

The Impact of Lived-Experience Based Therapy and Cognitive-Behavior Therapy on Body Mass Index and Self-Esteem among Obese Women

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Abstract

Introduction: Culturally sensitive psychological intervention among individuals with obesity has gained major attention among experts in psychological fields. The current study was to examine and compare the impact of the Lived-Experienced Based Therapy (LEBT) and Cognitive-Behavioral Therapy (CBT) on BMI and self-esteem among Iranian obese women in Esfahan City, Iran.

Method: The study used quasi-experimental method with pre-test, post-test and 3-month follow-up. The study population consisted of all females with BMI above 30, in Esfahan. Overall, 45 women (M= 34.11, SD= 5.60) were purposefully selected and randomly divided into three study groups. The sample was selected using online and display ads. Both treatment groups received 8 sessions of specific interventions from April to June 2018, while the control group did not receive any therapies. Data were collected using the global formula calculating BMI and Rosenberg Self-Esteem Scale (1965) and analyzed by SPSS-21 software. The ANCOVA and repeated measure ANOVA (i.e., Bonferroni test analysis) were used to compare three groups at three stages of pre-test, post-test and follow-up.

Results: The results showed that BMI and self-esteem in both experiment groups were significantly improved at both post-test and follow-up, compared to the pre-test and control group ($p < .001$). However, there was no significant difference between the effectiveness of CBT and LEBT in both stages of post-test and follow-up.

Conclusion: Both psychological therapies are effective to address low self-esteem and high BMI of obese women.

Declaration of Interest: None

Key words: Lived-Experience Based Therapy, Cognitive-Behavioral Therapy, Body Mass Index, Self-Esteem: Obese, Women.

Introduction

Obesity is one of the main risk factors for many diseases, including physical illnesses (i.e., cardiovascular disease and type-2 diabetes) (1) and mental disorders (i.e., eating disorder and lack of self-esteem) (2). According to the latest WHO's report (3), near to 2 billion

adults aged over 20 are overweight, which is estimated to be the main cause of almost 3.4 million mortalities annually worldwide. To address this dramatic issue, many studies have been conducted focusing on a wide variety of fields including the identification of the causal

factors of obesity (4), the consequences of obesity (5), the efficacy of existed treatments (6), the prevention of overweight relapse (7), and effective mechanisms in the treatment of obesity (8, 9).

According to on Wooley and Garner (10), however, more than 95 percent of mere dietary-based therapies failed to treat obesity with a high rate of relapse. These poor results led to the development of new thoughts on mere dietary-based therapies which in turn resulted in the abandonment of such treatments. For example, for the first time in 1992, it was warned about the adverse effects of such treatments at the National Institutes of Health Summit due to the failure of weight loss using such therapies for the sustained recovery. At the summit, it discussed that mere dietary-based therapies result in adverse psychological consequences (i.e., harms to self-esteem) (11), occasionally irreversible effects (12), negative effects on mental and social functioning (13) and eating disorders (14).

In fact, several studies indicated the lack of psychological needs among obese people, especially of self-esteem, in mere dietary-based therapies (14, 15). For instance, when sometimes obese people fail to follow their diet-based therapy, they blame themselves for their relapse. Consequently, this self-criticism drives them towards the destruction of self-esteem. As a response to this, a new generation of studies focusing on psychological perspectives has emerged in order to fight against the obesity problem until today (16).

In contrast to the traditional vision of diet as the key cause of obesity, several psychological therapies have been proposed to treat obesity. The current study considered two main types of therapies including Cognitive-Behavior Therapy (CBT) and Lived-Experience Based Therapy (LEBT). The CBT, as an effective treatment for many psychological disorders (8, 9), focuses on the

identification of behavioral, emotional and cognitive patterns that affect overeating among obese individuals. Therefore, it is important to mention that the prerequisites of obesity treatment are to identify eating behaviors, to modify thoughts, to adjust new body perceptions and to improve self-esteem (17, 18).

However, the LEBT, a newly designed therapy, rests originally on a new psychological perspective on obesity treatment with the lens of cultural angles (19-21). This approach argues that obesity is a culture-formed disease and since different people across dissimilar cultures perceive obesity differently, it should be inevitably treated based on individuals' living experience in their own heritage cultures. For example, Gandzaglo (22) revealed that there is a statistically significant difference between appreciation of overweightness and its differentiation from obesity, as a threat to health, in different cultures. In addition, motivations behind eating behavior are influenced by specific characteristics of a culture encompassing factors that can give greater insights into global health problems of obesity. Accordingly, it is argued that obesity is a cross-cultural concept that should be treated based on the psychologically cultural-specific needs rather than offered global therapies (i.e., CBT). Moreover, self-esteem and weight may be seen as components of self-perception (23) influenced by a cultural context (24). Although there are guidelines for identification, evaluation, and treatment of obesity (i.e., CBT), there is no a generally-accepted approach to recommend a cultural-specific therapeutic treatment (25). However, the LEBT approach asserts that psychological and psychical needs (i.e., self-perception) of people are culture-bound. Thus, the LEBT could be considered an effective therapy for obesity treatment.

