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Relationship of social anxiety, body image perception and depression with bulimia nervosa and anorexia nervosa in youth

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Abstract

Introduction: According to the prevalence of eating disorders among youth population and their disturbances in various fields, the present study examined the relationship between social anxiety, body image perception and depression with bulimia nervosa and anorexia nervosa in young people.

Materials and Methods: The sample includes 200 freshman male and female students of Science and Research Branch, Islamic Azad University, Khuzestan in academic year of 2014-2015 who were selected multi-level randomized method. They responded to Eating Disorder Inventory (AEDI) of Coker and Rogers, Leibowitz Social Anxiety Scale (LSAS), Beck Depression Inventory and Fishers Body Image Perception. Canonical correlation coefficients were used for statistical analysis.

Results: Canonical coefficients obtained in this study were 6.0 (P<0.0001). The results show that the first set of variables and a second set of variables had a significant relationship with each other so social anxiety, perceived body image and depression were predictors for bulimia and anorexia. Depression of the first series showed the highest correlation with anorexia nervosa of the second set.

Conclusion: It seems that social anxiety, perceived body image and depression can be considered as predictors for bulimia and anorexia in youth population.

Keywords: Anorexia nervosa, Body image, Bulimia nervosa, Depression, Social anxiety

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Introduction

Growing preoccupation with weight, food and body shape is the hallmark of disabling disorder, which is referred to as eating disorder and includes two types namely bulimia nervosa and anorexia nervosa. Patient's goal in both disorders is to become extremely thin (1). Although individual's anorexia occurs after a period of food restriction, it has been observed in studies conducted that overeating and purging also occur in bulimia (2). Characterized as a common psychiatric disorder, eating disorder is typically seen in the late adolescence and early youth. Generally speaking, adolescents and young people, especially females, express deep concerns about their weight and body shape due to a variety of problems including cultural, social, and racial factors, etc. (3). Bulimia is a type of eating disorder in which patient suffers from a distorted and extremely incorrect perception of her weight and body shape and is extremely afraid of being overweight. This syndrome is

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characterized by some self-imposed restrictions on diet, strange patterns of food tolerance, significant weight reduction, and severe fear of overweight and obesity (4). Approximately 0.3% of women suffer from bulimia nervosa in their adolescence and early twenties to thirties. The prevalence of this disorder in young men is about one tenth. Anorexia nervosa is a severe disease with a mortality rate of 10 to 15% (5), and the likelihood of susceptibility to anxiety and obsessive-compulsive disorders is significantly higher among people with anorexia (6). Bulimia nervosa refers to periodic, uncontrolled, obsessive and fast-growing consumption of a large amount of food over a short time. Physical discomfort such as abdominal pain or feeling of nausea at the end of overeating period is followed by a feeling of guilt, depression or self-loathing (4). Findings confirm that people with eating disorder may experience various psychological problems such as depression and anxiety (1). Various studies also show that people who experience eating disorder suffer from a disorder associated with anxiety in 83% of cases. Social anxiety is one of the most common anxiety which occurs significantly together with eating disorder. The association between eating disorder and social anxiety disorder bears out the view that these people probably have other psychological and mental disorders, which contribute largely to their susceptibility to eating and social anxiety disorders. It is also likely that these individuals are susceptible to genetic factors that increase susceptibility to social anxiety and eating disorder (5,6). The results of recent research (7) have shown that adolescents who experienced high level of social anxiety appeared to get higher scores as depression scale. Social anxiety is the result of an intense pressure in order to achieve ideal weight, appearance or body, etc. This disorder can occur due to an emphasis on perfection during childhood, which can continue in subsequent years of growth (8). Findings show that people with more symptoms of eating disorder suffer from more physical discomfort in their body image (9). That is to say, another remarkable and sustainable factor to prediction of eating disorder is body image disorder, and people with eating disorder can be treated by body image disorder treatment. Dissatisfaction with body image is associated with problems of eating attitudes and behaviors, and research has shown that the persistence of the dissatisfaction with body image is a reliable predictor of eating disorder (10). Body image perception is a notion that encompasses individual feelings about body size, gender, performance and the ability of the body to achieve goals (11). In this way, body image is not associated with size and form of the body (12). With body dissatisfaction being increased and internalized, such problems as drug use, poor sport behaviors, stress and anxiety, and self-confidence failure arise (9). Body image perception is affected by individual's body size, so body fitness contributes a lot to the formation and preservation of a good and positive self-image and acquisition of self-esteem (12). Conversely, findings indicate that the lower the score of self-image become, the more likely his susceptibility to depression symptoms will be (13). This is because these individuals are significantly more intellectual ruminants than healthy ones. They compare themselves with others or pick up unrealistic goals for comparison. Although they have normal characteristics, most of them may have a tendency for unrealistic and perfectionist standards (14). Findings have shown that fear of being unattractive is associated with restrictive diets, eating and overeating concerns, and this association is mediated by dissatisfaction with body image, and cultural factors affect body image and eating behaviors, and dissatisfaction with body image is linked with eating disorder, which is mediated by self-esteem (15). Investigating body image perception disorder shows that incorrect understanding of body image can pose plenty of physical and mental problems. Body image dissatisfaction can be characterized by eating disorder and depression (16). Alternatively, findings show that people with eating disorder (17), particularly with bulimia nervosa, have lower temperament than those in the control group, which confirm the relationship between emotional and depression self-regulation and eating disorder. People with eating disorder have problems with psychological and personality characteristics such as self-confidence, self-esteem, self-determination, and self-sufficiency (18,19). The incidence of depression in people can enhance their thoughts and negative ruminating about themselves, low self-esteem, inferiority, helplessness, and lack of control over personal affairs (20); their sense of judgment and reality acceptance will be affected when they experience depression (21), and they make mistakes in their value. As a result, these people

