion

The present research showed that emotion regulation difficulties have a

mediated role in the relationship between body image disturbances and disordered eating behaviors. The cross-sectional nature of our data precludes making causal influences; however, our results are consistent with what one might expect in a negative emotion regulation model for body image disturbance and disordered eating behavior which suggests that individuals overeat as an attempt to modulate and mitigate the negative emotions they are feeling. Our results suggest that when persons with distorted body image experience negative emotion they may lack effective strategies for managing these emotions. It may also be the case that these individuals experience extremely high levels of negative emotion and typically functional strategies for coping with these emotions do not work and therefore engage in disordered eating behaviors. The present study enhances the understanding of the role of Emotions, particularly emotion regulation in body image disturbance and disordered eating behavior. These findings open the door for future research on the role of emotion regulation in this relationship that may also prove helpful from an intervention perspective in patient with body image disturbance and eating disorder. The future research should explore the role of emotion regulation in a clinical population with body image disturbance and eating disorders to further investigation how this population recognize and using emotions and cognition.

This study is an exploratory one, and consequently has a number of limitations that need to be addressed in further research. The present study needs to be replicated in different populations and needs more empirical support. Till then, the findings of the study should be interpreted with caution. Further, the cross-sectional design of the study and participants (i.e., a group of university students) exert some limitations on the

generalization of the findings. Finally, the problems and limitations on the use of self-reporting instruments should not be overlooked.

**Conflict of interests:** None.

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