

# Attachment-Based Interventions and Eating Related Disorders in Females

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## ABSTRACT

**Objective:** The purpose of this study was to evaluate the effect of attachment-based interventions on females suffering from eating related disorders. The study method was experimental with a pretest-posttest control group. The study sample included 32 elementary school female students with eating disorders, obesity problems, and attachment disorders. Sampling method was purposive.

**Methods:** After assigning groups (experimental and control), the experimental group's mothers participated in 10 sessions of attachment-based intervention program over 2.5 months and control groups did not receive any intervention. By the end of intervention, the posttest and then follow-up test were done after 45 days. Instruments comprised 'child attachment disorder,' 'disorders caused by eating,' and 'eating disorder' questionnaires.

**Results:** The results of univariate analysis of covariance showed that in the posttest and follow-up test of the disorders caused by eating, there were significant differences between control and experimental groups.

**Conclusion:** According to the results, the attachment-based treatment can be used as the method of intervention to reduce disorders caused by eating in children with eating disorders and obesity.

## 1. Introduction

In many developing countries, overweight and obesity has dramatically increased and caused a lot of health problems. Obesity is defined as 20% increase in weight over the ideal weight.

Until recently, overweight and obesity in adults were not common, but over the past two decades children and adolescents have been suffered. During that time, the rate of obesity among children has been doubled and adolescents who were overweight became tripled (Tosca et al., 2012). Many studies indicate an association between obesity and psychiatric disorders. One study suggests a significant association of obesity with depression, fear of open places, and panic disorders (Simon et al., 2006).

Some other studies have found that there is a positive relationship between obesity and bipolar disorder (Wang et al., 2006), substance abuse, and suicidal tendencies (Mather, Cox, Enns, and Sareen, 2009). Obesity in school-age is associated with many health problems such as anxiety, stress, depression, and somatic complaints. It affects various aspects of life like academic performance and adaptability of children. These children are somewhat anxious; irritable, and nervous; are plagued by obsessive doubts; and have no self-confidence. They criticize themselves and feel guilty about failing their goals. These children are dull, ceremonial, and have no good social connections (Araujo, Santos, & Nardi, 2010).

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Psychological symptoms may also be observed in obese individuals with hypochondriacs. High score of hypochondriacs may be due to lower tolerance in these individuals (Wardle & Beales, 2005). According to social learning model, overweight people may use physical consequences of obesity to obtain a secondary benefit. The role of these patients is considered a way to escape, which may exempt them from the desired tasks. According to psychodynamic perspective, aggressive and hostile desires towards others can be converted into physical symptoms through repression and displacement. Patients' anger roots in the past failures, rejections, and losses. However, they express the anger at the time of asking for help and attention and then rejecting it.

According to stress and coping perspective, childhood violence is a special condition, which could bring the risk of obesity (Greenfield and Marx, 2009). Attachment theory provided an important perspective to identify the factors that influence the initiation and persistence of eating behavior problems. Precisely speaking, the insecure attachment can have an important role in the growth and persistence of the problems associated with eating behaviors and their consequences. Because people with eating disorders often have poor relationships with their primary attachment figure, they report a high incidence of insecure attachment (Behzadipour, Besharat, and Pakdaman, 2010). Longitudinal studies show that children with insecure attachment during their growth (at the ages of 2-5 years) are 1.5 times more obese than children with secure attachment (Anderson & Whitaker, 2011). This means that insecure attachment in early childhood can cause obesity among children. Therefore, considering the psychological responses in the development of overeating and obesity and regarding the effect of insecure attachment and unhealthy emotional management on stressful responses, a secure attachment pattern can manage the healthy emotions and responses to stress among children in the best way (Score, 2005). Accordingly, some studies suggest interventions based on the modified attachments.