often attempt to achieve their personal and social ideals about weight and eating habits (22,23). Given research literature and significance of early intervention in psychological disorders particularly in youth who are constructing generation of the country, the purpose of this research is to investigate the link between social anxiety, body image perception, depression and bulimia and anorexia in youth. Therefore, considering the goal of the research, the question is whether the variables social anxiety, body image perception and depression can predict bulimia nervosa and anorexia nervosa among young people.

Materials and Methods

The design of the present research is a correlational design, and canonical correlation analysis was used to explore multivariate correlation between predictor and criterion variables. In such an analysis, predictor variables were analyzed as a set and criterion variables as another set, so that it can be determined how the first set is associated with the second set. The study population in this research consists of all admitted students in higher education (graduate level) in the academic year of 2013-2014 at Islamic Azad University, Khuzestan Science and Research Branch, who were between the ages of twenty four and thirty five. The number of subjects was 200 individuals. In this research, inclusion criterion was university admission in the academic year 2013-2014, being in the age range of 24 to 35, and desire to participate in this research. It is agreeable to earmark 10 to 30 subjects for each path in the correlation design. Given that there are seven paths in the proposed model, the number of subjects was determined to be 200 individuals, and then the subjects were selected by using a multi-stage random sampling method, in that of 32 disciplines, 20 disciplines were selected randomly and then one class was selected from classes in each discipline, and of each class five females and five males were selected. The exclusion criterion was failure to fill questionnaires by subjects or participant's request for being excluded from the research. Given the predictability of these issues, a number of 10 subjects were included, plus the 200 subjects, so that 200 subjects could participate in this project to the end of the research. In this study, provisions of Declaration of Helsinki were observed, among which we can refer to confidentiality of students' information, privacy of students' information and name, voluntary research participation, the right to be excluded from the research, no harm in answering questions, and making results available if desired.

Research instruments

A) Ahwaz Eating Disorder Scale: It built by Cocker and Roger (24), this scale investigates eating disorder in two categories namely bulimia nervosa and anorexia nervosa (25). Scale scoring is based on yes (1) and no (0), the former indicates high level of disorder in people. Sharafi (26) studied and normalized the scale on Ahwaz students. He reduced it to 31 items, i.e. anorexia nervosa (22 items) and bulimia nervosa (9 items), and introduced it as Ahwaz Eating Disorder Scale. By using Cronbach's alpha and bisection, Mami (27) estimated the reliability of this scale at 0.75 and 0.70 respectively for total eating disorders, 0.64 and 0.66 for anorexia nervosa subscale, and 0.58 and 0.60 for bulimia nervosa subscale. By using Cronbach's alpha and bisection, Sharifi (26) estimated the reliability of this scale at 0.85 and 0.86 for total eating disorders, 0.57 and 0.50 for anorexia nervosa, 0.50 and 0.52 for bulimia nervosa. Correlating Ahwaz Eating Disorder scale with Eating Habit scale, Mami (27) estimated its validity at 0.82, 0.74 and 0.40 for eating disorder, first factor and second factor, respectively ($P<0.001$). With item score of this criterion, Aminian (25) also estimated the validity of this scale, in that total score of the questionnaire was correlated with item score, and it was determined that there is a positive and significant relationship ($r=0.27$ and $P=0.1$). In the present research, the reliability of this questionnaire was estimated to be 0.77 and 0.70 for eating disorders by means of Cronbach's alpha and bisection, 0.70 and 0.66 for bulimia nervosa, and 0.71 and 0.88 for anorexia nervosa.

