

## COMPARISON EFFECT OF SMN METHOD AND LOW-CALORIE DIET (LCD) ON LOSE WEIGHT AND ENHANCE THE SELF-ESTEEM OF PEOPLE WITH OVERWEIGHT

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### ABSTRACT

*The purpose of this study was to compare the SMN method and low-calorie diet (LCD) to lose weight and enhance the self-esteem of people with overweight. In this clinical trial, and the population consisted of all overweight individuals referring to the nutrition clinics in Ardabil, the northwest of Iran. For this aim, 30 healthy women (BMI >25 kg/m<sup>2</sup>, age: 18-30 years) were randomly selected (for each group: 15 subjects). The Anthropometric measurement was done and the Eysenck Self-esteem questionnaire was completed before and after intervention among these persons. In this study, repeated measures ANOVA was used for analysis. The findings showed that there was a significant difference between two groups of SMN method and LCD (P<0.05). Also, the effect of SMN intervention on Lose weight and enhance the self-esteem of people with overweight was more effective than the effect of LCD. (Method SMN (self-esteem: 1.42±.10, weight: 72.26±10.70kg) and method LCD (self-esteem: 1.89±.07, weight: 73.26±8.62kg)).*

**Keywords:** SMN, low-calorie diet, self-esteem, overweight people.

### INTRODUCTION

Today, obesity is considered a public health problem and raised BMI is a major risk factor for no communicable diseases such as: cardiovascular diseases, musculoskeletal disorders, some cancers (WHO, 2018). The risk for these no communicable diseases increases, with increases in BMI (WHO, 2018). But in addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects (WHO, 2018). Prevalence of obesity is increasing not only among adults but also specially in teenagers (Pi-Sunyer, 2009). Obesity is a dangerous factor for cardiovascular, diabetes, cancer and other chronic diseases like liver and kidney (pinhas, et al, 2008). More than 1.9 billion adults of 18 years old and higher than had overweight in 2016. Of this amount, more than 650 million were obese, 39% of adults of 18 years adults and higher has overweight in 2016 and 13% were obese (WHO, 2016). As a whole trend of obesity in the world for children in 2010 was 6.7% and it is predicted that this amount reaches to 9.1% in 2020 (Nouri, et al, 2014). In Iran, prevalence of overweight and obesity on entrance to elementary school has been reported as 17% and Iran

has been introduced as one of 7 countries with high prevalence of obesity (Adibi, et al, 2009). Also, the results of Tabrizi, et al (2018) studies show that the prevalence of obesity, obesity and abdominal obesity in Iran is 39.6%, 24% and 76.4%, respectively.

Self-esteem is a variable that is seemed have high correlation with overweight. Self- esteem is a respected value regarded by one for him/her. In other word, the it is positive or negative view of one to him/herself (Binsinger, et al, 2006). In a study related to high school girls, it has been observed that, higher self-esteem is related to significant consumption of plant food and improper diet and smoking is related to lower self-esteem (Sahebzaman, et al, 2010). Results of studies of Mirhadi, et al, (2014) showed that self-esteem was higher in non- obese women and they had healthier life style. The results of Valois, et al (2019) studies show that weight may affect self-esteem. Results show that low self-esteem affects the body and associated is with increased depression pressure (Woodward, McIlwain and Mond, 2019). Results of research showed weight loss associated with significant reported improvements in self-esteem (Stubbs et al., 2015). Body satisfaction or self-esteem, significantly and positively predicted engagement in diet, physical activity, and weight related health (Thomas and Warren-Findlow, 2019).

Other weight loss programs are behavioral changes, Behavioral changes have been effective in decreasing weight. So, in the present method the most important changes of these behaviors have been used for intervention. The most important technics used in this study are, Preparing the Mind, Activation of Body Metabolism, Eating Self-Conscious, Breaking the Water Molecule, Understanding Realistic Hunger Strength, Control of False Hunger, Creating a Real Feeling of Satiety and learning false satiety. Total of which is called SMN in the name of its inventor, Mr. Seyed Mohsen Nemati, the first researcher in this study. That, it has briefly called SMN in this article. Therefore SMN method can be of weight loss methods. This method which researcher (Seyed Mohsen Nemati) is its founder, is a psychological methods acts in weight loss without slimming drugs, herbal teas and diet. Present method consists of eight technincs, which one technic in a week is trained based on person's progression. Results of jonson (2017)'s research showed that cognitive therapy and diet have positive and direct effect on weight loss of obese persons. The results of Baños, et al (2019) studies showed that cognitive-behavioral therapy intervention is effective in reducing BMI. Also, Craig, et al (2019) study showed that cognitive-behavioral therapy is effective in weight loss.

