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Do Depression Symptoms Predict Eating Disturbance? The Role of Emotion Regulation Strategy as a Mediator

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Abstract

Aim: Depression symptoms play a major role in eating disorders; however, research shows that non-adaptive emotion regulation strategy is also associated with depression symptoms. The current study examined the mediating role of the emotion regulation strategy on the relationship between depression symptom and disordered eating among students.

Methods: This cross-sectional study was conducted in 2014 on a sample of 264 female students at Allameh Tabatabaie University, according to Morgan and Cluster samplings. The participants completed the questionnaires of depression, emotion regulation and eating attitudes test. The data were analyzed by SPSS software using coefficient correlation and stepwise regression. Statistical differences were considered significant at $P<0.01$.

Findings: The results showed that there was a significant correlation among emotion regulation difficulties, depression symptom and disordered eating ($p<0.01$). Also regression analysis indicated that emotion regulation difficulties significantly mediated the relationship between depression symptoms and disordered eating ($p<0.01$).

Conclusion: According to the findings of the present study, examining the role of emotion regulation strategies on the relationship between depression symptoms and eating disorders indicated that eating disorder is the regulating mechanism in reducing depression.

Keywords: Emotion regulation strategy, Depression symptoms, Disordered eating

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Introduction

Disordered eating (DE) includes a wide range of maladaptive eating behaviors with different severity such as fear of obesity, unsafe weight control behavior, and infatuation thinking about the food. Eating disorders are ranked at the extreme end of disordered eating spectrum, and this unsafe behavior does not guarantee meeting the diagnostic criteria for eating disorders. Approximately 44% of girls display some eating pathology, and the prevalence of binge eating in college students is approximately 16–25% [1]. In the college, approximately half of girl students reported binge eating, vomiting, laxative use, excessive exercise to compensate food intake or to prevent weight gain at least weekly [2]. Also a significant number of boy students reported ED symptoms [3]. Students seem particularly at risk due to a variety of personal elements (e.g., body image) and environmental (e.g., peers who interact with or persuade unsafe eating behavior). Depression is among the symptoms known to have co-occurrence with both DE and maladaptive emotion regulation [4]. However, a number of psychological constructs might have a mediatory function, and understanding this variable that may be responsible for the relationship between depression symptoms and disordered eating is important because it may help recognize which procedure to include in the prevention plans for depression symptoms in DE. One of these mediated variables is emotion regulation difficulties that are very relevant to DE [5].

Emotion regulation is a multidimensional construct in which persons react to, and handle psychological distress [6]. The previous research indicated that emotion regulation includes (1) awareness and acceptance of emotion; (2) capacity looking for targeted behavior when distressed; (3) pliable use of emotion regulation strategies to react to distressing affects, as opposed to avoiding distressing affects; and (4) tendency to experience distressing affects. Individuals who experience significant difficulty in regulating their emotional responses to situations are possibility to experience more intense psychosocial distress. The recent studies assumed that individuals with disordered eating are susceptible to get involved in emotional overload because they lack adaptive emotion regulation strategies, are not able to clearly recognize and adapt with emotional situations [7]. The emotion regulation difficulties elucidate a considerable percent of the variance of disordered eating in a non-clinical population [8]. In attention to above materials, and since prior researches accomplished on Iranian population reflected the high prevalence of DE in Iran [9], the aim of current research was to systematically investigate the mediatory role of emotion regulation difficulties on the relationship between depression symptoms and DE.