B) Liebowitz Social Anxiety Disorder Scale: It was built by Liebowitz (28). The scale contains 24 items and it assesses two subscales anxiety and performance (13 statements) and social situations (11 statements) at anxiety and avoidance levels. Each scale separately has two subscales namely fear and avoidance behavior. Thus this scale has four subscales as follows; 1- fear of performance, avoiding performance, social fear and social avoidance. The scale scoring is based on not at all (0), low (1),

average (2), high (3), as higher scores in this scale represent higher level of anxiety. Liebowitz estimated Cronbach's alpha coefficient of total scale at 0.95, and Cronbach's alpha coefficient of performance anxiety subscale to be 0.82, and alpha coefficient of social anxiety subscale to be 0.91. Zakiee and Rowstami (29) estimated the reliability of this test at 0.95 by Cronbach's alpha. Liebowitz compared convergent validity of this scale with Matick and Clarck's Social Interaction Anxiety scale, the correlation of which was equal to 0.64. Mahbobi et al. (30) estimated the validity of this scale at 0.95, and 0.87 with Back's scale, and estimated internal consistency of social anxiety scale at 0.82. Zakiee and Rowstami (29) estimated the validity of the test at between 0.4 and 0.77. In the present research, the reliability of the scale was estimated to be 0.96 and 0.87 by Cronbach's alpha and bisection.

C) Fisher Body Image Scale: This scale has 46 items, that each has a value of 1 to 5 (strongly disagree to strongly agree). The score of 46 represents disorder and higher than 46 represents health state. This scale was built by Fisher (31). Asgari, Pasha, and Aminian (32) estimated the reliability of this questionnaire at 0.93 and 0.91 by Cronbach's alpha and bisection method. Similarly, the validity of the test was estimated and correlation coefficient was estimated to be 0.81 for first-year students in the first run and second run, 0.84 for second-year students, 0.87 for third-year students, and 084 for total students. Given the significance level of these coefficients (P<0.001), it can be admitted that there is a significant correlation between scores of the first run and the second run. In the present research, the reliability of the questionnaire was estimated to be 0.97 and 0.87 by Cronbach's alpha and bisection method.

D) Back Depression Inventory (BDI): It was built by Back et al. (33) as a scientific measure of depression. The scale contains 21-item and 13-item forms which measures depression on a scale of 0 to 3. In the present research, 13-item form was used. Moreover, Back et al (36) estimated the reliability of this scale at 0.73 to 0.92 with an average of 0.86 by consistency method. Asgari et al. (32) estimated the reliability of this scale at 0.82 and 0.73 by using Cronbach's alpha and bisection. Back et al. (1979) estimated the correlation coefficient of this scale at 0.73 by Hamilton's Psychiatric Ratify scale for Depression, 0.76 by Zuni's Self-Report Depression scale, and 0.74 by MMPI scale, which suggests high reliability of this scale. Back et al. (33) estimated the validity of the scale at 0.65 at significance level (P<0.001) by correlation of depression and anxiety test scores. In the present research, the reliability of this scale was estimated to be 0.88 and 0.84 by Cronbach's alpha and bisection method.

Results

In Table 1, demographic variables including age and gender are presented.

Table 1. Demographic variables of participants

Variable	Group	Abundance	Percent
Gender	Girl	100	50
	Boy	100	50
Age	24-25	78	%45
	26-32	64	%32
	33-35	58	%23

As can be seen, in Table 1 participants were male and female, among whom 100 females and 100 males were equally selected. Most participants were between the ages of twenty four and twenty five (0.45) as the least participants were between thirty three and thirty five (0.23). Descriptive findings included mean, standard deviation, minimum and maximum of sample's responses to the research variables, which is presented in Table 2.

Table 2. Mean and standard deviation of subjects' scores

Variable	Mean	Standard deviation	Minimum	Maximum
Social anxiety	38.85	25.51	0	128
Body image perception	171.07	33.29	68	230
Depression	4.41	5.21	0	31
Bulimia nervosa	6.39	3.28	1	15
Anorexia nervosa	2.74	2.09	0	9

As can be seen, in view of sample's responses, mean and standard deviation of social anxiety are 38.85 and 25.51 respectively, body image perception are 171.07 and 33.29 respectively, and depression 4.41 and 5.21 respectively. Similarly, mean and standard deviation of bulimia nervosa are 122.53 and 18.47 respectively, and anorexia nervosa are 2.74 and 2.09 respectively.

