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Role of emotion regulation difficulties as a mediator of the relationship alexithymia and disturbance eating among students

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Abstract

The prevalence of disordered eating behaviors has been reported to increase in recent decades; on the other hand one situation that can impede the regulation of emotions is alexithymia. 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 alexithymia and disordered eating behavior among students. This study was administrated upon 264 students in Tehran. Then, participants responded to the questionnaires and the data were analyzed. The results showed that there was internal significant correlation among emotion regulation difficulties, alexithymia and disordered eating behaviors . Also, regression analysis indicated that emotion regulation difficulties significantly mediated the relationship between alexithymia and disordered eating behaviors . The results supported the hypothesis that emotion regulation would mediate the association between alexithymia and disordered eating. According to the findings of the present study, considering the role of emotion regulation difficulties in the relationship between alexithymia and eating disorders is important for prevention and therapy programs. In terms of practical implication, our findings suggest that prevention programs should focus on alexithymia and difficulties in emotion regulation because the combination of both variables are really strong associated with disordered eating.

Keywords: Alexithymia, Eating Disorders, Emotions, Student

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].

The previous research showed alexithymia is related with disordered eating behaviors in non clinical population [7]. A few researches is done in relationship between alexithymia and disordered eating behaviors in non-clinical samples and this type of research is undoubtedly important; Especially in non-clinical samples which are combination of girls students that disordered eating behaviors are more common among them. Sifneos [8] defines alexithymic as persons with physical, mental symptoms which are unable to identify and express emotions. Alexithymic has three main features: difficulties identifying feelings, difficulties describing feelings, externally-oriented thinking [9]. Difficulty in identifying feelings occurs when a person is in distress with distinction between feelings. Difficulty in describing feelings is when a person can't express what feels emotionally. External orientation thinking occurs when a person tends to think about the external affairs and in contrast to internal thinking orientation [10]. Alexithymic will link as emotional adjustment disorder with primary defenses, non-adaptive coping styles, vulnerability against physical stress and psycho-physical symptoms [11]. Individuals with alexithymic show lower levels of empathy [12]. Recent research indicates that alexithymic have negative effects on psycho-emotional well-being and it is a risk factor in suffering individuals from emotional distress, psychological problems and negative mental health condition [13]. One of the issues studied in this research is to investigate the relationship between alexithymia and disordered eating behaviors. One of the issues investigated in the present study is the determination of the relationship between alexithymia 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 alexithymia and eating disorders is important; because it may help identify which mechanisms to involve in prevention programs for eating disorders. 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]. Theoretically, alexithymia deficits may impede coping with negative affect states in some people with disordered eating, and disordered eating behavior or attitudes may serve a function of the regulating of emotion. However, to our knowledge, no previous research has examined alexithymia in DE. Although there is growing evidence supporting the idea that emotion regulation difficulties affect disordered eating, but to our knowledge few or no studies have examined the mediatory variables between emotion regulation and disordered eating.

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 alexithymia and disordered eatining behaviors. The relationships between the variables of research was represented in Figure 1.

