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Metacognitive beliefs and emotion regulation strategies: obese women with negative and positive body images

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Abstract

Women have higher vulnerability regarding to increase prevalence of obesity and its effect on people's body image and women's health on the society and future generations' health is unquestionable role , negative body image influence on women's eating habits and mental health, so aim of present research is to compare metacognitive beliefs and emotional regulation strategies in obese women with positive and negative body image. This study was a causal-comparative. The statistical population of this study consisted of 100 obese women with a BMI>30 who had referred to five nutritional clinics in Tehran. The clinics and the participants were selected by using the convenience sampling method. The data collection tools were the Structured Clinical Interview for DSM (SCID-I/II), Body Mass Index (BMI), the Metacognitions Questionnaire (MCQ-30), the cognitive emotion regulation questionnaire, and fisher's body image scale. The multivariate hoteling t-test was used to compare the difference between the two groups. Results indicated that obese women with negative body image had higher mean scores in inefficient emotion regulation strategies including self-blame or focus on thought, catastrophizing and other-blame compared with obese women with positive body image. Moreover, the mean scores of obese women with positive body images was higher in efficient emotional regulation strategies include acceptance, positive refocusing, refocusing on planning, perspective taking and positive reappraisal. Metacognitive beliefs and emotion regulation strategies are significant variables in obese woman with positive and negative body images.

Keywords: Body Image, Emotion, Regulation, Obesity

Introduction

Obesity refers to the overt accumulation of fat tissue in the body. It threatens individual's general health by creating physical and mental problems [1]. It seems that people who suffer from nutritional disorders especially obesity have problems in their metacognition (mostly self-concept and perception). Thus, they have an incorrect perception about their body which is called body image. Body image is the mental image that individual has about own which could be real or not [2] and is defined as the level of individual's satisfaction about own physical appearance which includes size, shape and general appearance [3].

Body image can be perceived as negative or positive by individual. Body image disorder (negative body image) is important aspect in the formation of obesity and this disorder is considered as risk factor in creating women's weight control behavior, eating disorder, body dysmorphia, low self-esteem and mental disorders such depression and anxiety [4]. Obese woman with positive body image are sufficiently satisfied with their body because they accept their physical defects and focus on other aspects of their appearance [5].

Body image is defined by individual's self-concept which is in turn one of the influential factors on metacognition [6]. It seems that metacognition affects an individual's body image through self-concept. In fact, any kind of knowledge or metacognition which includes cognitive evaluation, supervision or control is called metacognition [7]. There are generally five metacognitive beliefs that include positive beliefs about worry, negative beliefs about worry linked to uncontrollability, need to control thoughts, Cognitive self-consciousness, and cognitive confidence [8,9].

The metacognitive approach depicts the growth and concept of "self" and those beliefs and opinions which individual has about "self" and self-concept [7,8,10]. It looks that the metacognitive beliefs change self-concept and leads to change in obese people's body image that would cause to lose weight.This means that self-concept is reflection of people's characteristics and includes their characteristic, identities, connections, and aims [10-12].

Emotional regulation has been recognized as cognitive factor that is important for mental health. However, the relationship between emotional regulation and body image has not been fully investigated. Emotional regulation is set of processes that enable individuals to influence what emotion to select, when to show it and how to experience it [13]. When people confront emotional situations, they need the best cognitive functions to regulate their emotions [14] and try to control their emotions. Since, emotional regulation affects cognitive variables, it can be concluded that emotional regulation affects body image. Studies showed that people with negative body image often use inefficient approaches including scolding themselves instead of using efficient strategies such as acceptance. Such inefficient strategies are accompanied by eating disorders and incorrect eating habits [15]. Studies indicated that women with eating disorders and negative body image are less aware about their emotions and have problems in self-control in comparison with positive body image women [16]. The results of studies by Khodabakhsh et al. [17] showed that there was internal significant correlation among emotion regulation difficulties, body image disturbance and disordered eating behaviors [17]. The results of studies by Leeher et al. showed that emotion regulation processes are common and widely explanation for the development and maintenance of Binge Eating Disorder (BED). It is assumed that BED patients – as they have difficulty regulating their negative emotions – use binge eating to cope with these emotions and find relief. It reviewed literature for experimental studies investigating the emotion regulation model in obese patients with and without BED. This study found evidences which indicate that negative emotion serves as trigger for binge eating in the BED group unlike the obese group without BED [18].