In view of inferential analysis, in an attempt to test the conceptual model of the research, canonical correlation analysis was used. The results of significance level are presented for total model by using four multivariate significance indicators in the first place, which are presented in Table 3. Next, canonical correlation analysis and multivariate tests are shown for each dimension in Table 3.

Table 3. Results of multivariate significance test for total model of canonical (conventional) analysis

Statistical indicators of test	Value	F ratio	df hypothesis	df error	*P*
Pillais Trace	0.399	12.12	8	38	0.001
Wilks Lambada	0.615	14.78	8	384	0.001
Hotelling's Trace	0.611	13.44	8	386	0.001
Roy's Largest Root	0.368				

Table 4. Special value and canonical correlation

Number of functions or roots	Correlation squared	Canonical correlation	Concentration percentage	Percent	Special values
1	0.368	0.607	94.72	94.72	0.583
2	0.031	0.177	100	5.27	0.032

Conventionally, the first canonical correlation is more than other important correlation. According to the results of the research for the first canonical (conventional) correlation of canonical variable, synchronous, or independent variable explain 95% of variance of dependent canonical variance. Generally, the number of canonical dimensions is equal to the number of variables of smaller set (2 variables) in question. It should be noted that the number of significant dimensions can be statistically smaller than variables of the set. Canonical dimensions, i.e. canonical variables, are latent variables comparable to factors in factor analysis.

Table 5. Results of dimension reduction analysis

P	Error df	df hypothesis	F value	Lambadai Wilkes	Roots
0.001	386	8	13.44	0.611	1 of 4
0.1	194	3	2.09	0.968	2 of 4

The results of F test indicate that the first canonical correlation is just statistically significant. For the first canonical correlation, F ratio is 13.44. In the present research model, two canonical dimensions

Standard canonical coefficients were shown for all predictor variables in the first dimension (depression: -0.578, social anxiety: -0.315 and body image perception: 0.385). Standard canonical coefficients were used for evaluating relative importance of role of every single variable in any of dimension, and its interpretation is the same as that of β coefficient in regression analysis. In order to choose influential variables in each dimension, it is important that lowest standardized canonical coefficients be 0.30. In the first dimension, were taken and calculated, one of which was just significant, because canonical correlation is stronger for the first dimension, i.e. first dimension is taken as the strongest canonical correlation.

depression was predominant with a standard canonical coefficient of -0.578. The second dimension was mentioned earlier, which has an insignificant correlation coefficient.

In the first dimension, anorexia nervosa had more impact in explaining first dimension with a standard canonical coefficient of -0.668 while this impact is -0.594 for bulimia nervosa.

In the first set depression is strongly linked with first canonical variable (-0.578). Therefore, it seems that the first canonical variable represents depression more obviously. Similarly, in the second set anorexia nervosa is strongly correlated with the first canonical variable (-0.668). It can be concluded two sets of variables of interest are significantly correlated with each other (canonical correlation). A person with higher depression has more anorexia nervosa. In general, as significance tests of dimension for canonical relation analysis show in Table 4, the first dimension is significant and has a high canonical correlation. Therefore, the strongest relation in the first canonical dimension was considered between depression variable in variables of the first set (dependent) and anorexia nervosa in variables of second test (independent).

