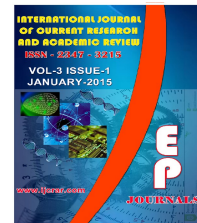




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### The effect of multidimensional treatment (Exercise, Nourishment and Cognitive Approaches) on body weight reducing and psychological health increasing of ladies in Tabriz

Mehrangiz Hosseini Charsi<sup>1\*</sup>, Fariba Askarian<sup>2</sup>, Sakineh Fotohi<sup>3</sup>, and Seyed Davood Hosseini Nasab<sup>4</sup>

<sup>1</sup>Member and Lecturer of Tabriz Behzisti's Elmi-Karbordi University, Tabriz, Iran

<sup>2</sup>Department of Sport Management, University of Tabriz, Tabriz, Iran

<sup>3</sup>Psychologist Lecturer of Tabriz Behzisti's Elmi-Karbordi University, Tabriz, Iran

<sup>4</sup>Department of Educational Psychology, University of Tabriz, Tabriz, Iran

\*Corresponding author

#### KEYWORDS

Depression,  
Self Respect,  
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Bodyweight  
Reduction,  
Cognitive  
Approaches

#### A B S T R A C T

The present study, the effect of multidimensional treatment (Exercise, Nourishment and Cognitive Approaches) on Reducing Body Weight and Increasing the Degree of Psychological Health of Ladies in Tabriz, was done in 2005. In this study, 40 volunteer subjects enrolled into the study and who were later placed in 4 subgroups after matching. For data collection, Lionel Code Ron's questionnaire, Cooper Smith's self respect forms, Ratter's source control, Hermann's Progress incentive, and Beck's Depression forms were used. For measuring the body weight we used standard scales. In this experimental and examining study for data analysis, deductive and descriptive statistics, covariance analysis, dependant and independent T-test one-sample T-test and variance analysis (ANOVA) were used for data analysis. Statistical data analysis showed that multidimensional treatment had a significant role in reducing bodyweight and decreased the rate of depression. Obese people are to some extent depressed and it is due to external control sources, and they tend to bear a large amount of stress related to character. Obese people had low self respect and it was negatively significant. Those with high progress incentive and internal control source responded better to bodyweight reduction. The idea that obese people belong to low social group was not significant.

#### Introduction

Obesity is a complex multifactor condition in which increased body fat can endanger the person's health. According to latest studies by the World Health Organization, more than 300 million adults suffer from

obesity around the globe. About 115 million people living in the developed countries of Europe and United States suffer from degrees of obesity varying between 15 and 25% (1-2).

Obesity is not an insignificant condition that can be controlled by the individual. It is a rather complex condition leading to impaired appetite regulation and energy metabolism. It finally leads to many complications and disease. Modern life styles are influenced by the excess consumption of compact high-energy foods and reduced chance and motivation for physical activities. According to the reports, 25% of American adults are physically inactive and more than 60% do not have the recommended regular physical activities for 30 minutes a day. About 14% of young individuals aging between 12 to 21 years do not have any physical activity and about half the youth in this age range do not have any major physical activity. A total of 300,000 estimated preventable deaths occur every year in the United States due to unhealthy diets and lack of physical activities. The aforementioned causes are two of the important factors involved in obesity (3-4). Since no study has been conducted on the level of obesity in Iran, no relevant statistics are available. As a result, the Iranian society is experiencing many of the severe complications of obesity.

On the other hand, as a result of the wrong culture of overeating and the excessive emphasis on the consumption of cookies, nuts and fatty Iranian food (which are mostly fried) people receive a high amount of calories on a daily basis. The lack of effective physical activity at home is the result of today's mechanical life in which home appliances work with remotes. In addition, due to the lack of specific places for public sports (especially for women) and the high cost of gyms the rate of obesity and weight gain has been increasing(5).

Fatty diet is one of the major causes of breast cancer, colon, rectum, and prostate and also one of the causes of many cardiac diseases and also brain stroke(6).

Weight control is one of the important measures taken in industrial countries. One of the major health issues in many countries is obesity. People that weigh more than the ideal weight deal with many physical problems. In addition to physical conditions especially in societies valuing slimness, due to the unpopularity of fat people, obesity can cause many mental problems. The reason is that it completely violates the aesthetic norms of the society. Moreover, obesity can lead to many health conditions such as increased blood pressure, cardiac diseases, different kinds of allergies, sinus attacks, etc(3-4).