Women have higher vulnerability regarding to increase prevalence of obesity and its effect on people's body image and women's health on the society and future generations' health is e unquestionable role of [1], negative body image influence on women's eating habits and mental health, so aim of present research is to compare metacognitive beliefs and emotional regulation strategies in obese women with positive and negative body image. It looks that metacognitive beliefs and emotion regulation strategies have immense impacts on the reduction or elimination of negative body image.

Method

The study design was causal-comparative in

cross-sectional which deals with metacognitive beliefs and emotional regulation in obese women with positive and negative body image. Population of the study was composed of 162 obese women Body Mass Index (BMI)>30 (by nutritionist) who referred to five nutrition clinics of Tehran in winter 2013 which was selected by convenient method. The 162 people according to specific criteria and after structured clinical interview were matched (n=100). The body image questionnaire was used for grouping positive and negative. 50 patients in the obese group with positive image and the same with negative one were stayed (getting score one in standard deviation more below and above than mean in the scale of the Fisher's body image). The inclusion criteria were upper or equal 18 years of age, having or higher diploma, BMI>30 [1] and a mean BMI in both groups was 35 and was similar in groups, no mental disorders, no eating or personality disorders. Generally, the researcher used the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/II) to screen and select the participants after choosing by nutritionist and calculating the women's BMI . The Questionnaires of this research were included:

SCID-I/II: The SCID-I/II was developed by First and his colleagues in 1997 [19] that has two main versions [19, 20] , form I and form II. Form I was used for evaluating and excluding mental disorders associated with mental disorders such as psychosis, body dysmorphic disorder, depression, suicidal ideation, and eating disorders. Form II was used for evaluating and excluding personality disorders which related to obesity, especially borderline personality and obsessive-compulsive disorders. The questionnaire was normalized by Sharifi and colleagues in 2004 and has good validity and reliability to identify mental disorders [21].

The BMI was calculated by dividing each woman's weight (kg) by her square height in meters [22].

Metacognition questionnaire (MCQ-30): The MCQ-30 was developed by Wells [23] and it's self-reported questionnaire which was consisted 30 items. Metacognitive variables with respect to five separate factors included: cognitive confidence, positive beliefs about worry, cognitive self-consciousness, negative beliefs about worry and need to control of thought [23]. The items are scored on Likert scale (1=don't agree to 4= completely agree); namely the range is from 30 to 120. Cronbach's alpha for the subscales was range from 0.72 to 0.93. The retest correlation for the total score was 0.75 and the correlation of its subscales ranged from 0.59 to 0.96 [23]. In this study, Cronbach's alpha for total subscales was 0.78. The questionnaire was normalized and prepared for the Iranian population by Shirinzade Dastgiri [24]. Cronbach's alpha coefficient 0.91 for the total scale was reported among Iranian sample. Reliability was obtained 0.72 to 0.93 by Cronbach's alpha coefficient [24]. In this study as Cronbach's alpha was 0.94for the total questionnaire.

Cognitive emotion regulation questionnaire: It was developed by Garnefski [25] and has 36 items that were scored on a five-point Likert scale (1=never to 5=always); namely the range is from 36 to 180. Conceptually, the questionnaire had 9 separate subscales, each depicting certain strategy among different cognitive coping strategies. These nine coping strategies are as follows: self blame, other blame, rumination or focus on thought, catastrophizing, perspective taking, positive refocusing, positive reappraisal, acceptance, and refocusing on planning. The first four are negative emotional regulation, while the rest are positive ones [25]. The reliabilities of positive and negative strategies, and the total reliability using Cronbach's alpha were 0.91, 0.87, and 0.93, respectivel [25]. The validity of the questionnaire for the Iranian population was tested by Yousefi using the total score correlation method. The range for these correlations was 0.40 to 0.68 with a mean of 0.56 and were all significant at the $p<0.01$ level [25]. In this research, the reliability of the questionnaire for the all subscales was obtained 0.60 by using Cronbach's alpha. In Iran, for this case, Cronbach's alpha has

been reported to 0.82 in 2006 by Yousefi [26]. Construct validity and reliability of this scale was confirmed by using confirmatory factor analysis [26].

