# The Impact of Dialectic Psychotherapy on Impulsive Behavior of Individuals to Lose Weight and Maintain Healthy Weight

**Somaye Dehghani[1], Masoome Seyfollahi[2], MozhdeEghbal Javadi[3]**

[1]Clinical Psychology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences

[2]Clinical Psychology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences,

Taleghani Hospital, Evin, Tehran, Iran.

m.seyfollahi@yahoo.com

[3]Department of Psychology, Zanjan Branch, Islamic Azad University, Zanjan, Iran.

**Abstract**

The obesity and its growing prevalence is one of the major challenges discussed in scientific circles and public health associations. According to studies, among the factors affecting the development of this disease, the psychological issues more contribute in weight gain and its recurrence than any other factors. The success in maintaining a healthy weight and prevent its recurrence is the main and challenging concern of psychological interventions. It seems that the impulsive factor should be considered as a contributing factor in overeating behavior; thus, the uncontrolled behaviors may be controlled, weight may be reduced, and its recurrence may be prevented. A number of studies on impact of cognitive-behavioral therapy on reduced impulsivity among obese people have shown that in long-term, itreduces the weight more than conventional methods. However, this study aimed to investigate the impact of dialectic psychotherapy on impulsive behavior of individuals to lose weight and maintain healthy weight. This study used the clinical trial. Using random sampling method, 30 obese women who referred to nutritionist's office in Zanjan were selected as sample. They randomly divided into two groups: 15 patients in dialectic psychotherapy group and 15 patients in control group.The dialectic psychotherapy group treated for two months (16 sessions; 2 sessions of two hour per week). During two sessions, also, the control group received information on high-calorie foods and how to use diet to lose weight.The follow up session was conducted 5 months after the treatment. Beck's Depression Inventory, Barratt's Impulsiveness Scale, Beck's Anxiety Inventory, and Coppersmith's Self-esteem Questionnaire were used as research tools. Using software SPSS, the multivariate analysis of covariance was conducted to analyze the data. The findings showed that dialectic psychotherapy significantly impacted on weight loss, reduced impulsivity, depression, and anxiety, increased confidence, and prevented the recurrence of obesity and weight gain in long term. These findings are consistent with most research findings.

**Keywords:** Obesity, Impulsivity, Dialectic Psychotherapy.

## 1. Introduction

In today's modern world, the spread of sedentary and mechanical life has led to epidemic weight gain and obesity. The prevalence of this disease is rapidly increasing in many industrialized countries, especially United States and developing countries. So, about 64% and 33% of US adults suffer from overweight and obesity, respectively (1). In Iran, it has affected a high percentage of different age and sex groups (2). The ineffectiveness of existing care standards and resistance to accept this problem as a diseases have caused the challenges in this area to be continued. The problem of weight gain has become a public health concern. Obesity is weight gain and increase of body fat due to environmental factors and individual genetic characteristics (3). The eating disorders are determined by problems in eating behaviors. The two main eating disorders are anorexia nervosa and bulimia nervosa. The obesity is not in DSM-IV-TR diagnostic categories. However, it is an eating disorders and it is a result of bad eating habits. An accurate method to measure obesity is calculation of fat level in body or body mass index (4). Different assumptions propose that obesity is dependent on genetic factors. Many discussions on obesity mention wrong behavioral habits, nervous tension chains, and emotional eating (5). In fact, it can be argued that impulsivity is the main factor of discontinuing treatments and returning to initial weight. One of the theories states that individual psychological factors cause recurrence of obesity. For example, in general, obese people are more impulsive than lean people (6). Impulsivity describes various psychological processes which affect the decisions and behaviors and are involved in human personality formation. This issue has been considered by psychologists, because the reduction of harmful consequences and effects of impulsivity may be important for promotion of mental health of individuals and society (7).

According to above, this study aims to investigate the impact of dialectic psychotherapy on impulsive behavior of individuals to lose weight and maintain healthy weight.