Another method used to lose weight is a die. This method plays a major role in weight loss (Hermsdorf, et al, 2010). An unhealthy diet with high levels of obesity, refined carbohydrates and protein is associated with high levels of obesity factors, while a healthy diet containing fruits, vegetables and fish, omega-3s and fiber is associated with low levels of obesity indices (Ahlvulia, et al, 2013). The results of studies by Shahriarzadeh, et al, (2016) showed that a healthy diet leads to a reduction in BMI of obese or overweight individuals. Also, the results of Simon and Carla (2018) studies showed that weight loss in overweight is possible with healthy diets and there is a positive correlation between healthy diet and weight loss.

Overweight people cannot be committed to dietary intervention until the end of the period of treatment and this is disadvantage (Abdi, 2015). On the other hand, changes in the food basket for some people are costly and demanding the main issue of the current study is that, which of the ÑMN and dietary methods have the most impact on weight loss and self-esteem in overweight individuals?



## MATERIALS AND METHODS

The present study is a clinical trial that compares the effectiveness of both SMN and LCD on the psychological disturbance of overweight individuals. In the present study, the statistical population included all overweight individuals referring to the nutrition clinic in Ardabil, Iran. Considering that at least 15 samples are considered in experimental research (Delaware, 2008). Consequently, 30 people overweight were selected (15 people per group). In this study, overweight individuals were selected randomly and assigned to two groups of SMN and LCD. The questionnaire was distributed among individuals. The samples had (BMI; above  $25 > \text{kg} / \text{m}^2$ ) and 20-35 years of age, without any intervention in the past 6 months. Ethical considerations are considered in this article and for doing so, the ethical code of human studies is identifier ir.arums.rec.1397.097 from Ardabil Medical Science.

### *Research tools*

#### 1. Eysenck Self-Esteem Questionnaire

Eysenck's Self-Esteem Questionnaire (Eysenck, 1976; quoted by Biabangard, 1373) has 30 items and subject must select one of the 3 options "Yes", "No" or "No Comment" for responding to each item. In this questionnaire, the lowest possible score is zero and the highest score is 30. Validity and reliability of this questionnaire was verified by Hormozinejad (2001), which is 0.74 for female students and 0.79 for male students. He also performed the Eysenck self-esteem test and the Ahwaz self-esteem scale simultaneously on two male and female students of Shahid Chamran University of Ahvaz. The calculated justifiability coefficients for the girl sample were  $r = 0.79$  and for boy sample were  $r = 0.74$  both of which are meaningful both at the level of  $p < 0.001$ . The results of his findings show that this test has favorable and satisfactory psychometric properties. The options that include the question mark are 0.5 points. Questions answered with a yes or no answer have score 1. High score shows high self-esteem. If the subject earns a score between 0 and 5, self-esteem is very low. If the subject earns a score between 6 and 10, self-esteem is low. If the subject earns a score between 11 and 15, is the average self-esteem to downward. If the subject earns a score between 16 and 20, the average self-esteem is upward. If a person achieves a score of between 21 and 25, self-esteem is good. If the subject gets 26 to 30 points, self-esteem is very good.

#### 2. Training package for SMN method

This method, the founder of which is the researcher Seyyed Mohsen Nemati, is a psychological way to lose weight without lean drugs, exercise, herbal remedies, and diet. This technique consists of eight techniques that are taught each week in terms of the progress of individuals overweight. The first technique was preparing the mind. This technique was with more acceptance of people to prepare the method SMN. And the sample recorded all eaten foods during the week. The second technique was activation of body metabolism. In this technique, the drink of water can help to increase a person's metabolism (Ritter, 2019). The third technique was eating self-conscious. In this technique a person must be precise to the content of what eats carefully to the actual satiety. Maintaining self-monitoring during obesity treatment may improve outcomes (Raynor, 2019). The fourth technique was breaking the water molecule. In this technique, person tries to slow the speed of chewing power to mentally break the water molecules to be noticed is the result that makes a person when you eat chewing greatly reduced speed. The fifth technique was Understanding Realistic Hunger



Strength. In this technique, a person should eat food when she/he was hungry. The sixth technique was Control of False Hunger. In this technique, a person when he/she was angry, this condition represents the false hunger and need to drinking of water. The seventh technique was creating satiety Feeling. The eighth technique was learning of false satiety feeling.

### 3. LCD

For weight loss, the subjects were asked to reduce their consumption by 500 Kcal. In order to evaluate the diet, the amount of food received in three days (two normal days and one day off) at the beginning of the study was assessed by completing the dietary questionnaires. To complete the questionnaires, information was provided on how to complete the questionnaire, the units of measurement and the selection of days to complete the forms to all individuals. The mentioned amounts of food were converted to grams using the home-help scales, and then coding was carried out according to the N4 food analysis program, and the amount of energy and macronutrients were calculated. Subsequently, volunteers were asked to deduct 500 kilocalories from their daily average in order to lose weight. This energy fraction was based on succession tables of food groups. For this purpose, 4 units of the bread and cereal group, 2 units of the fat group and the rest of the energy were deducted from the rest of the food groups.