Fisher's body image scale: It was developed by Fisher in 1970 [27] and consists of 46 items which were scored on a scale of 1 (very unhappy) to 5 (very happy). A score of 46 is indicative of disorder while higher scores show lack of disorder. It is between 46 and 230 as well. The validity of this test for the Iranian population has been previously evaluated by Yazdanjou quoted Asghari, Pasha and Aminian [28]. The calculated correlation coefficient for the test ranged from 0.81 to 0.87 and significant correlation was reported between first and second test results ($p<0.001$). The reliability of the scale was obtained 0.93 and 0.91 by using Cronbach's alpha and the split-half method.

Data were analyzed by using SPSS-19 version.

Results

The descriptive findings of the metacognitive belief variables in both groups are showed in Table 1.

Table 1 *Descriptive indices variables related to metacognitive beliefs in both groups*

Variable	Positive body image		Negative body image	
	Mean	SD	Mean	SD
Positive beliefs about worry	12.96	4.19	17.32	2.16
Negative beliefs about worry	15.22	3.31	18.12	2.40
Cognitive confidence	12.36	3.64	16.72	2.74
Need to control thoughts	15.70	3.20	16.92	2.05
Cognitive self-consciousness	19.38	2.82	13.80	3.80

As shown above, women with positive body image had higher scores in cognitive self-consciousness and lower scores in positive beliefs about worry, negative beliefs about worry, cognitive confidence and need to control thoughts.

Table 2 *Descriptive indices variables related to emotional regulation strategies in both groups*

Variables	Positive body image		Negative body image	
	Mean	SD	Mean	SD
Self-blame	10.32	2.66	13.86	1.82
Rumination or focus on thought	9.72	12.2	11.54	1.94
Catastrophizing	9.26	2.71	14.94	6.06
Other blame	7.86	2.25	14.14	1.66
Acceptance	12.82	2.53	10.02	1.88
Positive refocusing	14.46	3.50	8.92	2.20
Refocusing on planning	14.94	3.35	9.34	2.20
Positive reappraisal	14.22	3.07	9.12	1.94
Perspective taking	13.28	2.66	9.40	1.89

As indicated in Table 2, obese women with negative body image had higher mean scores in inefficient emotion regulation strategies including self blame, rumination or focus on thought, catastrophizing and other blame compared with obese women with a positive body image. Moreover, the mean scores of obese women with positive body image were higher in efficient emotional regulation strategies such as acceptance, positive refocusing, refocusing on planning, perspective taking, and positive reappraisal.

The multivariate analyze of variance test was used to compare the variables. The presumptions related to this test were Box, M, Bartlett, and levene's tests.

The M Box test confirmed for the covariance matrix homogeneity of the variables related to metacognitive beliefs and emotion regulation strategies ($p=0.27$). The Bartlett's test showed sufficient correlation between these variables ($p=0.25$). Moreover, Levene's test showed

that the variation of each variable related to metacognitive beliefs and emotion regulation strategies is not statistically significant (p>0.05).

The multivariate analyzes of variance test results for metacognitive beliefs and emotional regulation strategies in both groups presented in Tables 3 and 4. The Bonferroni post-hoc test was used to assess the differences between the two groups with respect to the metacognitive beliefs and emotion regulation components. Result represented in Tables 3 and 4.

Table 3 *Differences between the two groups in each of the variables related to metacognitive beliefs*

	Sum of squares	df	Mean Square	F	Sig.	Eta
Positive beliefs about worry	475.24	1	475.24	42.61	0.001	0.76
Negative beliefs about worry	210.25	1	210.25	25.07	0.001	0.64
Cognitive confidence	475.24	1	475.24	45.76	0.001	0.60
Need to control thoughts	37.21	1	37.21	5.12	0.001	0.74
Cognitive self-consciousness	778.21	1	778.21	116.68	0.001	0.55

Table 4 *Difference between the two groups in emotion regulation strategies*

	Square of sums	df	Square sums	F	Sig.	Eta
Self-blame	313.29	1	313.29	60.09	0.001	0.76
Rumination	82.81	1	82.81	19.96	0.001	0.66
Catastrophizing	806.56	1	806.56	36.48	0.001	0/72
Other blame	985.96	1	985.96	25.29	0.001	0.68
Acceptance	196.00	1	196.00	39.17	0.001	0.79
Positive refocusing	767.29	1	767.29	89.50	0.001	0.84
Refocusing on planning	784.00	1	784.00	97.25	0.001	0.60
Positive reappraisal	650.25	1	650.25	98.05	0.001	0.64
Putting into perspective	376.36	1	376.36	70.37	0.001	0.73