Unfortunately, the amateur efforts by some people to reduce their weights only lead to increased weight(5).

Following specific diets can lead to overeating. Many have taken advantage of this trend as people spend great deals of money on weight loss drugs which cause many complications. Different surgical practices such as stomach bypass or intestine bypass, fat extraction through open surgery and liposuction have all led to dangerous complications which are more dangerous than obesity. Fitness salons with their exaggerated funny advertisements claiming to reduce 30 kilograms a day charge their clients high costs. Their practices are either fruitless or damaging as they sometimes lead to hospitalization as a result of lack of body water, attenuation of muscles, shortage of vitamins, etc. It seems that it is necessary to approach this issue with full awareness so as to prevent and minimize side effects (5-6).

Another thing that adds to the significance of this research is the necessity of improving the mental health of the society to prevent depression and insolvency. Increasing self-confidence, changing predictions, reinforcing progress, internalizing

motivations and preventing stresses imposed on people can improve mental and physical health of individuals.

The present research aims to use the best method for reducing weight, which is to use a combination of exercise, diet, and physiological strategies. This method not only helps reduce weight but also is helpful for improving mental health.

## **Methods**

In a clinical trial carried out on obese women, the contributions of exercise, nutrition, and psychological strategies to the weight loss of these individuals were studied.

In this study, 40 obese women were classified randomly into the following 4 groups: control group; exercise group; exercise and nutrition group; and exercise, nutrition and strategic techniques group. The samples were included in the study voluntarily. Different subgroups were matched based on different research variables. Lionel Code Ron's questionnaire, Cooper Smith's self respect forms, Ratter's source control, Hermann's Progress incentive, and Beck's Depression forms were used for the data collecting and patient's evaluation.

The use of scale and calculation of weight in terms of kilograms are approved as scale is a standard and widely accepted device with confirmed reliability and validity. Nutritional assessment included taking note of all of the consumed foods and the numbers of consumption in 24 hours. It also included questions about hunger, satiety, and nutritional habits.

## **Statistical analysis**

The collected data were analyzed by SPSS-17 statistical software. The collected data

were expressed as percentage and mean  $\pm$  SD. Continuous (quantitative) variables were compared by Independent samples and Paired T test. Categorical (qualitative) variables were compared by contingency tables and Chi-square test or Fisher's exact test. P-value  $\leq 0.05$  was considered statistically significant.

## **Results and Discussion**

After exposing the first group to psychological strategies, exercise and nutrition, the weight of the members along with their stress and depression levels declined. In addition, the loci of control became more internal and the self-esteem and achievement motivation of the patients increased ( $P < 0.001$ ).

After exposing the second group to exercise and nutrition, the weight of the members along with their stress and depression levels declined. In addition, the loci of control became more internal. However, no changes were observed in self-esteem while their achievement motivation escalated ( $P > 0.05$ ). After exposing the third group to exercise, the weight of the members along with their stress and depression levels declined. In addition, their loci of control became more internal and their self-esteem and achievement motivation escalated.

Members of the fourth group demonstrated weight gain after a specific period of time and reported increased levels of stress and depression. Their loci of control became more external while their self-esteem and achievement motivation declined. Research results indicated that although BMI of the group with a higher achievement motivation was lower than that of the group with lower achievement motivation, no significant difference was observed between the responses of the two groups to the different weight loss methods.

The multidimensional method had more effect on weight loss and is acceptable. The calculations conducted in this research suggest that the relationship of the multidimensional method and post-treatment weight with invariant pre-treatment weight is strong.

The multidimensional method had a higher impact on increased self-esteem. This method was significantly more successful in turning the loci of control to an internal loci of control compared to the other methods. The multidimensional method was also significantly more effective for reducing stress as compared to the other two methods. Demographics findings of patient's in four groups were shown in Table I. Evaluation of studied parameters in Group I to IV were shown in Table II to V. Evaluation of studied parameters after intervention were shown in Table VI. Correlations of studied parameters in patients of four groups were shown in Table VII.

People with high achievement motivation respond better to weight loss methods. Results indicated that although the weight of members in the group with high achievement motivation was lower than that of the group with lower achievement motivation, no significant difference was observed between the responses of the two groups (Table VII).

According to McClelland (1981) and Atkinson (1967), people with high achievement motivation do better than people with low achievement motivation in many field such as education, profession, marital life, and physical appearance. The results of this research in this regard did not comply with the beliefs of the aforementioned researchers(7-8).