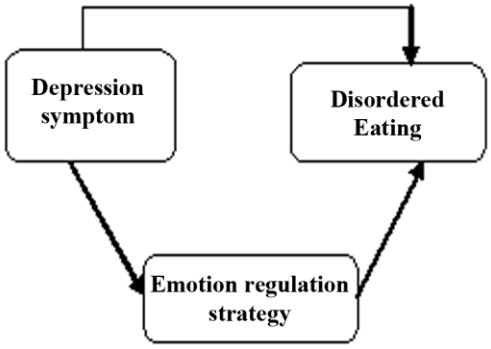

Figure 1: The relationships between research variables

Materials and Methods

This cross-sectional study was conducted on 264 female students of Allame Tabatabaie University who were selected based on multi-stage cluster random sampling from December 2014 to February 2015. Initially, five faculties were selected from the schools of Allameh Tabatabai University, and then 60 students (female students because previous studies have shown that this population is at risk) from each school were selected randomly. The inclusion criteria of the study were willing to participate in the study and not using weight loss drugs. The exclusion criteria were the delivery of incomplete questionnaire, and lack of interest in participating in the research. Also students with current and/or history of mental disorder were excluded from the study. Informed consent was obtained from each participant, and the research was approved by the Ethics Committee of Allame Tabatabaie University. In this research, the following questionnaires were used:

1) **Difficulties in Emotion Regulation Scale (DERS)**: This scale includes 36-item self-report and evaluate patterns of emotion regulation. Each of the 36 self-report items is rated on five-Likert scale (1−5). The six subscales involve (1) lack of emotional awareness, (2) lack of emotional clarity, (3) difficulties engaging in targeted behavior, (4) impulse control difficulties, (5) non-acceptance of emotional responses, and (6) limited access to emotion regulation strategies. Higher scores on this scale represent greater emotion regulation difficulties, with possible scores ranging from 36 to180 in college students, and community adult samples report average scores of 75 to 80 [6]. In this research, the Alpha Coefficient was obtained as 0.81 and Split-half was 0.79. The validity coefficients of questions were between 0.24 and 0.85, all the validity coefficients were significant at $p<0.01$.

2) **The Beck Depression Inventory–II (BDI-II):** This scale includes 21-items and assesses the severity of depression and its symptoms. Each of the 21 self-report items is rated on four-point Likert scale (0−3). Higher scores indicate more and greater symptoms of depression severity [10]. The BDI-II is a reliable and valid scale of depressive symptom among non-clinical and clinical samples [11].

3) Eating Attitudes Test-26 (EAT-26): This scale includes 26-item and to measures DE

behavior and attitudes. It has three dimensions, which includes dieting (13 items), bulimia and food preoccupation (six items), and oral control (seven items), which are based on a 6-point Likert spectrum ranging from 1 (always) to 6 (never). The Cronbach's *alpha* coefficient for the EAT-26 was reported 0.80 [12].

According to Baron and Kenny [13], in order to test the mediating role of emotion regulation difficulties on the relationship between depression and DE, multiple regression analyses were performed separately for each three-variable system. In addition, the Sobel test [14] was used to test the size and significance of the mediation effect. Data were analyzed using SPSS 15 software, and p value less than 0.01 was considered statistically significant.

Results

The mean age of total participants was 23 years with a range of 18 - 34 years (SD=5.11). 208 participants (79%) were single and 56 (21%) were married. 168 participants (64%) had a bachelor's degree, 58 (22%) had a master's degree, and 38 (16%) had a doctoral degree. Table 1 shows the descriptive statistics and internal correlations of the study variables. Emotion regulation difficulties variable was positively related to DE (r=0.62, p<.01) and to depression symptom (r=0.41, *p<.01*). Depression symptoms variable was positively related to DE (r=0.53, p<.01)

Table 1: Mean, standard deviation and internal correlation between the variables

				Correlations		
Variables	**N**	**M**	**SD**	**1**	**2**	**3**
Emotion regulation difficulties		80.11	8.66	1		
Depression symptoms		41.55	8.47	0.41**	1	
Disordered eating behaviors		48.21	4.89	0.62**	0.53**	1

** p<0/01

Regression analyses were used to test the hypotheses about the mediating role of emotion regulation difficulties. The regression analysis results are shown in Table 2.

Table 2: Results of mediation analysis for disordered eating

Baron and Kenny (18) steps	**B**	**SE**	**ß**	**T**	**P**
	Direct and total effects				
Step 1: Disordered eating behaviors regressed on depression symptom	.61	0.04	.67	13.89	.000
Step 2: Disordered eating behaviors regressed on emotion regulation difficulties	.58	.05	.64	12.76	.000
Step 3: Disordered eating behaviors regressed on depression symptoms**, controlling for emotion regulation difficulties**	.40	.05	.53	7.33	.000
Indirect effect and significance using distribution					
				Z	**P**
Sobel				3.01	0.048

Note. N = 264.