As indicated in Tables 3 and 4, there are significant differences in all subscales of metacognitive beliefs between obese women with positive and negative body images, as positive beliefs about worry (F=42.61, p=0.01) negative beliefs about worry (F=25.07, p=0.01) cognitive confidence (F=45.76, p=0.001) need to control thoughts (F=5.12, p=0.001), and it is also shown that the mean score of obese women with positive body image in the use of functional emotional regulation strategies included acceptance (F=39.17, p=0.001) positive refocusing (F=89.50, p=0.01) refocusing on planning (F=97.25, p=0.001) positive reappraisal (F=98.05, p=0.01) putting into perspective (F=70.37, p=0.001). Thus, the T-test results of multivariate Hoteling showed that there is a significant differences between at least one of metacognitive beliefs and emotional regulation strategies in obese women with positive and negative body image (p<0.001, Tables 3 and 4).

Discussion

Since obesity is an illness with cognitive and emotional aspects its treatment should also be based on cognitive and emotional variables. In this regard and in contrast to previous studies, our findings assessed and compared different variables of cognitive beliefs and emotional regulation strategies in obese people with positive and negative body image because body image is one of the most fundamental cognitive and emotional variables and obese people with positive and negative body image have unique fundamental thoughts and beliefs which are related to the two variables. Obese woman reduce and stabilize their weight by altering fundamental cognitive beliefs and using efficient emotional regulation strategies. Negative body image is an important aspect in the formation of obesity. Negative emotions and thoughts gradually create negative body image and changing this negative body image can help to reduce these people's weight. Previous studies have been focused on changing emotions and beliefs in treatments, especially cognitive-behavioral therapy. However, recurrence and weight gain is still possible.

As indicated, there are significant difference in the cognitive beliefs of obese women with positive and negative beliefs which is consistent with previous studies [6,29-32]. The metacognitive approach assesses the though and belief processes and depicts the growth and concept of "self" and whether these beliefs and perceptions originate from the self-concept [10,11,15]. On the one hand, the self-concept defines an individual's body image and on the other hand, it is metacognitive structure [6]. It seems that metacognition affects the body image through the self-concept.

Studies showed that women's self-concept and body image would be altered by changing obese their metacognitive beliefs and also their weight would be reduced [30]. Obese women with a negative body image experience damaged and disrupted metacognitive beliefs and self-concept; they have vague and disorganized concept of them, do not believe in them, constantly strive to change their body image and thus do not have sufficient stability to change their shape and weight. In other words, negative self-concept along with negative body image is negative factor for controlling their eating habits [6,30].

Results indicated that there was a significant difference in emotional regulation strategies between obese women with positive and negative body image. These findings are consistent with previous studies [33-36]. The inability to regulate emotions leads to negative consequences such as obesity because the individual cannot find logical solutions in different situations and this would lead to problematic eating habits. In such situations signs such as severe irritability to food, tendency for obesity and escape from problems would lead to binge eating. Emotion regulation strategies moderate the relationship between body image and psychological disorders such as eating disorder, bulimia, and depression. Studies showed that the relationship between body image and psychological disorders would be weaken by improving emotion regulation strategies, [36, 37]. On the other hand, emotional regulations as a cognitive variable influence other cognitive variables. Therefore, it can be implied that emotional regulation affects person's body image and self-perception. So obese people with negative body image have inefficient emotion regulation strategies and are less aware of their emotions compared with obese women with positive body image. Using inefficient approaches brings about irreversible and dangerous consequences on individuals may lead to mental illness [15,38,39]. Our study showed that efficient emotion regulation strategies could reduce various eating disorders [38,39].

This study had some limitations. The first; since we have only studied women so we cannot generalize our findings to all obese people regardless of their sex. Moreover, since this research was causal-descriptive we cannot obtain causal relationship among the variables.

Obese women with negative body image have inefficient and ineffective metacognitive beliefs as opposed to women with positive body image. We can help such women to reduce and stabilize their weight by treating and altering ineffective metacognitive beliefs and emotion regulation strategies in obese women with negative body images.