Apparently, attachment-based intervention provides opportunities to develop a secure attachment in children (Vandomboom, 1994). Main focus of this intervention is on the rehabilitation of emotional attachment between child and caregiver and repairing psychological, emotional, and behavioral problems, which have grown as a result of the turmoil relationship between child and parents. The main goal of family therapy (with an approach to attachment treatment) is creating a secure base and support for the child in family. Educating families on creating a safe environment for each other helps family members to resolve their problems during the sessions

and then use this method after the intervention (Gahanbakhsh, Bahadori, Amiri, Jamshidi, 2013). Attachment-based therapy has been employed in different areas of children problems, including improving mental health in the elementary school girls, reducing symptoms of depression in primary school girls (Gahanbakhsh, Bahadori, Amiri and Jamshidi, 2013), alleviating the symptoms of separation anxiety disorder (Zolfagari, Jazayeri, Khoushabi, Mazaheri, Karimluo, 1995), and reducing oppositional disobedience symptoms in the girls with attachment problems (Gahanbakhsh, Bahadori, Amiri and Jamshidi, 2013). The efficiency of this type of intervention in the psychological problems was approved by research. Accordingly, this research evaluated the effect of attachment-based intervention on the eating disorders as the causes and or consequences of the obesity in children.

## 2. Methods

This study used a quasi-experimental design method with pretest, posttest, and using both the control and experimental groups. Both groups were chosen by random sampling. The independent variable was attachment-based intervention. The attachment intervention sessions were held for mothers for 10 sessions and scores of eating disorders in children were considered as the dependent variable.

The study population consisted of all female elementary school students with attachment problems who had a body mass index above 98 percentile and were enrolled in the 2012-2013 academic year in Ahwaz City. The sampling was done voluntarily and purposefully. Since the study method is experimental, the quantity for each sample was the least possible number in experimental study patterns i.e. 12 people for each group (Delavar, 2013). And considering the mean samplings of the three previous similar studies, the sample size for this study was found 32 (in the 2 elementary schools) female elementary school students. Then, each of the selected elementary school was randomly considered as the experimental group (16 girls) and the control group (16 girls).

In this way, among 4 school districts in Ahwaz, one school district was chosen and from that district 2 primary schools were selected randomly and from each primary school all obese female students who had a body mass index above 98 percentile and their mothers were willing to cooperate with the investigation, were selected as the prototype. Then, the initial attachment disorder test was performed in order to discriminate children with secure attachment from children with insecure attachment and eating disorder. Next, according to the scores in the

questionnaire, 32 children with insecure attachment style (Score of above 30 in Randolph Attachment disorder) and eating disorders (Score of above 5 in Children's Binge Eating Disorder Scale) and high body mass index (above 98 percentile) was selected as the research sample. Finally, each selected elementary school was randomly considered the experimental group or the control group.

**Attachment disorder questionnaire:** This questionnaire was designed by Randolph (1996) to introduce attachment disorder for children aged 6 to 16 years. It has a checklist of 25 questions on various problems reported by parents who cared over children for over two years. This list has translated by Abtahi, Amiri, and Emsaki (1995) and its norm and psychometric properties have been extracted. Each item in the questionnaire was scored in Likert scale rated from 0 to 4. Total scores ranges from 0 to 100. Scores above 30 indicate attachment problems in children. Cronbach  $\alpha$  for this scale was calculated by Abtahi et al. (1995) as 0.83, which indicates good internal consistency of the questionnaire. In this study, Cronbach  $\alpha$  for internal consistency evaluation scale was calculated as 0.78. This test was used to assess attachment in children.

**Children's Binge Eating Disorder Scale (C-BEDS):** C-BEDS was designed for measuring simple, understandable, and relatively rapid diagnosis of binge eating disorder in children. It consists of 7 items and is based on 7 behavioral criteria proposed by the Marcus and Kallarchian (2003). The questionnaire was answered by the children with the help of their mothers. If a child had difficulty in understanding the questions or his or her answers were not clear, the items would be explained to the child. If the child answers yes to questions number 1 and 2 and at least one of the questions of 3, 4, or 5 and the mentioned symptoms in the questionnaire are seen more than three months, and also the child's answer to question 7 is negative, then overeating will be diagnosed in the child. In this study, in order to assess the effectiveness of intervention, each item was scored on a Likert scale and responses were as "never", "very low", "low", and "high". A high score indicates a high level of overeating. To better assess the degree of obesity, a multiple-choice questionnaire was conducted on children to better specify the amount of changes in the posttest and follow-up after the intervention. In the present study, Cronbach  $\alpha$  was used to assess the internal consistency of the questionnaire for children overeating. So the questionnaire was used on 210 overweight children aged 7-2 year old in Ahvaz. The results showed that the internal consistency of the scale is 0.79. Formal validity of the scale was confirmed by one of the faculty members of Psychology