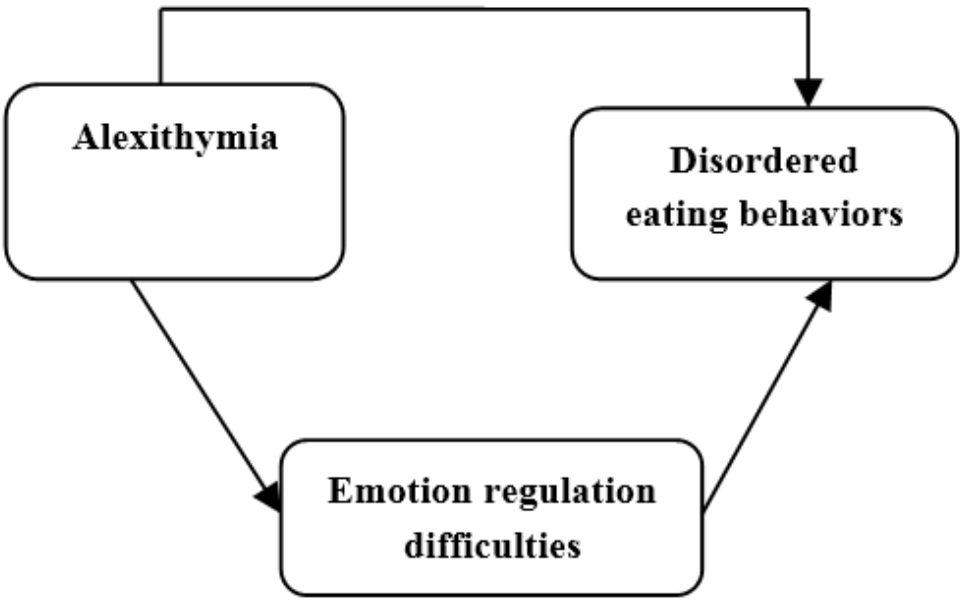

Figure 1 *The relationships between research variables*

Method

This cross-sectional study was administrated from January to February 2014 in Allame Tabatabaie University, Tehran upon 264 students. The participants was selected with using 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 students with a history of mental disorder and medication use for Lose of weight. 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.

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. The following questionnaires were used:

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). 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]. Gratz and Roemer In their research, reported 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 $p<0.01$.

Toronto Alexithymia Scale (TAS-20): Alexithymia was measured using the 20-item Toronto Alexithymia Scale [21] which consists of three subscales "difficulty identifying feelings", "difficulty describing feelings", and an "externally oriented (or concrete) thinking style". The statements are rank ordered to reflect agreements' severity from strongly disagree (1) to strongly agree (5). A total score is calculated by summing the three subscales scores for the total alexitymia. Besharat [22] prepare the Persian version of the Toronto alexithymia scale and Cronbach's alpha coefficient for total alexithymia and its' three subscales obtained, respectively, 0.85, 0.82, 0.75 and 0.72 that indicate the internal consistency of scale is good. The test-retest reliability of this scale was confirmed in a sample with 67 participants on two occasions with a internal of 4 weeks of 0.80 to 0.87 for total alexithymia and its' subscales. This scale is the most widely used tool to measure alexithymia [23]. In the present study, the reliability coefficient is obtained equal to 0.79 by Cronbach's alpha.

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 α (alpha) was 0.76. The Score 20

or higher in this scale defined as disordered eating attitudes [19] internal consistencies (Cronbach's α) in this study in Iran were 0.84, which was good for this scale. 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 [25], 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-19 software and p value less than 0.01 was considered sta¬tistically significant.

Results

The mean age of total participants was 22 years with a range from 18 to 33 years (SD=6.13); mean age 25 years, range 18 to 33 years (SD=5.95) for men and for women, mean age 23 years, and range from 18 to 30 years (SD=6.22). 219 participants (83%) were single and 23 participants (9%) were married and 22 partcipants (8%) did not specify their marital status. 171 participants (65%) had a bachelor's degree, 66 participants (25%) had a master's degree and 67 particpants (10%) had a doctoral degree. Table 1 shows the descriptive statistics and internal correlations of the study variables. Emotion regulation difficulties was positively related to disordered eating behaviors (r=0.66, p<0.01) and to alexithymia (r=0.45, p<0.01). alexithymia was positively related to disordered eating behaviors (r=0.59, p<0.01)

Table 1 *Mean, standard deviation(SD), internal correlation between variables*

			Correlations		
Variables	M	SD	1	2	3
1. Emotion regulation difficulties	82.23	8.91	1		
2. Alexithymia	44.35	8.11	0.45**	1	
3.Disordered eating behaviors	51.41	5.83	0.66**	0.59**	1

**p<0.01

The regression analysis results are shown in Table 2.