People with internal locus of control respond better to weight loss treatment methods. Research results suggest that there was no

significant difference between the responses to weight loss treatment methods (Table VII).

According to Williamson(1988), people with internal locus of control are healthier than people with external locus of control. The former ones have more health care information and take more practical measures to save their health (9).

Speaker (1983) showed that there is a linear relationship between mental obstacles and locus of control. Therefore, people with a more internal locus of control demonstrate fewer signs (10).

Results of the present research do not comply with the aforementioned beliefs and perhaps it can be said that Iranians, especially Iranian women, have external locus of control.

Results indicated that there was a significant difference between the results of the group being treated using the multidimensional method and the group receiving exercise. The difference between the results of the aforementioned group and the nutrition-exercise group was also significant. However, no significant difference was observed between the results of the exercise group and the exercise-nutrition group (Table VII).

The results of the present study complied with the results of the study by Kennedy (1971), Müller (2013) and Viner et al. (2006), according to these studies, use of psychological strategies with other treatment methods contributes to weight loss and control. This combination also adds to the success of the individuals (11-13). The level of depression also dropped significantly following exercise (Table VI).

**Table.I** Demographics findings of patient's in four groups

		Group			
		I	II	III	IV
Education	Under diploma	1	1	0	1
	Diploma	6	3	3	1
	Associate Degree	2	1	2	4
	Bachelor of science	1	5	5	4
Socio-economic status	Moderate	0	1	1	0
	Good	2	4	2	2
	Very Good	2	2	3	4
	Excellent	6	3	4	4
Age(year)	33.9 ± 10.67	30.30 ± 6.81	36.8 ± 8.38	33 ± 14.09	
Height(cm)	160.8 ± 5.88	160.60 ± 5.88	158.5 ± 6.99	158.40 ± 6.63	
Primary Weight(kg)	93.3 ± 16.84	89.3 ± 16.55	74.1 ± 10.8	75.2 ± 10.69	

**Table.II** Evaluation of studied parameters in Group I

	Before	After	P
Health life stress	42.5 ± 17.98	20.5 ± 8.95	0.007
Personal life stress	46.5 ± 15.82	17 ± 14.18	<0.001
Personality Stress	11.8 ± 3.45	7.1 ± 2.64	0.001
Depression	19.1 ± 8.46	8.7 ± 5.61	<0.001
Source of Control	12.6 ± 1.5	9.8 ± 1.54	<0.001
Self esteem	30.8 ± 5.43	38.4 ± 3.27	<0.001
Motivation Achievement	57.3 ± 5.57	64.8 ± 7.72	<0.001
BMI_1	35.99 ± 5.9	29.91 ± 4.14	<0.001

**Table.III** Evaluation of studied parameters in Group II

	Before	After	P
Health life stress	35.5 ± 16.57	35 ± 16.83	0.832
Personal life stress	34.5 ± 23.5	30.5 ± 18.47	0.121
Personality Stress	11.1 ± 3.78	10.5 ± 2.95	0.26
Depression	14.6 ± 8.23	14 ± 10.6	0.638
Source of Control	10.20 ± 1.47	9.8 ± 1.54	0.309
Self esteem	29 ± 5.52	28.55 ± 6.96	0.716
Motivation Achievement	59.2 ± 8.96	60.1 ± 8.87	0.287
BMI_1	34.5 ± 5.23	32.17 ± 4.44	<0.001

**Table.IV** Evaluation of studied parameters in Group III

	Before	After	P
Health life stress	44.5 ± 15.53	37.5 ± 13.59	0.066
Personal life stress	40.5 ± 32.35	32 ± 16.86	0.141
Personality Stress	7.8 ± 2.93	7.3 ± 2.26	0.138
Depression	16 ± 10.46	9.8 ± 4.68	0.02
Source of Control	10.9 ± 2.42	9.9 ± 2.23	0.001
Self esteem	33.4 ± 9.96	36.8 ± 6.64	0.038
Motivation Achievement	61.8 ± 9.58	65.5 ± 7.66	0.06
BMI_1	29.48 ± 3.78	69.2 ± 10.86	<0.001