Department, University of Isfahan and two professors from the University of Ahvaz with previous experience in teaching and research in the field of children.

**The Clinical Impairment Assessment Questionnaire (CIA):** CIA is a 16-item scale, self-report of secondary psychological disorder caused by the characteristics of eating disorder. Internal consistency of CIA (Cronbach  $\alpha$ ) has reported as 0.97, and all items are positively correlated with total scores of CIA (Bohen & Fairborn, 2008). The results showed that Cronbach  $\alpha$  internal consistency is 0.93. Criterion and construct validity was confirmed by the data. To obtain the coefficient reliability in the Iranian sample, the internal consistency and retest were used. The results of the coefficient reliability of Cronbach  $\alpha$  were 0.86 and for retest 0.89. Formal and construct validity scale was confirmed by one of the faculty members of the Psychology Department of Isfahan University and two professors from the University of Ahvaz with previous experience in teaching and research in the field of children.

Each item is scored on a Likert scale. The answers are "never", "very low", "low", and "high". Responses are scored 0, 1, 2, and 3. High scores indicate higher levels of disorder. Since the purpose of CIA is measuring the maximum intensity of the secondary psychological disorder, a total CIA disorder score is calculated. To obtain a total CIA disorder score, each item scores will add up. Obtained scores ranges from 0 to 84 and a high score indicates a higher level of secondary psychological disorders.

The attachment-based therapy used in this study was integrated and incorporated interpretation of the appropriate therapeutic format of responding to the child by Fraiberg (2004), sensitization of the mother by Breech (2002), attachment and connection methods by Erwin (1995), model therapeutic attachment by Cross (2002), using storytelling for children with attachment disorder by Nichols (2004), evolutionary therapeutic attachment by Lefebvre-McGenva (2006), and stress management technique and composing plays by the children. In this method, the therapist, a psychology doctoral student specialized in attachment-based intervention, brings an example of a true situation of the mother and child interaction in the context of a specific topic (for example, responding to the needs of children), and ask mother to visualize it and express her reactions in the situation. This intervention approach was carried out by a psychologist on mothers (attended school in the specified days) in a group during 10 sessions (one session per week) for 2 months and a half. The schedule of attachment-based intervention sessions is shown.

Session one: Explanation of the attachment, attachment disorder, eating disorder symptoms in children, symptoms of emotional problems in children, the relationship between eating and attachment disorders in children and the mediating role of emotions.

Session two: Treatment rationale and its objectives, describing the psychological and physiological needs of children and the necessity of knowing the excitements of a child and how to respond to the needs of the child excitement, availability of maternal intervention techniques, intervention play-making techniques and its exercise, play-making and how to respond to needs of children and exercising it with mothers.

Session three: verbal communication techniques with children, storytelling techniques, play-making about questions and answers, the verbal relationship between mother and child and understanding the role of children in family and creating self-esteem and self-confidence in them, identification and management of maternal anxiety in children.

Session four: Necessity of continuity and stability of positive behavior to heal disrupted child's confidence, physical contact techniques and particularly eye contact, play-making about the real expression of love to the child, to embrace, caress and kiss the child, the child's identification and management of fear symptoms by mothers.

Session five: Game of collaborative care-child, facilitating childhood friend relationships with counterparts and encouraging the child to communicate, providing the child active participation in group tasks in school, play-making about active participation of the child in the play, joking with the child, making the child laugh and creating happiness for the child.

