INVESTIGATING THE CORRELATION BETWEEN THE COGNITIVE EMOTION REGULATION STRATEGIES AND DIMENSIONS OF PERFECTIONISM IN OVERWEIGHT AND OBESE WOMEN UNDER THE REGIMEN TREATMENT

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ABSTRACT

The main aim of this study is to investigate the cognitive emotion regulation strategies and dimensions of perfectionism in overweight and obese women under the regimen treatment. Eighty five 18-60 year-old women participated in this study. The participants were asked to respond to the Cognitive Emotion Regulations Questionnaire and Tehran Multidimensional Perfectionism Scale before starting the treatment. The obtained results indicate that there is a significant correlation between the rate of weight loss with the cognitive emotion regulation strategies and self-oriented and socially prescribed perfectionism. The results of stepwise regression analysis suggested that the rate of weight loss had a significant positive relationship with the adaptive cognitive emotion regulation strategies and a significant negative relationship with the maladaptive strategies. The self-oriented perfectionism had a positive relationship with weight loss, while the negative relationship was obtained in socially prescribed perfectionism and no relationship in other-oriented perfectionism. Furthermore, the results of this study indicated that there was a significant relationship between the marital status, type of obesity, and diet history with weight loss. Based on the findings of this study, it can be generally concluded that the psychological factors contribute to the weight loss in women in addition to the physiological factors.

KEYWORDS: Cognitive emotion regulation strategies, perfectionism, regimen therapy, obesity, overweight
1. INTRODUCTION

The obesity is a major global health problem which has been enhanced especially in developing and developed countries in recent decades due to the changed eating habits and activity level and is now considered as the largest health-threatening problem in these countries (Cooper and Fairburn, 2001). The World Health Organization (WHO) has declared the obesity as an Epidemic Phenomenon due to its growing process (Guerrieri et al, 2007). According to the last estimation of WHO, 1.6 Billion adults are overweight and more than 400 million people are obese in the world. Iran Ministry of Health and Medical Education (MOHME) has reported that the prevalence of obesity is growing in Iran. The prevalence of overweight and obesity in Iran is 32% and 18.1% respectively and about 60% of adults in cities are overweight or obese (Janghorbani, 2007). It is worth noting that the prevalence of overweight in Iranian Women is more than the American ones and the prevalence of obesity is almost the same between the Iranian and American Women.

Despite a large amount of information about the physical variables of obesity, there is a little information about the psychological variables of obesity. The conducted studies on obesity declare that the mood and anxiety disorders are higher in people with obesity. The obesity enhances the individual vulnerability to social events (Allon, 1982).

Other studies indicate that apparently any kind of emotional reactivity increases the food intake in some of obese people and the change in emotional eating tendencies is a strong predictor of weight loss result. It seems that the emotional stress (anger, anxiety and depression) usher eating in some of obese people under the regimen treatment. On the other hand, the evidence indicates that the cognitive emotion regulations play the important roles in increasing or decreasing the emotional and behavioral problems after dealing with the stressful events. Regulating the emotion through the individuals' thoughts and cognition is associated with their lives and helps to manage or regulate the emotions or feelings at the same time or after the stressful or threatening events. In fact, the cognitive emotion regulations strategies are the actions which reflect the individual ways of coping with stressful situations or mishaps (Garnefski and Kraaij, 2007). People utilize various cognitive strategies in coping with stressful experiences and opportunities to maintain their mental and emotional health (Garnefski, Koopman, Kraaij, and Cate, 2009).

2. RESEARCH LITERATURE

2.1 THEORETICAL PRINCIPLES

Overweight and obesity: These are defined based on the body mass index (BMI) which is calculated from dividing the weight in kilogram by the square of height in meter. The BMI Overweight is from 25 and 29 and BMI obesity is from 30 and above.

Perfectionism: According to the multidimensional approach to the Perfectionism, this structure is composed of interpersonal, intrapersonal and social components. This diverse nature requires high self expectation, expectation from others, and other individuals' expectation (Flett & Hewitt, 2002; Flett & Hewitt, 1991). This study examines the perfectionism based on the individual score in Tehran Multidimensional Perfectionism Scale (TMPS) (Besharat, 2007).
Cognitive emotion regulation: It refers to the conscious and cognitive strategies of manipulating the entry of evoked emotion information. The adaptive cognitive emotion regulation strategies include the acceptance, positive refocusing, refocus on planning, Positive Reappraisal, and also the maladaptive cognitive emotion regulation strategies include the Self-Blame, Other Blame, Putting into Perspective, Catastrophizing and Focus on Thought/Rumination. In this study, the emotion regulation structure is measured in terms of the individual scores in Cognitive Emotion Regulation Questionnaire (CERQ) (Garnefski & Kraaij, 2006; Besharat, 2010).