### 4. Anthropometry

Weight measurement with minimum dress and without shoes is based on the Sca 224 scale with a precision of 0.5 kg and measuring height with a wall hologram, while the hips, shoulders, and heels are tangent to the wall and head facing It was carried out at a distance of between heel and top of the head and accurate to 0.1 centimeters. The body mass index was calculated by dividing the weight in kilograms by the second power of height in meters.

In this study, SPSS 22 software was used to analyze. For analyzing variables, repeated measures ANOVA was used.

## RESULTS

**Table 1- comparison of the impact of the methods of the SMN and diet based on reducing calories in two groups**

LCD						SMN						Variables
follow-up		post		pre		follow-up		post		pre		
SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	
0.07	1.8	0.09	1.4	0.1	1.2	0.1	1.4	0.04	1.2	0.05	1.1	Self-esteem
8.6	73.2	8.5	75.5	8.5	77.6	10.7	72.2	16.1	74.6	10.07	78.5	weight

Results table 1and3 shows that significant levels of SMN and two groups based on calorie reduction diet is less than 0.05 and meaningful test. Also according to the table to see that the impact of the SMN therapy on self-esteem and weight variables greater than the impact of the reduced-calorie diet-based therapy.

**Table 2-effect of two methods of SMN and reduced-calorie diet based on the dependent variables**

ETA	F	MS	DF	The dependent variable
.92	11790.03	176.09	1	<b>Self-esteem</b>
.95	1971.64	510308.1	1	<b>weight</b>

**Table 3-check test on the dependent variables were significant in three group therapy, group and interaction**

P- Value			Variables
Effect interaction	Effect group	Effect treatment	
<0/001	<0/001	<0/001	Self-esteem
<0/001	<0/001	<0/001	weight

The results set forth in table 2 and 3 show that the difference between diet and SMN group method based on reducing calories in dependent variable weight ( $F=1971/64$ ,  $ETA =0.95$ ) and self-esteem ( $F= 176/09$  ,  $ETA =0.92$ ) are significant. Therefore, it can be said that the method of SMN cause weight loss and increase the self-esteem of people.

## CONCLUSION

The main purpose of the research is to compare the SMN and diet methods based on calorie reduction in weight loss and self-esteem in overweight individuals. The results of this study are consistent with the findings of some researchers. Result of study showed that depression was high in obese individuals (Wang & Zha, 2013). In the study of Seyed Amini overweight and obesity were associated with internalized problems such as depression and anxiety in elementary girls (Seyed Amini et al., 2010). In a study in high school girls, higher self-esteem was associated with the consumption of fruits, vegetables, obese, and sweets to a more favorable level, and poor diet and smoking were associated with lower self-esteem (Sahebzaman et al., 2010). The results of studies of Mirhadi et al showed that self-esteem was higher in non-obese women and people with higher self-esteem had a healthier lifestyle (Mirhadi, 2013). In health promotion programs, paying attention to the psychological dimensions of obesity is important. The results of Sasanfar et al. (2016) showed that group cognitive therapy and diets are effective in increasing weight loss. The results of studies by Shahriarzadeh et al (2017) showed that a healthy diet results in a reduction in the body mass index of obese or overweight children. The results of the studies of Ghanaadi and Mahdavi (2016) showed that in obese women referring to the nutrition clinic, a low-weight diet resulted in weight loss and fasting insulin recovery. The research results of Shamloo, et al (2016) indicated that mindfulness-based eating can be used as an effective emotional-axis intervention in weight management. The results of studies by Ghaderi et al (2016) showed that the effectiveness of cognitive-mindedness-based cognitive therapy is effective in reducing perceived stress and eating disorder. The results of Rahmani and Taisim Moghtab's studies (2017) showed that with the increase in dietary diversity, the chance ratio for depression is decreased, but it did not have a significant effect on people's self-esteem. Some weight-loss





diets are nutritionally sound and consistent with recommendations for healthy eating while others are "fad" diets encouraging irrational (Anderson, et al, 2000). In this study, we tried to compare the effect of two weight loss methods, including SMN and LCD, on the weight and psychological distress of individuals. This comparison was performed in three groups: pretest, posttest (two months after pretest) and follow-up (two months after education). In this regard, the diet intervention was based on calorie reduction by a dietitian and the SMN method was performed by the researcher on the subjects. The duration of the intervention was two months. The results indicated that the level of significance in the two groups of SMN and LCD was statistically significant. The SMN effect on depression, anxiety, stress, and weight variables is greater than the effect of LCD. The advantage of the present method is that it has not been carried out in any research yet and it is the innovator of the researcher (Seyyed Mohsen Nemati). As with any research, this study has been carried out with limitations. The most important is the follow-up phase. It is suggested that the follow-up period is increased to one to two years so that the findings can be more accurately explained. It is suggested that researchers examine other dimensions of overweight and psychological distress and use another tool to measure variables related to this subject.

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