Session six: Active cooperation in the child's affairs, play-making about the mother-child interaction and co-

operation matters concerning the child's affairs to increase positive mother-child interaction and avoidance of coercion, identification of signs of anger and aggression in the children and its management by the mother.

Session seven: Evaluation of child unresolved behavior problems, happy intervention and making an exciting living environment for the child to reduce the negative emotions of the mother and child, intervention to enhance verbal techniques of child to avoid child isolation, identifying symptoms of low self-esteem in the children and ways to increase it by the mother.

Session eight: Family-focused stress management techniques intervention to reduce anxiety of the child, reassurance intervention techniques to child about permanent protection of child by parents and drawing a bright future for the child, play-making about raising a happy mother-child entertainment.

Session nine: Spectator parents intervention techniques about emotional eating behaviors, differential reinforcement of positive behavior intervention techniques, ignoring negative behavior.

Session ten: Talking about the obstacles in applying the techniques of intervention, explaining the importance of continuing to practice what was learned in order to build trust and confidence and repairing the mother-child attachment, exchanging views on the objectives of the plan and the summary and conclusion.

### 3. Results

Descriptive statistical analyses of the variables (mean and standard deviation) in the different stages of research are presented in Table 2. According to Table 2, the mean score of eating disorders in the intervention group is 38.31 for the pretest, 36 for the posttest, and 34.78 for

**Table 1.** Mean and standard deviation of the Eating Disorders questionnaire in the experimental group and the control group.

Test	Group	Mean score of Eating disorders	Standard deviation of eating disorders scores	No.
Pretest	Experimental	38.31	2.27	16
	Control	38.33	1.88	16
Posttest	Experimental	36	2.42	16
	Control	38.25	1.65	16
Follow up	Experimental	34.78	2.44	16
	Control	38.25	1.84	16

**Table 2.** Levine test results, equal variances between eating disorders.

Posttest	F	df1	df2	Sig.
Eating disorders	2.32	1	30	0.381

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the follow-up test. In the control group, the pretest mean score is 38.33; posttest, 38.25; and the follow-up, 38.25.

To evaluate this hypothesis and to determine significant differences between the experimental group and the control group, the univariate analysis of covariance was used simultaneously for pretest, posttest, and follow-up test. ANCOVA assumptions used in this analysis were studied. Table 2 shows the results of the Levin test, to evaluate the variance equality and Table 4 presents the results of regression slope equity.

As can be seen in Table 2, Levine test, confirmed the default equality of the variances of the two groups in eating disorders of posttest scores ( $P < 0.5$ ).

According to Table 3, the interaction between covariates (pretest) and dependent variable (posttest) at the operating level (experimental and control groups) is not significant, so the assumption of homogeneity of regression is met ( $P < 0.5$ ).

Next, ANCOVA analysis was conducted for the dependent variable to examine group differences.

The results in Table 4 show that the difference between the experimental group and the control group in the posttest score is significant with regard to the variable of eating disorders ( $F = 41.42$ ,  $P < 0.5$ ). This amount of difference in the eating disorders variable is 0.87. This means that 87% of difference between the two groups of eating disorders variable is related to the experimental intervention.

Multivariate analysis of variance was used on mean scores of the variables of eating disorders in the experimental group and the control group. ANOVA analysis results for the dependent variable in the follow-up revealed that the difference between the scores of the experimental group and the control group was significant ( $F = 39.37$ ,  $P < 0.5$ ) at follow-up with regard to eating disorders. Value of this difference in the variable of eating disorders is

0.59. This means that the intervention effectiveness accounts for the 0.61 of the change in eating disorders.

#### 4. Discussion

This research aimed to investigate the effects of attachment-based interventions on the eating disorders of female elementary school students with eating disorders and obesity in Ahwaz City. In this regard, 32 female elementary school obese students with BMI above the 98 percentile were selected and randomly divided into treatment and control group. Mothers of the experimental group received 10 sessions of attachment-based intervention and the control group did not receive any intervention sessions. Then their scores in the scales were compared in three time stages. The results of covariance analysis showed that attachment-based intervention in the both posttest and follow up phase reduced eating disorders in the experimental group compared to the control group.