2.2 RESEARCH BACKGROUND

According to Pratt, Telch, Labouvie, Wilson & Agras's viewpoints (2001), the obesity is along with the Perfectionist attitudes and associated with the weight changes in management of weight loss. Accordingly, Chang et al (2007) has found that the self-oriented and socially prescribed perfectionism are the best predictors of eating disorders and health behavior. So that the self-oriented perfectionism is more associated with the health factors, while the socially prescribed perfectionism associated more with disease factors, and no significant results are found for other-oriented perfectionism. From Ofoghi and Besharat's perspective (2010), the self-oriented perfectionism improves the physical health by stimulating the personal incentives and enhancing the mental and physical abilities. Self-oriented perfectionists integrate the psychological dynamics and physical abilities to achieve their excellent goals and these types of physical-mental readiness confirm the positive relationship between the perfectionism and physical health. (Ofoghi and Besharat, 2010)

Teixeira, Going, Sardinha, and Lohman (2005) have indicated that there is a correlation between the psychological factors and the lack of completion of treatment in management of weight loss. Undoubtedly, as the result of several factors, the people receive different results while attempting to lose the weight; a part of these successes and lack of successes is affected by the treatment method and the other part by the psychological factors. The mental characteristic such as weak body image and depression are along with the weak treatment results.

In other-oriented perfectionism, the axis of heavy responsibility is changed from individual to others and this is probably the reason for weaker relationship of this perfectionism dimension whether in positive or negative direction than two other dimensions (Saboonchi & Lundh, 2003; Molnar et al, 2006; Ofoghi & Besharat, 2010, quoted by Hosseininejad, Besharat, Haddadi and Abdolmanafi, 2011).

According to the studies on the role of psychological factors in predicting the rate of weight loss in people under the treatment, it is observed that most of the studies have investigated the variability of psychological indexes during the treatment period rather than their predictive roles. The studies on the relationship between the obesity and perfectionism often focus on eating disorders rather than the obesity and overweight. There are a little studies on the cognitive emotion regulation, overweight and obesity and it can be argued that no significant research is conducted in this regard. Given mentioned cases, this study seeks to respond to this question that to what extent the factors above contribute in predicting the weight loss in overweight and obese women under the treatment regimen.
3. MATERIALS AND METHODS

This research seeks to investigate the role of perfectionism and cognitive emotion regulation in predicting the weight loss in overweight and obese women under the treatment regimen. Therefore, this study is non-experimental according to its subject and objectives and has correlative research design. The correlative research design is a kind of descriptive designs in which the relationship between variables is examined.

3.1 RESEARCH METHOD

According to the routine procedure of nutrition office, the height, weight (calculated BMI) and daily dietary recall were taken from 85 women attending a nutritionist's office by nutrition experts before the treatment of obesity during the winter 2011 and they were asked to fill the forms about the medical information regarding the presence or absence of diseases or the use or disuse of a series of drugs in order to investigate if there was a disease or drug intervention in the treatment and then the regimen treatment was provided proportional to that drug or disease. The research sample was selected from those who had no disease or intervening drug.

Afterwards, before entering those samples into the treatment process, the emotion regulation and Perfectionism questionnaires were given to them to respond. After responding to the questionnaires, they visited the nutritionist and received the regimen based on the dietary recall and it was 15% less than their previous daily calorie and they also were recommended walking from 30 to 60 minutes per day.

After 4 months of treatment, their weight loss was calculated in kilogram compared to the beginning of treatment.

STATISTICAL METHODS OF DATA ANALYSIS

In this study, the descriptive statistics, namely, the percentage, frequency, mean and standard deviation, and the inferential statistics, namely, Pearson and Spearman correlation coefficients, Chi-square test, and stepwise regression analysis are utilized to analyze data. SPSS software version 18 is applied to respond to all stages.

3.2 STATISTICAL POPULATION

The statistical population of this study includes the overweight and obese 18-60 year-old women visited the nutritionists' offices in Tehran. The studied sample consists of 85 overweight and obese women visited one of the nutritionists, who has numerous visitors, in Tehran and they are voluntarily sampled.

The subjects' inclusion and exclusion in this study was according to the following criteria: The women who were between 18 and 60 years old, overweight or obese, visited the nutritionist for regimen treatment, not in pregnancy or lactation period, had no specific medical or psychological disease interfering the treatment, and not consume drugs interfering the treatment process.
3.3 VALIDITY AND RELIABILITY OF QUESTIONNAIRE