However, in spite of the increasing prevalence of obesity in Iran among women and the consequent increased

overweightness and overeating among obese females (26-28), the psychological implications for treatments of these individuals, especially in Iranian culture, have not been properly addressed (28, 29). Alvani and his colleagues (30) reported that there is a significant association between gender differences, self-esteem, and body weight status among Iranians. In particular, they reported that Iranian females are vulnerable to higher weight levels and their self-esteem is more sensitive to overweightness than that of males. On this basis, a specific-culture therapy may be considered as an effective method to address the obesity and low self-esteem among Iranian, compared to the globally recognized therapies such as CBT.

Given the increasing prevalence of overweightness and obesity in Iran, it seems imperative that researchers seek and improve therapies for cultural-specific treatments. Accordingly, the current study aims to find out whether LEBT is an effective method, compared to the other recognized therapy, namely CBT, in improving self-esteem and BMI among obese females in regional cultures in Iran. In fact, the main question of the current study is "Is the effectiveness of LEBT different from CBT in terms of improving self-esteem and BMI among Iranian obese women?"

Methods

The research also was approved by the ethics committee (Ethical code: IR.UI.REC.1390.030) in the department of psychology at the university of Isfahan, Iran. Participants were fully informed about the purpose of the research to the effect that participation in the intended research is voluntary and anonymous and that all could withdraw from the study at any time.

Design

The present study is a quasi-experimental study with the pretest-posttest design consisting of experimental and control groups with a three-month follow-up study. The statistical population of the current study included all women with obesity, Body Mass Index (BMI) above 30, in Esfahan city, Iran.

For each experimental group (32, 33), a 12-individual sample was selected. However, three additional subjects were added into each group so as to cover the probability of the sample being dropped during the interventions. As such, for each group 15 subjects were invited to participate in the study through placing ads on web-based social networks as well as in different psychological centers in Esfahan City. The content of the ads called for participating in a free psychological treatment at a psychological center, Aban psychological clinic. All interventions were held at the clinic in successive group sessions. Interestingly enough, none of the participants dropped or left the study.

Overall, 45 subjects were purposefully selected and were randomly divided into three groups of CBT, LEBT, and Control. Inclusion criteria included 1) age range between 18 and 55 years old, 2) the least educational level of diploma, 3) no history of psychiatric and eating disorders, 3) no history of underlying disease causing obesity, and 4) no history of any special dietary or/and psychological treatments. However, the participants were informed that they were allowed not to attend the sessions, if any, only once. After stating their oral consent and filling a consent form, subjects were randomly divided into two experimental groups ($N_{\text{CBT}} = 15$ and $N_{\text{LEBT}} = 15$) and control group ($N = 15$) based on the random numbers given to each participants. Next, the numbers given were arranged in ascending order. The first 15 subjects were assigned to CBT group, the second 15 individuals were assigned to LEBT group, and the rest were assigned to a control group. Before conducting the interventions, each group was required to

fill in Self-esteem scale, and the BMI of each subjects was calculated.

In addition, the first author separately conducted 8 sessions of CBT and LEBT programs for each experiment group on a weekly basis over an 8-week period from April to June 2018. Each session of therapy lasted between 60 and 90 minutes ($M= 67.32$, $SD= 4.31$). Both intervention processes were held at a training room provided by the manager of Aban psychological center. The researchers used a rigorous protocol and group dynamics in 8 sessions to test the effects of CBT and LEBT programs on subjects (Table 1 and 2). However, LEBT sessions (Table 2) were established using a treatment protocol developed based on the lived experience of individuals by authors. In this method, first, individuals were interviewed and their psychological needs were identified (31). It is important to mention that the lived-experience treatment package was specifically designed based on the initial validation process for the current research and it was relied on credible sources (35). The agreement of the reviewers on the treatment structure, duration of treatment, and duration of each session were 0.82. In a pilot study, both executive and operational validity of the lived-experience based treatments were evaluated and approved using six individuals. However, a series of warm-up activities (such as singing together, simple healthy exercise, etc.) were given at the start of each intervention to provide subjects with an enjoyable interaction and encourage contributions to the therapy process.