**Table.V** Evaluation of studied parameters in Group IV

	Before	After	P
Health life stress	37.4 ± 16.11	40.5 ± 17.71	0.023
Personal life stress	42.5 ± 30.29	45.5 ± 30.3	0.051
Personality Stress	9.9 ± 3.44	10.5 ± 2.6	0.14
Depression	8.3 ± 7.1	9.5 ± 8.01	0.07
Source of Control	10.8 ± 1.54	11.1 ± 1.4	0.275
Self esteem	32.1 ± 4.04	31.5 ± 3.4	0.313
Motivation Achievement	52.8 ± 5.53	52.5 ± 5.33	0.343
BMI_1	29.91 ± 3.25	30.21 ± 3.26	0.028

Blumenthal et al. (1989) studied the effect of exercise on the mental health and the reduction in the depression of elderly (14). Harriger (2012) also indicated that exercise reduces depression (15).

The studies by Warschburger (2011) revealed that exercise leads to an increase in self-esteem, health, liveliness and agility as it reduces depression (16). The studies by Dalle Grave (2009) showed that exercise enhances self-esteem and the physical self-image and thus reduces depression (17).

Results of the present research comply with the aforementioned beliefs and suggest that exercise reduces depression. Obese people have low self-esteem. Results suggested that people suffering from overweight and obesity demonstrate a higher level of self-esteem compared to the norm. The difference was significant and was confirmed inversely (Table VII).

According to Rodin (1989), Dohm (2001), Striegel-Moore (2007) and Alegria (2007), obese individuals have low self-esteem and high depression(1-4). However, the results of the present research did not comply with the results of the above studies. Perhaps it can be said that social culture and the value put on fitness and physical self-image by people give a low self-esteem to people. The Iranian culture, especially the culture governing the Azerbaijan Province does not condemn obesity. Perhaps the reason is that obese people have a self-esteem that is higher than the norms.

Alegria (2014) examined the direct effects of self-esteem, negative emotions and social stress on physical dissatisfaction and the strategies employed by boys and girls to change their bodies (18). The results indicated that social culture plays a role in physical dissatisfaction. Results of the present study were also consistent with the results of the study by Speaker (9).



**Table.VI** Evaluation of studied parameters after intervention

		Mean ± Std	P
Self esteem	Group I	38.4 ± 3.27	<0.05
	Group II	28.55 ± 6.96	
	Group III	36.8 ± 6.64	
	Group IV	31.5 ± 3.4	
Source of Control	Group I	9.8 ± 1.54	<0.05
	Group II	9.8 ± 1.54	
	Group III	9.9 ± 2.23	
	Group IV	11.1 ± 1.4	
Health life stress	Group I	20.5 ± 8.95	<0.05
	Group II	35 ± 16.83	
	Group III	37.5 13.59	
	Group IV	40.5 ± 17.71	
Personal life stress	Group I	17 ± 14.18	<0.05
	Group II	30.5 ± 18.74	
	Group III	32 ± 16.86	
	Group IV	45.5 ± 30.3	
Personality Stress	Group I	7.1 ± 2.64	<0.05
	Group II	10.5 ± 2.95	
	Group III	7.3 ± 2.26	
	Group IV	10.5 ± 2.6	
Motivation Achievement	Group I	64.8 ± 7.72	<0.05
	Group II	60.1 ± 8.87	
	Group III	65.5 ± 7.66	
	Group IV	52.5 ± 5.33	
Depression	Group I	8.7 ± 5.61	<0.05
	Group II	14 ± 10.6	
	Group III	9.8 ± 4.68	
	Group IV	9.5 ± 8.01	

Obese people come from lower socioeconomic and cultural classes. Results suggested that the distribution of obese people over medium and intermediate social classes is higher than that of non-obese people. In addition, non-obese people demonstrated a higher distribution over the high and excellent social classes. However, no significant difference was observed (Table VII).

Escobar-Molina et al. (2014) examined the relationship of physical signs and obesity with stress and socioeconomic class. They concluded that there is a relationship between self-esteem, acceptance of self-image, anxiety and education weakness.

Striegel-Moore (2010) also showed that people from low social classes demonstrate a higher level of vulnerability to stress, physical diseases, depression and psychological disorder (5).

Results of the present research comply with the aforementioned viewpoints and no significant difference was also observed.

Obese people generally demonstrate different levels of depression. Research results showed that obese people show a higher level of depression with a significant difference.