## 2. Methodology

This was applied experimental research with pretest, posttest, and control group. Using random sampling method, 30 obese women who referred to nutritionist's office in Zanjan were selected as sample. The criteria for including participants in this study were: (1) BMI over 25 and below 35, (2) Bart questionnaire's impulsivity score higher than 65, (3) ability and desire to participate

in study, (4) no problem in listening and speaking, (5) age from 20 to 45 years old, (6) no metabolic disorders or other mental or physical illness which lead to obesity, (7) having same diet, (8) not using certain drugs which lead to increase or decrease in weight. They randomly divided into two groups: 15 patients in dialectic psychotherapy group and 15 patients in control group.The dialectic psychotherapy group treated for two months (16 sessions; 2 sessions of two hour per week). During two sessions, also, the control group received information on high-calorie foods and how to use diet to lose weight. The follow up session was conducted 5 months after the treatment. Beck's Depression Inventory, Barratt's Impulsiveness Scale, Beck's Anxiety Inventory, and Coppersmith's Self-esteem Questionnaire were used as research tools. Using software SPSS, the descriptive statistics (mean, standard deviation, and frequency) and inferential statistics (multivariate covariance test, MANCOVA, and Post hoc test) were conducted to analyze the data.

## 3. Findings

The demographic characteristics including education level, age, and marital status are shown in Tables 1 to 3.

Table 1) Frequency of education level in control and experimental groups

| Total | M.A | BS | Associate Degree | Diploma | Education |
|-------|-----|-----|------------------|---------|-----------|
| 15 | 3 | 11 | 0 | 1 | Experiment group |
| 15 | 2 | 10 | 1 | 2 | Control group |

Table 2) Descriptive statistics of participants' age

| Number | Standard deviation | Mean | Age |
|--------|--------------------|------|-----|
| 15 | 3/22 | 25/53 | Experiment group |
| 15 | 3/36 | 25/66 | Control group |

Table 3) Marital Status of participants

| Total | Married | Single | Marital status |
|-------|---------|--------|----------------|
| 15 | 6 | 9 | Experiment group |
| 15 | 7 | 8 | Control group |

The descriptive statistics obtained from data analysis are reported in table below.

Table 4) Frequency, mean, and standard deviation of experiment and control groups

| Control group | | | Experiment group | | | | |
|---------------|------|----------|------------------|-----------|----------|--------------------|-------------|
| Follow-up | Post-test | Pre-test | Follow-up | Post-test | Pre-test | | |
| 15 | 15 | 15 | 15 | 15 | 15 | Number | |
| 74/13 | 73/60 | 74/33 | 63/20 | 61/13 | 76/06 | Mean | |
| 9/241 | 9/560 | 9/499 | 5/374 | 5/221 | 8/883 | Standard deviation | Impulsivity |
| 15 | 15 | 15 | 15 | 15 | 15 | Number | |
| 78/66 | 75/13 | 77/53 | 74/66 | 74/06 | 79/86 | Mean | |
| 10/362 | 10/500 | 10/162 | 9/559 | 9/161 | 9/395 | Standard deviation | Weight |

The trend of change in two variables (impulsivity and weight) is separately shown in Figures 1 and 2.