Measures

Body Mass Index (BMI) was calculated based on the global formula of BMI in which weight (kg) is divided by the square of height (Meter) (i.e., $BMI = W / H^2$). This is the most commonly used method for measuring obesity (35). Usually, accepted BMI ranges include *underweight* (under 18.5 kg/m^2), *normal*

weight (18.5 to 25), *overweight* (25 to 30), and *obese* (over 30).

Self-esteem was measured using the Rosenberg's Self-Esteem Scale. The scale has 10 items rated on a 5-point Likert-scale ranged from strongly disagree 1 to strongly agree 5. Therefore, the total score constructed by adding the item scores ranges from 10 to 50 with higher scores reflecting a higher level of self-esteem. This scale is one of the most empirically reliable and validated scales to assess self-esteem, widely used by researchers on the Iranian samples with obesity problems (30, 35). For example, Alvani and his colleagues (30) reported the reliability of inventory as highly reliable ($\alpha=0.95$). Likewise, strong alpha was obtained in the current study ($\alpha=0.85$).

Analytical Approach

Descriptive statistics were conducted with means and standard error using SPSS-24 software. The inferential analysis tests including ANCOVA and one-way repeated measure ANOVA were used to test the effectiveness of both therapies and to draw a comparison between the control and both experiment groups in BMI and self-esteem of participants.

Results

Forty-five females with BMI above 30 participated in the current study. As Table 3 shows, subjects aged from 24 to 45 years old ($M= 34.11$, $SD= 5.60$) were selected and randomly assigned to the control group ($N_{Control}= 15$; $M = 32.73$ and $SD= 5.82$) and experiment groups ($N_{CBT} = 15$; $M = 34.93$ and $SD = 5.98$, $N_{LEBT} = 15$; $M = 34.67$ and $SD = 5.01$). Also, 20 percent of participants in the control group had a diploma, 40 percent a bachelor's degree and the rest a master's degree. Accordingly, the percent of individuals in the experiment group with diploma, bachelor and master's degrees, was 23.3, 46.7 and 30 respectively. In control, CBT and LEBT groups, 73.3, 66.7 and 40 percent of participants were single,

respectively. However, the rest was reported as married individuals.

Before conducting the main analysis, the primary result showed no significant difference between demographic variables and the study groups (control and experiment groups) in terms of BMI and self-esteem. In addition, the results of the Shapiro-Wilk test showed that data distribution of self-esteem and BMI scores in control and in both intervention groups were insignificant at the pre-test stage illustrating the normal distribution of data (BMI: $Z_{\text{Control}}= 0.97$, $p= 0.36$; $Z_{\text{CBT}}= 0.98$, $p=0.49$; $Z_{\text{LEBT}}= 0.94$, $p=0.46$, Self-esteem: $Z_{\text{Control}}= 0.97$, $p= 0.65$; $Z_{\text{CBT}}= 0.97$, $p=0.57$; $Z_{\text{LEBT}}= 0.92$, $p=0.47$).

Prior to performing the comparison, the assumptions of this type of analysis were examined. As explained, both self-esteem and BMI scores were normally distributed. According to Levene's test and Box's M, the F value was not significant in both self-esteem and BMI scores in the pre-test, post-test and follow-up stages (Table 4)

shows the homogeneity between study groups and between all test stages.

However, after controlling the effect of the pretest, both experiment groups had an effective impact on the improvement of BMI and Self-esteem (Table 5). In fact, both CBT and LEBT interventions significantly improved BMI and self-esteem of the participants, compared to the control group in the post-test and follow-up study.

However, to compare the effectiveness of two intervention groups, one-way repeated measure ANOVA using the Bonferroni test was conducted (Table 6). The result showed that after controlling the effect of pre-test, both CBT and LEBT interventions reduced the BMI and improved the self-esteem of participants in both stages of post-test and follow-up studies, compared to the control group. In contrast, no significant differences were observed between CBT and LEBT interventions in both stages of post-test and follow-up studies.

Table 1. The description of each session in CBT

Session	Description
Session 1	Educational training on the overeating, its causes, and consequences was discussed. In addition, individuals were informed about the treatment plan, group rules, overeating disorders, overeating drivers, and symptoms.
Session 2	It involved the individuals in driver sequence training, response-outcome, and healthy eating habits where they were exposed to the review of previous session assignments, discussion of potential client drives and healthy eating habits training.
Session 3	Subjects were trained to recognize the association between thoughts, feelings, behaviors and cognitive bias. Moreover, after reviewing the current conditions and tasks, the cognitive-behavioral model training and classification of negative self-thoughts were discussed.
Session 4	It trained individuals in distinguishing the challenge of ineffective thoughts and discussed the participants' thoughts cycle and cognitive bias.
Session 5	Involves in activities of mood improvement and self-control skills. In particular, after reviewing the previous tasks, impulse control training was conducted and enjoyable activities were discussed.
Session 6	Strategies for increasing self-esteem and problem-solving ability were taught.
Session 7	It includes the training in stress management, coping strategies, and relaxation
Session 8	Finally, a relapse prevention training where individuals learned to utilize avoidance strategies to overeating relapse and training for exposure to risky situations was conducted. In addition, the participants' progress checked.