**Table.VII** Correlation of studied parameters in patient's of four groups

		Mean ± Std	P
BMI_2	High Motivation Achievement	29.60 ± 4.18	0.685
	Low Motivation Achievement	32.57 ± 5.19	
BMI_2	Internal Source of Control	30.60 ± 4.48	0.246
	External Source of Control	29.06 ± 3.45	
Weight	Group I	77.4 ± 11.93	<0.05
	Group II	83.2 ± 13.85	
	Group III	69.2 ± 10.86	
	Group IV	75.9 ± 10.87	
Depression	Pre Test	16.56 ± 8.99	<0.001
	Post Test	10.83 ± 7.54	
Self esteem	Recent Study	31.05 ± 6.47	<0.001
	Cut of Point	25.4	
Weight	Moderate Socio-economic status	94.5 ± 14.84	0.504
	Good Socio-economic status	83.6 ± 18.44	
	Very Good Socio-economic status	77.7 ± 12.48	
	Excellent Socio-economic status	84.64 ± 15.97	
Depression	Recent Study	14.5 ± 9.21	0.021
	Cut of Point	11	
Personality Stress	Recent Study	8.89 ± 3.05	<0.001
	Cut of Point	5	
Source of Control	Recent Study	11.13 ± 1.96	<0.001
	Cut of Point	8.48	

Rodin et al. (1984) stated that people with negative self-image are depressed (6). Results of the research by McClelland (1981) also showed that depressed people have low self-esteem and negative feelings for their physical appearance (7). Results of the aforementioned research comply with the aforementioned beliefs as they also suggested that obese individuals show different degrees of depression. In addition, it was reported that treatment of obesity will reduce depression.

Obese people bear a lot of stress. Results showed that overweight people with overweight and obesity bear a higher degree of personality stress compared to normal

people. The difference was also found to be significant.

The studies by Atkinson (1967) and Rodin (1984) also studied the relationship between stress and outbreak of physical signs (9, 7). These researchers showed that a high level of stress leads to the outbreak of the signs of physical and mental diseases. The studies by Wilson (2005) indicated that stress causes different psychosomatic diseases as well as physiological changes (20). The disorders and changes can disturb the immune system, gastrointestinal tract, and the circulatory system and cause bulimia, eating disorders, and bad eating habits (20).



The research by Berkman (2006) also indicated that stress is associated with eating habits, cardiovascular diseases and physical weakness (21). Results of the study by Peterson (1999) revealed that there are differences between the personality traits of people and some traits increase the chance of development of diseases. Stress and chronic emotional stimuli lead to ulcer. As a result, people try eating more so as to reduce gastric acid unaware of the fact that this leads to obesity (22).

Results of the present research comply with and confirm the results of the aforementioned research. The source of control of obese individuals is significantly more external than normal people. However, following treatment the source of control of individuals becomes more internal with insignificant progress.

According to the evidence provided by Christiansen (2007) and Wadden (1997), people with internal source of control are more sensitive to the consequences of health and put more effort in enhancing their health conditions (23-24).

Douketis (2005) carried out studies which showed that people with internal sources of control have more information on health care and have a positive attitude to exercise. The probability of development of cardiac diseases in such people is lower (25).

The studies by Lemmens (2008) also showed that people with internal source of control demonstrate a better mental condition than people with external source of control (26). However, results of the present research do not comply with the aforementioned results. This nonconformity can be ascribed to the Iranian culture.

Green (2005) conducted studies in India which suggested that the belief of women in external control source is significantly deeper than men (27). Results of the present research comply with the results of the studies by Rodin(1).

### **Conclusion**

People with higher achievement motivation respond better to weight loss methods. Although the BMI of the group with higher achievement motivation was lower than the group with lower achievement motivation, the differences between the responses of the two groups to weight loss methods were not significant. People with internal source of control responded better to weight loss methods, but the differences between the results were not significant. Use of multi-dimensional methods helped the individuals achieve more weight loss. The differences between the results were significant. In other words, the first group demonstrated a performance better than the second, third and fourth groups. Exercise reduces depression significantly. Obese individuals have low self-esteem. Obese individuals show different levels of depression. The overweight and depression demonstrated by obese individuals were significantly higher than the norms. From the personality point of view, obese individuals bear more stress. Therefore, the levels of personality stress in people suffering from obesity and overweight are significantly higher than the norms. Obese individuals have external sources of control. Moreover, people suffering from overweight and obesity have a more external source of control compared to the norms and the differences were found to be significant.

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