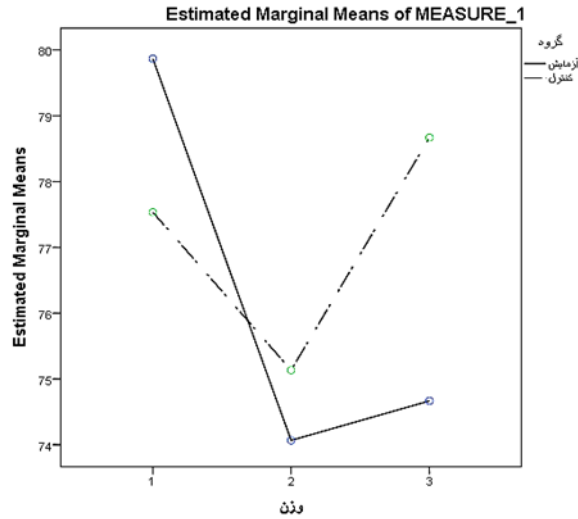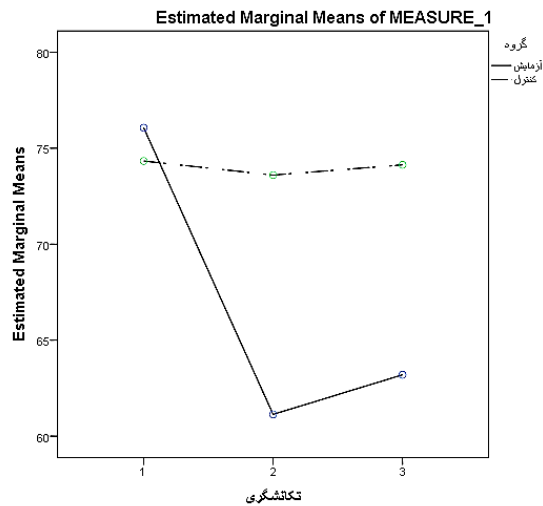Figure 1) Trend of change in weight mean of two groups during the study

Figure 2) Trend of change in impulsivity mean of two groups during the study



According to type of variables and methodology, the multivariate analysis of covariance is proper for this study. The common assumption of parametric tests is assuming normal distribution of collected data.The normality of distribution is evaluated with Kolmogorov-Smirnov or Shapiro Wilk test and the obtained significance values are reported in Table 5.

Table 5) Significance values in Kolmogorov-Smirnov and Shapiro Wilk test

| Sig. level (Control group) | | Sig. level (Experiment group) | | |
|---|---|---|---|---|
| Shapiro-Wilk | Kolmogorov-Smirnov | Shapiro-Wilk | Kolmogorov-Smirnov | Variable |

| | | | | |
|---|---|---|---|---|
| 0/124 | 0/200 | 0/096 | 0/024 | Pre-test of impulsivity |
| 0/135 | 0/200 | 0/203 | 0/173 | Post-test of impulsivity |
| 0/110 | 0/028 | 0/736 | 0/200 | Follow-up of impulsivity |
| 0/059 | 0/115 | 0/132 | 0/200 | Pre-test of weight |
| 0/008 | 0/200 | 0/204 | 0/142 | Post-test of weight |
| 0/007 | 0/105 | 0/138 | 0/200 | Follow-up of Weight |

In M box test, if the significance value will be larger than 0.01, the assumption will be approved.

Table 6) Equality of covariance matrix test in post-test and follow-up stages

| Sig. | Second degree of freedom | First degree of freedom | F | Box M | |
|---|---|---|---|---|---|
| 0/212 | 141120/00 | 3 | 1/502 | 4/884 | *Post-test* |
| 0/282 | 141120/00 | 3 | 1/272 | 4/137 | Follow-up |

According to table 6, the assumption is confirmed. The homogeneity of variances in groups is another assumption. This assumption is evaluated by Levene test. As can be seen in Table 7, the significance value in both post-test and follow-up is more than 0.05. So, it can be claimed that variance of groups has the necessary homogeneity.

Table 7) Levene test to investigate the homogeneity of variances in post-test and follow-up

| Sig. | F | First degree of freedom | Second degree of freedom | |
|---|---|---|---|---|
| 0/121 | 2/553 | 28 | 1 | Post-test of impulsivity |
| 0/157 | 2/115 | 28 | 1 | Follow-up of impulsivity |

| 0/056 | 2/546 | 28 | 1 | Post-test of weight |
| 0/051 | 1/193 | 28 | 1 | Follow-up of weight |

The homogeneity of regression coefficients is another important assumption of MANCOVA. The homogeneity of regression coefficients is evaluated through two variables (impulsivity and weight) pre-test interaction and independent variable in post-test and follow-up stages. The results are provided in Table 8 below.

Table 8) Lambda Wilks' value of interaction to study the homogeneity of regression coefficients

| Squared Eta | Sig. | F | Lambda Wilks | | |
|---|---|---|---|---|---|
| 0/212 | 0/064 | 3/099 | 0/788 | Post-test | |
| 0/256 | 0/039 | 3/780 | 0/744 | Follow-up | Interaction |

As it can be seen, lambda Wilks' multivariate statistic is not significant at confidence level of 0.95. Therefore, the assumption of homogeneity of regression coefficients is confirmed.