Disordered eating (first step) regressed on depression symptom

Depression symptoms variable was found to significantly predict DE (ß =.67; p<0.01). *Disordered eating (second step) regressed on emotion regulation difficulties*: Emotion regulation difficulties variable was found to significantly predict DE (ß =.64; p<0.01). The effect of depression symptoms on DE was reduced (although it was still significant) after emotion regulation difficulties variable was entered in the equation (ß =.53; 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 depression (z =3.01, p<0.05). Hence, the analysis provided support for the hypothesis of the mediating role of emotion regulation difficulties on the relationship between depression symptom and DE.

Discussion

The results of the present research indicated that depression symptom significantly predicted DE. This result is consistent with the findings of the previous studies [15], and can be interpreted on the basis of the following possibilities: A huge body of empirical research proposes that negative emotion is a critical factor related with the pathology of DE. For instance, population studies and research-based evidence from clinical samples propose that mood disorder frequently happens together with DE [15]. Important role of negative emotion in the etiology and treatment of DE among therapeutic models is emphasized. For instance, the Escape Theory of Disordered Eating suggests that eating behaviors applied to alteration of the experience of negative emotion are linked to their poor understanding. Previous studies show that among patients hospitalized for eating disorders; approximately 95% suffer from some form of mood disorder [16]. There are many various theories attempting to explain the association between depression symptoms and eating disorders. It is unclear whether depression symptoms are the result of stress, and poor nutrition is related with eating disorders. Some theories explain that depression symptoms may be a precursor to eating disorders, and depression symptoms may increase the person's susceptibility to eating disorders. Also the present results indicated that emotion regulation difficulties have a mediating role on the relationship between depression symptom and DE behavior. This is consistent with the findings of previous studies, and can be interpreted on the basis of the following possibilities: Emotions, particularly non-adaptive emotion regulation strategy, play a critical role in the development and maintenance of eating disorders, particularly binge eating [17]. Difficulties in emotion

regulation (especially limited access to emotion regulation strategies and non- acceptance of emotional responses) were established to be important predictors for DE. Previous studies in clinical populations have found non-acceptance of emotional responses to be related to some forms of disordered eating [18]. If individuals can regulate these negative affects through adaptive strategies, they are less included in disastrous health behaviors [7]. Emotion regulation models of DE suggest that individuals engage in special behaviors (i.e., purging, and excessive exercise) as a method for regulating undesired or negative affects. Individuals who have difficulties in adaptive emotion regulation strategies may be more likely to engage in DE in trying to decrease or avoid negative affect. The construct of emotion regulation involve the ability to adaptively identify and cope with negative affects, not just the experience of a negative affects itself. The emotion regulation presumption of disordered eating development suggests that symptoms such as binge eating are initiated in an attempt to distract one from negative affect or self-mitigate [19]. DE in these models is conceptualized as a maladaptive method for dealing with negative affect, and thus implies poor emotion regulation strategies.

Conclusion

The present research showed that emotion regulation difficulties have a mediated role in the relationship between depression symptoms and DE. The cross-sectional nature of our data precludes making causal influences; however, our results are consistent with what one might expect in a negative affect regulation model for depression symptoms and DE which proposes that individuals overeat as an attempt to modulate and quell the negative affect they are feeling. Our results suggest that when individuals with depression symptoms experience negative affect, they may lack adaptive strategies for managing these affect. It may also be the case that these individuals experience extremely high levels of negative affect, and typically functional strategies for coping with these emotions do not work, and therefore, engage in DE. The present study enhances the understanding of the role of emotions, particularly emotion regulation in depression symptoms and DE. The future research should explore the role of emotion regulation in a clinical population with major depression disorder and DE to further investigate how this population recognizes and uses emotions and cognition. In terms of clinical implications, the results of this study suggest attention to interventions that focus on emotion (for example, emotion-focused therapy; EFT), which can be effective method in simultaneous reduction of eating disorders and mood disorders.

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Conflict of Interest

The authors declare no conflict of interest in this study.

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