Conclusion

According to the results of this study which was compared metacognitive beliefs and emotional regulation strategies in obese women with positive and negative body images, the obese women with negative body image had higher mean scores in inefficient emotion regulation strategies that include self-blame or focus on thought, catastrophizing and other-blame compared with obese women with positive body image. Moreover, the mean scores of obese women with positive body images was higher in efficient emotional regulation strategies that include acceptance, positive refocusing, refocusing on planning, perspective taking and positive reappraisal. Metacognitive beliefs and emotion regulation strategies are remarkable variables in obese woman with positive and negative body

images. Finally, it is recommended that this kind of therapy in nutrition and dietetics centers can be used by qualified therapists.

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Contribution

Study design: AMR, SRS.
Data collection and analysis: MM.
Manuscript preparation: SN.

Conflict of Interest

"The authors declare that they have no competing interests."

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References

1- Wilfley DE, Kolko RP, Kass AE. Cognitive behavioral therapy for weight management and eating disorders in children and adolescents, child adolesc. *Psychiatr Clin N Am*2011; 20(2): 271–85.

2- Jáuregui- Lobera I, Bolaños Ríos P. Body image quality of life in eating disorders. *Patient Prefer Adherence*2011; 5: 109–16.

3- Utter J, Neumark-Sztainer D, Wall M, Story M. Reading magazine articles about dieting and associated weight control behaviors among adolescents. *Journal of Adolescent Health*2003; 32: 82-7.

4- Van Den Berg P, Neumark-Sztainer D, Hannan PJ, Haines J. Is dieting advice from magazines helpful or harmful? Five-year associations with weight-control behaviors and psychological outcomes in adolescents. *Pediatrics*2007; 119(1): 30-7.

5- Frise´ NA, Holmqvist K. What characterizes early adolescents with a positive body image? Aqualitative investigation of swedish girls and boys. *Body Image*2010; 7(3): 205-212.

6- Powell LJ, Macrae CN, Cloutier J, Metcalfe J, Mitchell JP. Dissociable neural substrates for agentic versus conceptual representations of self. *J Cogn Neurosci*2010; 22(10): 2186-97.

7- Moses LJ, Baird JA. Meta cognition. In Wilson RA, Keil FC, eds. The MIT encyclopedia of the cognitive sciences. Cambridge, MA: MIT press; 2010.

8- Atkinson MJ, Wade TD. Impact of metacognitive acceptance on body dissatisfaction and negative affect: engagement and efficacy. *J Consult Clin Psychol*2012; 80(3): 416-25.

9- Wells A. Emotional disorders and metacognition: innovative cognitive therapy. USA: New York, NY: John Wiley & Sons; 2000.

10- Metcalfe J, Finn B. Metacognition and control of study choice in children. *Metacognition and Learning*2013; 8(1): 19-46.

11- Bosson JK, Weaver JR, Prewitt-Freilino JL. Concealing to belong, revealing to be known: classification expectations and self-threats among persons with concealable stigmas. *Self and Identity*2012; 11: 114-35.

12- Banks SJ, Eddy KT, Angstadt M, Nathan PJ, Phan KL. Amygdala–frontal connectivity during emotion regulation. *Soc Cogn Affect Neurosci*2007; 2(4): 303-12.

13- Damasio A. Descartes' error: emotion, reason, and the Human Brain. Westminster: Penguin; 2005. pp:312.

14- Hughes EK, Gullone E. Emotion regulation moderates relationships between body image concerns and psychological symptomatology. *Body Image*2011; 8(3): 224-31.

15- Tárrega S. Explicit and implicit emotional expression in bulimia nervosa in the acute state and after recovery. *Plos One*2014; 9(7): e101639.

16- Sadock BJ, Sadock VA. Kaplan and sadock's synopsis of psychiatry: behavioral sciences/clinical psychiatry, 10th edition. *Indian J Psychiatry*2009; 51(4): 331.

17- Khodabakhsh MR, Borjali A, Sohrabi F, Farrokhi NA. The role of emotion regulation difficulties as a mediator of the relationship between body image cisturbance and disordered eating behavior in Iran. *Int J Pediatr*2015: 3(2-1): 23-32.