Discussion

In this research, two sets of variable were investigated; one set of independent variable which includes social anxiety, body image perception, depression and the other is dependent variables which include eating disorder (bulimia nervosa and anorexia nervosa). The result of conventional correlation analysis was obtained to be 0.6, according to which for the first canonical or conventional correlation of canonical variable (synchronous, independent, variable) explained 95% of variance of dependent canonical variable. The results of the present research are consistent with those in (3,5,9,25). Eating disorder is the result of a complex reciprocal interaction of multiple factors, for which we can consider inheritance, brain functions (18), personality traits (25), family and social and cultural factors (14). According to social-cultural theories, society contributes a lot to people expectation, particularly their special physical shape. These theorists excessively lay emphasis on culture for thinness and slimness of women's body and flexibility and muscularity of men's body. Thus young people find themselves unattractive unless they conform to physical ideals of society (4). Person's reaction to the gap between ideal self and real self that he/she feels can distress and depress so this person attempts to reduce this gap (3). In order to overcome the sense of dissatisfaction with self and lack of self-confidence that society caused unconsciously, and to gain the feeling of social popularity (4), different diets are adopted. People with a negative understanding of body image feel different negative emotions in different situation; internal shame or self-loathing when they see themselves inferior to others. Similarly, external shame and feeling of social anxiety can cause feeling of anxiety and depression in them according to how others appraise them. Alternatively, they experience depression and helplessness because of personal failure in reaching ideals and standards of beauty, social isolation and interpersonal clashes. Therefore, following these events, this disorder is associated with an increase in helplessness and embarrassment, high level of depression equivalence and risk of suicide (19). On the contrary, people who gained higher scores in depression scale more likely find situations negative because of their depressive disposition and suffer from thinking rumination more than others (18), which is crucial to exacerbation of situation, increased social anxiety and more negative evaluation of body. A rise of person's score in social anxiety is associated with his avoidance from situation that may be evaluated and judged by others, which is because of negative thoughts and orientation linked with depression, weakness in self-image and self-esteem (32), anxiety (4), defect in interpersonal relations, fear of rejection and embarrassment (33). All of these factors cause person to make plan for liberating themselves from these negative experiences. Thus he adopts rigorous and obsessive measures for their diets so that once again he is able to reach his ideal body, which result in an increase in person's score of eating disorder (bulimia and anorexia nervosa). Conversely, previous researches uphold a physiological basis for the balance between eating disorder and social anxiety and between eating disorder and depression, in such a way that the use of depression therapy medication can improve dietary habits (18) in individuals. As a result, social anxiety, body image perception and depression as variables can be reliable predictors of young people's susceptibility to

eating disorder (bulimia and anorexia nervosa). According to the results of the research and other studies conducted in different age groups, the results show that depression is associated with eating disorder and given the fact that overweight people are reproached in terms of culture and society, increased frequency of eating disorder in younger ages and adolescence, taking account of potential depression in every person, timely treatment and training of protocols encouraging proper weight and behavior of losing weight are recommended in schools. The results of this research are considered important from incremental aspect, because detection of predictor variables of eating disorders can help psychiatrists and psychologists lower the symptoms of this disorder and use related therapies. As for limitation of this research, we can refer to the lack of cooperation of some students and tiredness of filling self-report questionnaires.

Conclusion

Findings of the present research indicate that the psychological variables namely social anxiety, body image perception and depression can significantly predict eating disorder (bulimia and anorexia nervosa). Given the importance of early diagnosis of eating disorder, identification of predictor and dependent variables of this disorder seem necessary, so that the spread and effect of this disorder on other person's psychological indicators such as self-confidence, self-esteem, self-image, etc., and the possibility of individual, education and social performance improvement is provided for youth.

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References

1. Simon-kumar R. Eating disorders. Department of Woman's and Gender Studies. University of Waikato, Hamilton, New Zealand, 2012. Available from: URL; http://www.psychology4all.com
2. Södersten P, Bergh C, Leon M, Brodin U, Zandian M. Cognitive behavior therapy for eating disorders versus normalization of eating behavior. Physiol Behav 2017; 174: 170-90.
3. Culbert KM, Racine SE, Klump KL. Research review: What we have learned about the causes of eating disorders --- A synthesis of sociocultural, psychological, and biological research. J Child Psychol Psychiatry 2015; 56(11): 1141-64.
4. Smith E, Rieger E. The effect of attentioanl on body dissatisfaction and directory restriction. School of Psychology, University of Sydney: Australia; 2006.
5. Levinson CA, Rodebaugh TL, White EK, Menatti AR, Weeks JW, Iacovino JM, et al. Social appearance anxiety, perfectionism and fear of negative evaluation. Distinct or shared risk factors for social anxiety and eating disorders? J Appetite 2013; 67: 125-33.
6. Berkman ND, Lohr KN. Surgical treatments for otitis media with effusion: A systematic review. Int J Eat Disord 2007; 40(4): 293-309.
7. Khayer M. The study of mediating effects of self focused attention and social self-efficacy on links between social anxiety and judgment states. Iran J Psychol 2008; 14(1): 24-32
8. Silverman LK. Perfectionism. Proceeding of the 11th World Conference on Gifted and Talented Children, Honk Kong; 1995.
9. Saucedo-Molina T, Zaragoza Cortés J, Villalón L. [Eating disorder symptomatology: Comparative study between Mexican and Canadian university women]. Revista Mexicana de Trastornos Alimentario 2017; 8: 97-104. (Spanish)
10. Marco JH, Perpin C, Botella C. Effectiveness of cognitive behavioral therapy supported by virtual reality in the treatment of body image in eating disorders. Psyciatry Res 2013; 209(3): 619-25.
11. Pahlavanzadeh S, Habibpour Z, Ghasavi Z, Maghsoudi J. Association between body image satisfaction and depression in teenagers. Journal of nursing and midwifery research 2004; 9(4): 25. (Persian)
12. Rabiee M, Khorramdel K, Kalantari M, Molavi H. Factor structure, validity and reliability of the modified Yale-Brown Obsessive Compulsive Scale for body dysmorphic disorder in students. Iranin=an journal of psychiatry and clinical psychology 2010; 15(4): 343-50. (Persian)
13. Asar Kashani H, Roshan R, Khalaj A, Mohamadi J. [An study on the alexithymia and body image in the obese, over-weight and normal weight subjects. Health psychology 2012; 1: 2. (Persian)