Table 2. The description of each session in LEBT

Sessions	Descriptions
Session 1	An evaluation of current conditions of subjects, and subjects' motivations were addressed. In addition, after giving an overview of the treatment plan, the personal history of each subject was evaluated, and strategies for instilling motivations for weight loss through creative helplessness were discussed
Session 2	It involved in the understanding of self-compassion concept, the identification of sources of negative emotions such as shame and self-reproach, an introduction of three emotion regulation systems (including, threatening, rewarding and soothing systems). In addition, subjects trained to write self-compassion letters for themselves.
Session 3	After reviewing previous assignments, participants were introduced to the frameworks of mind communication, emotion blending, and emotion regulation in order to manage eating behaviors.
Session 4	The association between certain stressful events and physiological reactions to stress and the tendency to reduce it through eating was discussed.
Session 5	Emphasis on the conscious focuses on eating behavior, body scan, breathing, and body.
Session 6	The control of stress and anxiety by focusing on the body, and identification of the core emotions (anger, sadness, love, and hate) was informed.
Session 7	Subjects trained to reduce vulnerability to negative emotions, and allow negative emotions to emerge. It dedicated to the commitment to the treatment. In addition, the identification of committing values and reflection of these values and motivation to follow these values in life were discussed.
Session 8	Individuals exposed to avoidance strategies to reduce the probability of overeating relapse and prepared to encounter such conditions.

Table 3. Mean and Standard Division of Study groups in three stages of pre, post, and follow-up tests.

Stage	Variables	Study Groups					
		Control Group		CBT		LEBT	
		M	SD	M	SD	M	SD
Pre-test	BMI	31.53	1.40	31.76	.93	31.53	1.40
	Self-esteem	18.00	4.50	18.13	4.54	18.00	4.50
Post-test	BMI	31.42	1.47	31.17	.79	31.42	1.47
	Self-esteem	22.40	3.94	20.60	4.22	22.40	3.94
Follow-up	BMI	31.41	1.39	31.07	.79	31.43	1.39
	Self-esteem	23.00	3.35	21.26	3.91	23.01	3.35

Table 4. Levene's test and Box's M for homogeneity of variance between study groups and study stages.

Levene's test					
	Stages	F	Df1	DF2	P value
BMI	Pre-test	0.15	1	28	0.71
	Post-test	0.01	1	28	0.96
	Follow-up	0.23	1	28	0.64
Self-esteem	Pre-test	0.66	1	28	0.42
	Post-test	1.12	1	28	0.28
	Follow-up	0.83	1	28	0.37
Box's M					
BMI	3.32	0.49	6	5680.30	0.82
Self-esteem	6.29	0.93	6	5680.30	0.48

Table 5. Results of ANCOVA for post-test and follow-up studies for both CBT and LEBT interventions while controlling the effect of the pre-test

Variables	Statistical indicators	CBT			LEBT				
		Sum of Square	DF	Mean Square	F	Sum of Square	Mean Square	F	
BMI	Posttest	Pre-test	34.32	1	34.32	183.12**	44.01	44.01	303.33**
		Group	1.58	1	1.58	8.42*	1.183	1.183	8.153**
	Follow-up	Pre-test	22.51	1	5.62	47.06**	40.57	40.57	281.7**
		Group	2.13	1	2.13	10.72**	1.51	1.51	10.46**
Self-Esteem	Posttest	Pre-test	337.13	1	337.13	69.98**	260.08	260.08	38.916**
		Group	27.13	1	27.13	5.63*	122.28	122.28	18.298**
	Follow-up	Pre-test	234.07	1	234.07	45.51**	181.31	181.31	35.401**
		Group	24.79	1	24.796	4.82*	139.98	139.98	27.33**

Note. *= significant p<0.05 & ** =Significant at p<.001

Table 6. The comparison between study groups using Bonferroni test while controlling effect of pre-test