18- Leehr EJ, Krohmer K, Schag K, Dresler T, Zipfel S, Giel KE. Emotion regulation model in binge eating disorder and obesity- a systematic review. *Neurosci Behave Rev*2015; 49: 125-34.

19- First MB, Spitzer RL, Gibbon M, Williams JBW. Structured clinical interview for DSM-IV axis i disorders (SCID-I), clinical version. Washington, DC: American psychiatric association; 1997.

20- First MB, Gibbon M, Spitzer RL, Williams JBW, Benjamin L. Structured clinical interview for DSM-IV axis II disorders (SCID-II). Washington, DC: American psychiatric association; 1997.

21- Groth-Marnat G. Handbook of psychological assessment (5th. ed). New York: John Wiley & Sons; 2009.

22- Amy erdman farrell. Fat shame: stigma and the fat body in American Culture, NYU press; 2011.

23- Wells A, Cartwright- Hatton SA. Short form of the

metacognitions questionnaire: propertise of the MCQ 30. *Behavior Research and Therapy*2004; 42, 385-96.
24- Shirinzadeh Dastgiri S. Comparison of metacognitive beliefs and responsibility among patients with obsessive-compulsive disorder, generalized anxiety disorder and normal controls. [thesis]. Clinical psychology. Shiraz: Shiraz University 2006.
25- Garnefski N, Kraaij V, Spinhoven P. (2002) CERQ: Manual for the use of the Cognitive Emotion Regulation Questionnaire. Datec, Leiderdorp: The Netherlands 2002
26- Yousefi F. Investigate the relationship between emotional and cognitive strategies to manage depression and anxiety knowledge of talented high school guidance centers. *Research in the Field of Gifted Children*2006; 6(4): 871-92.
27- Asgari P, Pasha Gh, Aminian M. The relationship of emotional, psychological stressors of life and body image in women with eating disorders. *JPCPY*2009; 4(13): 65-78.
28- Shabak R. Comparison of quality of life, life satisfaction, attitudes to gender roles and In patients with high and low self-esteem and body image. [Thesis]. Islamic Azad University, Iran. 2009.
29- Rabiei M, Mulkens S, Kalantari M, Molavi H, Bahrami F. Metacognitive therapy for body dysmorphic disorder patients in Iran: acceptability and proof of concept. *J Behave Ther Exp Psychiatry*2012; 43(2):724-9.
30- Petty RE, Briñol P, Tormala ZL, Wegener DT. The role of meta-cognition in social judgment. In Higgins ET, Kruglanski AW, eds. Social psychology: handbook of basic principles (2nd ed). New York, NY: Guilford press; 2007. pp:254-284.
31- Vanden Bosch ML, Robbins LB, Pfeiffer KA, Kazanis AS, Maier KS. Demographic, cognitive, affective, and behavioral variables associated with overweight and obesity in low-active girls. *J Pediatr Nurs*2014; 29(6):576-85.
32- Berking M, Wupperman P. Emotion regulation and mental health: recent findings, current challenges, and future directions. *Curr Opin Psychiatry*2012; 25:128–34.
33- Nolan LJ, Geliebter A. Night eating is associated with emotional and external eating in college students. *Eat Behav*2012; 13(3): 202–6.
34- Czaja J, Rief W, Hilbert A. Emotion regulation and being eating in children. *Int J Eat Disord*2009; 42(4): 356-62.
35- Fragkos KC, Frangos CC. Assessing eating disorder risk: the pivotal role of achievement anxiety, depression and female gender in non-clinical samples. *Nutrients*2013; 5(3): 811–28.
36- Graham DJ, Laska MN. Nutrition label use partially mediates the relationship between attitude toward healthy eating and overall dietary quality among college students. *J Acad Nutr Diet*2012; 112(3): 414–8.
37- Balhara YP, Yadav T, Arya K, Mathur S, Kataria DK. A cross-sectional study of body shape and eating attitude among Indian female healthcare students. *Int J Psychiatry*2012; 43(4): 309-23.
38- Hughes EK, Gullone E. Emotion regulation moderates relationships between body image concerns and psychological symptomatology. *Body Image*2011; 8(3): 224-31.
39- Clyne C, Latner JD, Gleaves DH, Blampied NM. Treatment of emotional dysregulation in full syndrome and subthreshold binge eating disorder. *Eat Disord*2010; 18(5): 408-24.