On the whole, results of this study suggest that eating disorders in children are associated with attachment problems. However, research indicates that eating disorder is one of the signs of mother-child interaction problems, which by improving these interactions and resolving the basic problems, mental disorders caused by eating can also be overcome (mental disorder caused by eating). Regarding these results, it can be stated that the lack of secure attachment of the child leads to negative emotions in children. Inability to control negative emotions, leads the children to use strategies like emotional overeating. Lack of secure attachment can affect their emotions, and play an effective role in the development of eating disorders (Satellites et al., 2010). Thus, attachment-based intervention helps emotion regulation and its undesirable strategies (overeating).

Attachment-based therapy with employing techniques like intervention reinforces the availability of the mother, satisfying the physiological and psychological needs of children, securing the child through physical contact, es-

**Table 3.** Results of homogeneity of regression slopes between covariates and dependent variable.

Interaction of the pretest levels with	Sum of squares	df	Mean square	F	Sig.
Eating disorders	2.46	1	3.46	1.54	0.548

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**Table 4.** An analysis of covariance on the scores of eating disorders between two groups.

Source	Sum of squares	df	Mean square	F	Sig.	Size effect	Exponentiation
Group	31.11	1	31.11	41.42	0.001>	0.87	0.85
Error	21.03	28	24.33				

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pecially eye contact, providing accountability, increasing time of conversation, face-to-face play, and interaction of mother-child. And gradually it turns distrust of insecure attachment to a relationship based on trust. In the follow up, the corrected relationship between parent-child greatly reduces behaviors leading to overeating and obesity in them. In the attachment-based intervention, the mother learns to trust her own feelings and responsiveness methods and control her own inner anxiety about how to deal with child behavior. The therapist uses empathic relationship established between the mother and him/her to increase the interest and motivation of the person. Therefore, by determining the strengths of the mother and child relationship and emphasizing on the strengths of the mother as a competent and valuable person, therapist reduces anxiety and feelings of inadequacy in relation to the child (Breech, 2002).

Also, as the correct pattern of parent-child is the most important health component of this type of treatment, when parents become aware of the types and disadvantages of their own training and relationship to the child, most likely due to interest of parents to their child's mental health, they try to correct their interactions with their children. Later, this new interaction and persistency of parents in practicing this new approach, will lead to continuous improvement of children and reducing their symptoms and problems. In the meantime, parents are taught some techniques which in the future and in the case of further problems can help them deal with the problems such as child eating behavior.

Based on the study results, the reduction rate of eating disorders as a result of attachment intervention was greater in the posttest than in the follow-up and the majority of therapeutic interventions report that the passage of time reduces impact of therapy and disease recurs to some extent during the follow-up. In contrast, intervention which takes place in the context of attachment will affect better in the long run, because stripping trust of insecure attached child to parents cannot be restored quickly and the passage of time and the commitment of parents to therapeutic techniques will gradually create secure attachment for the child and improve disorders caused by the attachment. It is also possible that with performing longitudinal

and annual follow up, we could observe further improvement in the symptoms of participant's overeating. Thus, we can consider time and commitment to the principles of treatment element to be some of the most crucial elements of attachment's intervention. Furthermore, since obesity in children and adolescents is increasing and considering the fact that most of these children will become obese in their adulthood with its associated problems, attachment-based interventions is one of the appropriate treatments to control obesity at an early age; which without having any side-effects can help remedy this problem. The present study was performed on samples of female students in elementary schools in Ahwaz; therefore, one must be cautious in the generalization of the results. Further research could help treat the problem and children's behavioral disorders by evaluating the effectiveness of attachment-based therapy on other behavioral disturbances in a wider population and in both genders. According to the results, the attachment-based treatment can be used as the method of intervention to reduce disorders caused by eating in children.

### Ethical Considerations

The confidentiality of the participants' data was observed.

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