14. Sheykh Aleslam R, Latifian M. [The relationship between self concept, and general health in university students. Advances in cognitive science 2002; 4(1): 6-16. (Persian)
15. Veale D. Advances in a cognitive behavioral model of body dysmorphic disorder. Body Image 2004; 1: 113-25.
16. Mussap A. Acculturation body image and eating behaviors in Muslim Australian woman. Health Place 2009; 15(2): 532-9.
17. Jessica S, Benas A, Brandon EG. Cognitive biases in depression and eating disorders. Cognit Ther Res 2011; 35(1): 68-78.
18. Hilberta A, Tuschen-Caffier B, Vogeleb C. Effects of prolonged and repeated body image exposure in binge-eating. J Psychosom Res 2002; 52(3): 137-44.
19. Trindade IA, Ferreira C. The impact of body image-related cognitive fusion on eating psychopathology. Eat Behav 2014; 15(1): 72-5.
20. Raspopow K, Matheson K, Abizaid A, Anisman H. Un-suppurtive social interactions influence emotional eating behaviors. Appetite 2013; 62: 143-9.
21. Birbeck D. Body image and the per-pubescent child. J Educ Enq 2003; 4(1): 117-27.
22. Foroughhmand A. [Relationship between eating disorder beliefs and depression in adolescent girls in Ahvaz]. Proceeding of the Third National Congress of Consultation, Khomeini City, Islamic Azad University, Khomeini Shahr Branch, 2012. (Persian)
23. Papadopoulos S, Brennan L. Correlates of weight stigma in adults with overweight and obesity: A systematic literature review. Obesity 2015; 23(9): 1743-60.
24. Cocker S, Rojer D. The construction and preliminary validation of a scale for measuring eating disorder. J Psychos Res 1990; 34: 223-31.
25. Aminian M. [The relationship between emotional regulation, psychological stresses of life and image of the body with eating disorders in women]. MS. Dissertation. Islamic Azad University of Ahvaz, 2009. (Persian)
26. Sharifi A. [Evaluation of the prevalence of nutritional disorders and their relationship with depression, self-esteem and economic and social status]. MS. Dissertation. Islamic Azad University of Ahvaz, 1997. (Persian)
27. Mami Sh. [Study on the prevalence of nutritional disorders and its relationship with depression, self-concept and self-esteem of female students of Ilam University of Medical Sciences]. MS. Dissertation. Islamic Azad University of Ahvaz, 2005. (Persian)
28. Liebowitz MR. Social phobia. Modern Prob Pharmacopsychiatry 1987; 27(2): 141-73.
29. Karami J, Zakiei A, Rostami S. The role of meta-cognitive beliefs and self-efficacy in predicting social phobia in third grade boy students in Kermanshah. Journal of school psychology 2012; 1(1): 62-75.
30. Mahbobi M, Etemadi M, Khorasani E, Ghiasi M. [The relationship between spiritual Health and social anxiety in chemical veterans]. Journal of military medicine 2012; 14 (3): 186-91. (Persian)
31. Fisher RL. Classroom behavior and the body image boundary. J Proj Tech Pers Assess 1970; 32: 450-2.
32. Asargi P, Pasha Gh, Aminian M. [The relationship between emotional regulation, psychological stresses of life and image of the body with eating disorders in women]. Iranian journal of psychiatry and clinical psychology 2009; 13: 65-76. (Persian)
33. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Arch of Gen Psychiatry 1978; 4: 561-71.