Stage	Groups	Means Difference	Standard Errors	P			
BMI	Posttest	Control	CBT	-3.131	0.26	0.001	
		LEBT	-3.729	0.35	0.001		
	Follow-up	Control	CBT	LEBT	-.860	0.32	0.06
		CBT	LEBT	-2.337	0.24	0.001	
Self-Esteem	Posttest	Control	CBT	3.800	0.58	0.03	
		LEBT	4.133	0.35	0.02		
	Follow-up	Control	CBT	LEBT	2.333	0.20	0.22
		CBT	LEBT	3.733	0.40	0.03	
		LEBT	4.400	0.21	0.001		
		CBT	LEBT	2.667	0.18	0.12	

Discussions and Conclusion

The question of either CBT or LEBT can outdo in terms of improving BMI and self-esteem of female participants suffering from obesity was the subject of the empirical analysis of the current study. Using randomized controlled trials along with follow-up studies, the authors identified that both treatments are successful in maintenance of a weight loss and in improvement of the self-esteem of participants.

The primary results indicated both CBT and LEBT programs have a significant effect on BMI and self-esteem of participants, compared to the control group. In particular, both CBT and LEBT improved the participants' BMI and self-esteem directly after both interventions. In addition, according to the results of follow-up studies, both therapies had

lasting effectiveness and improved the BMI and self-esteem of participants even after three months, compared to the control group.

Regarding the effectiveness of CBT, our findings were consistent with previous findings indicating the effectiveness of CBT on the BMI and self-esteem of obese individuals among both Iranians (8, 17, 18) and foreigner subjects (1, 9). On a sample of Iranians, Sohrabi and his colleagues (17) reported that CBT effectively reduced the BMI score and improved the self-perception of overweight participants. This effect significantly sustained and improved both BMI score and the self-perception in post-test and follow-up. Consistently, Amel and his colleagues (18) showed that the effectiveness of CBT on the improvement

of self-esteem and BMI of Iranians suffering from obesity.

Altogether, the results obtained may be justified in three aspects. First, CBT is to modify the subjects' thinking styles and behaviors. According to Nederkoorn and others (36), obese people lose their internal control and engage in destructive eating behavior as soon as they deviate from the diet program. However, one of the main plans of the CBT program is to learn to control tempting overeating thoughts during and after the treatment. Second, CBT is to activate executive function and reward-processing areas in the brain which would result in the subsequent process of weight loss after the therapy (38). Third, CBT helps obese people to control their eating behaviors in emotional situations (9, 17, 37).

Regarding the LEBT, however, the subjects experienced low levels of self-esteem stemming from the high self-criticism that is often reported among individuals with obesity problem (31). Accordingly, we found evidence supporting the role of self-compassion and emotional-regulation training to maintain a weight loss and to enhance the self-esteem of Iranian obese females (39). In particular, the lived-experience based therapy, through focusing on cultural needs of individuals, showing how to accept these psychological needs, and clarifying unpleasant experiences, helps the clients to re-organize their past experiences and be more tolerant of unpleasant current experiences leading to overeating or control loss over their eating behaviors. According to Klaczynski and his colleagues (40), low control over the body-weight gain impacts on the self-esteem of obese people particularly in a culture in which overweight people are devaluated- a scenario which is true in Iran's today's cultural atmosphere. (37). In addition, according to Ranjbar and his colleagues (41), the emotional regulation could significantly impact on the BMI and

self-esteem of Iranians in both in pre-test and follow-up stages.

However, concerning the main question of this study, that is, "Is there a difference between lived-experience based therapy and CBT of obesity?" no significant differences were found between the CBT and LEBT interventions. Apparently, the result rests on the theoretical assumptions of both therapies. CBT acknowledges that change in cognitions would eventually result in the changes in behaviors. However, LEBT focuses on the culture-based needs of individuals which mainly was the lack of emotional regulation and self-compassion of participants (31). LEBT, by improving emotional skills, ultimately result in behavior changes. In practice, regarding the outcomes of both treatments, they appear to be quite similar in terms of effectiveness. Each involves activities leading to decreasing intake by controlling eating behaviors and increasing levels of energy expenditure. In addition, certain overlaps were found among the specific educational techniques used in both therapies, in terms of the emotional or/and self-controls. Thus, it is not surprising that the treatments studied showed no significant difference in regard to the improvement of self-esteem and BMI of obese women.

Therefore, the authors recommend the clinicians and nutrition professionals seeking long-term weight control for their clients, to use both cognitive-behavioral strategies and lived-experience based techniques based on the cultural context of clients. However, due to the current study limitations including the selection of subjects from the cultural contexts of Esfahan, caution should be exercised in generalizing the outcomes in all cultural contexts of Iran. Nonetheless, it is recommended that current treatments be performed on other cultural communities with different sex, age, and cultural characteristics and their results be compared with those of the present study.

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