Table 9) Lambda Wilks multivariate statistics

| Squared Eta | Sig. | F | Value | | |
|---|---|---|---|---|---|
| 0/879 | 0/000 | 83/264 | 0/121 | Post-test | Lambda Wilks |
| 0/891 | 0/000 | 90/035 | 0/109 | Follow-up | |

According to Table 9, lambda Wilks multivariate statistic is significant at 0.99. Thus, the null hypothesis of covariance is rejected. The analysis in follow up stage shows the same results. Therefore, it can be concluded that multivariate covariance analysis is generally significant.

Since there is more than one dependent variable, the follow-up tests should be conducted to investigate that where is observed difference in linear combination. For this purpose, the Bonferroni post hoc test and paired comparisons are used. The post hoc test results are reported

in Table 10.

Table 10) Bonferroni post hoc test and paired comparisons

| Sig. | Standard error | Change source | | Dependent variable |
|---|---|---|---|---|
| 0/000 | 1/399 | Post-test | Difference between experiment and control groups in: | Impulsivity |
| 0/000 | 1/243 | Follow-up | | |
| 0/004 | 1/044 | Post-test | Difference between experiment and control groups in: | Weight |
| 0/000 | 1/141 | Follow-up | | |

According to Table 10, there are significant differences between impulsivity and weight of experimental and control groups in post-test and follow-up.


**4. Discussion and conclusion:**

The findings are as follows: 1) Dialectical psychotherapy was effective in reducing impulsivity score. This treatment was also effective in maintaining impulsivity control at 6 months follow up. 2) Effectiveness of dialectical psychotherapy in weight loss was more than regimen therapy; this treatment prevented from recurrences of weight after 5 months.

The findings related to impulsivity variable are consistent with some studies including F. Madeddu and E. Preti (2015). Madeddu reviewed the studies conducted from 1991 to 2015 and concluded that DBT impacts on reducing impulsivity, especially in people with Borderline Personal Disorder (BPD) (49).  In another study, Glenn and Klonsky (2010) investigated the self-injury but non-harmful behaviors of impulsive individuals.They proved that dialectical psychotherapy impacts on reduction ofthese behaviors which are direct results of impulsivity (50).

However, the findings showed that dialectical psychotherapy impacts on reduction of

impulsivity. The maintenance of this situation was confirmed in 5-month follow-up. This method was more effective than regimen therapy in weight loss. In follow-up stage, it was proven that it can be effective in prevention from its recurrence.

**References:**

1. AfkhamiArdekani M, Sedghi H. Diabetes and obesity: the most common metabolic disorders in the world. Yazd University of Medical Sciences. 1381.(FULL TEXT IN PERSIAN).

2.MosavianN,MoradiA,MirzaeeJ,Shidfar F, MahmoudiKahriz B: The effectiveness of mindfulness-based cognitive therapy on weight loss: the journal of thought and behavior,

3. http://www.chaghiclinic.ir/index.php?m_id=19

4. http://vista.ir/content/137272/%DA%86%D8%A7%D9%82%DB%8C/#fat

5. Gary D Foster, Angela P Makris, and Brooke A Bailer. Behavioral treatment of obesity. Am J ClinNutr 2005;82(suppl):230S–5S. Printed in USA. 2005

6. Chantal Nederkoorn, Esther Jansen, Sandra Mulkens, Anita Jansen; Impulsivity predicts treatment outcome in obese children; Received 16 January 2006; received in revised form 8 May 2006; accepted 19 May 2006.

7. HamedEkhtiari, MehrnazRezvanfard a, AzarakhshMokri. Impulsivity and its Different Assessment Tools:A Review of View Points and Conducted Researches. Iranian Journal of Psychiatry and Clinical Psychology, Vol. 14, No. 3, Fall 2008, 247-257(FULL TEXT IN PERSIAN).