Disordered eating behaviors (first step) regressed on alexithymia; alexithymia was found to significantly predict disordered eating behaviors (ß =0.73; p<0.01). Disordered eating behaviors (second step) regressed on emotion regulation difficulties; emotion regulation difficulties was found to significantly predict disordered eating behaviors (ß =0.61; p<0.01). The effect of alexithymia to disordered eating behaviors was reduced (although it was still significant) after emotion regulation difficulties was entered in the equation (ß=0.48; p<0.01). This result was consistent with the presence of a partial mediation

Table 2 *Results of mediation analysis for disordered eating behaviors*

	B	SE	ß	T	p
	Direct and total effects				
Step 1: disordered eating behaviors regressed on alexithymia	0.61	0.04	0.73	13.89	0.01
Step 2: disordered eating behaviors regressed on Emotion regulation difficulties	0.58	0.05	0.61	12.76	0.01
Step 3: disordered eating behaviors regressed on alexithymia, controlling for Emotion regulation difficulties	0.40	0.05	0.48	7.33	0.01

Note: N = 264

effect. The significance of the mediation effect was further confirmed by the significance of the Sobel test for body image disturbance ($z=3.51$, $p<0.05$). Hence, the analysis provided support for the hypothesis of the mediating role of the emotion regulation difficulties on the relationship between alexithymia and disordered eating behavior.

Discussion

The result of the current research showed alexithymia significantly predicted disordered eating behavior among students. The result is consistent with the findings of the previous studies [27] and can be interpreted on the basis of the following possibilities:

Alexithymia have dimensions of emotional disability in describing and identifying emotions and cognitive aspects of thinking has objective and external oriented [28].

Research has shown inability to express emotional experiences as a result of non-discrimination and unregulated emotions have related with disordered eating behaviors by the distortion of body image [29]. Cognitive constraints on emotion regulation in people with alexithymia are associated with maladaptive behavior such as starvation or substance abuse because of self-regulatory behaviors. Lack of insight and thinking styles (external oriented) of persons with alexithymia interfere with ability of these individuals to benefit of psychotherapeutic interventions. Females with disordered eating behaviors have higher level of alexithymia than women in the control group and may be their emotions transfer to physical feelings and physical appearance [30]. Disability in identifying of emotions has related with body dissatisfaction in people with disordered eating behaviors [29]. Researches show that the rate of alexithymia in people with eating disorders in a higher level than people who have been improved their eating disorders and symptoms of eating disorders represent internal conflicts and unclear feelings [31]. Individuals with high levels of alexithymia have difficulties in identifying and describing their feelings. They are disorganized due to their limitations in adjusting these emotions by uncontrollable feelings; finally they try to adjust themselves by self-incitement maladaptive behaviors like being on a diet. These strategies are as non-conducive efforts which they are applied to organize internal emotions and feelings and integrate the self-defense sense. It is vital to identify alexithymia in persons with eating disorders symptoms as a negative prognostic factor for treatment strategies [32]. Also, the present results indicated that emotion regulation difficulties have a mediating role on the relationship between alexithymia and disordered eating behavior. This is consistent with the findings of the previous studies 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 [33]. 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 [34]. If individuals can regulate these negative emotions through appropriate strategies, they are less involved in destructive health behaviors [35]. 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 [36]. Disordered eating behaviors in these models are conceptualized as a maladaptive tool for dealing with negative emotions, and thus imply poor emotion regulation strategies.

Theoretically, alexithymia deficits may impede coping with negative affective in some individuals with DE and these disordered eating behavior may serve a function of the regulating of emotion.

Conclusion

The present research showed that emotion regulation difficulties have a mediated role in the relationship between alexithymia 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 alexithymia 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 alexithymia 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 alexithymia 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 alexithymia and eating disorder. In terms of practical implication, our findings suggest that prevention programs should focus on alexithymia and difficulties in emotion regulation because the combination of both variables are really strong associated with disordered eating. 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-repotting instruments should not be overlooked.

Despite these limitations, the present study provides new insights into the roles of emotion regulation difficulties in disordered eating.

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Contribution

Study design: MR, KH
Data collection and analysis: EB, FK
Manuscript preparation: MR, KH, FK

Conflict of Interest

"The authors declare that they have no Competing interests"

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