Tehran Multidimensional Perfectionism Scale (TMPS)- It is a 30-question test and is designed in Farsi by Besharat (2007) on the basis of previous scales. This scale measures three dimensions, namely, the self-oriented, other-oriented and socially prescribed perfectionism according to the five-point Likert scale from 1 to 5 points. The minimum and maximum subject's scores in three subscales of test will be 10 and 50, respectively. Cronbach's alpha coefficients for the subscales of self-oriented, other-oriented and socially prescribed perfectionism in a sample of five hundred students at University of Tehran were 0.90, 0.91 and 0.81, respectively, indicating the proper internal consistency of scale. The correlation coefficients for 78 subjects' scores were measured two times with an interval of two to four weeks to assess the test-retest reliability. These coefficients were equal to r=0.85, r=0.79, and r=0.84 and significant at the level of P<0.001 for self-oriented, other-oriented and socially prescribed perfectionism, thus the test-retest reliability of scale was satisfactory. The concurrent validity of Tehran Multidimensional Perfectionism Scale was measured through concurrent implementation of interpersonal problems, mental health Inventory and subscales of Neuroticism-Extraversion-Openness Personality Inventory Revised (NEOPI-R) about the subjects. The results of Pearson correlation coefficient declared that there was a significant correlation between the subjects' scores in the self-oriented perfectionism subscale and the interpersonal problems (0.44), psychological well-being (-0.62), psychological distress (0.059) and neuroticism (0.74) at the level of P<0.001. The results also indicated that there was a significant correlation in participants' scores between the other-oriented perfectionism subscale with interpersonal problems (0.19), psychological well-being (-0.35), psychological distress (0.26), neuroticism (0.025) and extraversion (-0.22) and also in subjects' scores between the socially prescribed perfectionism subscale with psychological well-being (-0.29), neuroticism (0.27) and extraversion (-0.44) at the level of P<0.001. These results confirm the Concurrent validity of Tehran Multidimensional Perfectionism Scale (Besharat, 2007).

Cognitive Emotion Regulation Questionnaire (CERQ)- This questionnaire is an 18-item instrument and assesses the cognitive emotion regulation strategies in response to the stressful and threatening life events according to five-point scales from 1 (never) to 5 (always) on the basis of nine subscales, self blame, acceptance, Focus on Thought/Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Catastrophizing and Other Blame (Garnefski and Kraaij, 2007). The minimum and maximum scores for each subscale will be from 0 to 10 and the higher score indicates a greater use of that cognitive strategy. The psychometric properties of Cognitive Emotion Regulation Questionnaire are approved in foreign studies (Garnefski et al, 2005). In a preliminary evaluation of psychometric properties in this questionnaire, the Cronbach's alpha coefficients were measured from 0.67 to 0.89 for subscales in a sample of general population (n= 368; 197 women, 171 men). These coefficients, which were significant at the level of P<0.001, confirmed the internal consistency of Cognitive Emotion Regulation Questionnaire. The correlation coefficients between the scores of some participants in the study (43 women, 36 men) were measured two times with an interval of two to four weeks for subscales of questionnaire and obtained equal to r= 0.57 to r=0.76. These coefficients, which were significant at the level of P<0.001, confirmed the test-retest reliability of Cognitive Emotion Regulation Questionnaire (Besharat, 2010). The content validity of Cognitive Emotion Regulation Questionnaire was studied based on eight psychologists'
arbitration and Kendall's coefficients of concordance were obtained from 0.81 to 0.92 for subscales.

4. DATA ANALYSIS

4.1 INVESTIGATING THE NORMALITY OF DATA DISTRIBUTION

Based on the results of stepwise regression analysis for predicting the rate of weight loss by the cognitive emotion regulation index, the regression correlation coefficient was obtained equal to 0.63 and the coefficient of determination 0.39. In other words, it can be concluded that 39% the changes in the scores of weight loss is predicted according to the cognitive emotion regulation index.

The regression coefficients for predicting the scores of weight loss were measured based on the cognitive emotion regulation index; and according to the results, the adaptive strategy was more able to predict the scores of weight loss rate significantly.

**TABLE 1: R, R^2 AND ADJUSTED R^2 FOR PREDICTING THE RATE OF WEIGHT LOSS BASED ON THE COGNITIVE EMOTION REGULATION INDEX**

<table>
<thead>
<tr>
<th>Model</th>
<th>Multivariate correlation coefficient (R)</th>
<th>Coefficient of determination (R^2)</th>
<th>Adjusted R^2</th>
<th>Standard error of estimate</th>
<th>Change in R^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.63</td>
<td>0.39</td>
<td>0.40</td>
<td>3.53</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Table 1 shows the results of stepwise regression analysis for predicting the rate of weight loss based on the cognitive adjustment index. As shown, the regression correlation coefficient was obtained equal to 0.63 and the coefficient of determination 0.39. In other words, 39% of changes in the scores of weight loss rate can be predicted by cognitive emotion regulation index.

**TABLE 2: REGRESSION COEFFICIENTS FOR PREDICTING THE SCORES OF WEIGHT LOSS RATE BASED ON THE COGNITIVE EMOTION REGULATION INDEX**

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable coefficient (B)</th>
<th>Standard error of coefficient</th>
<th>Standardized coefficient (β)</th>
<th>t statistic</th>
<th>t Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-9.753</td>
<td>1.969</td>
<td>-4.953</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Maladaptive strategy</td>
<td>0.42</td>
<td>0.058</td>
<td>7.225</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Table (2) represents the regression coefficients for predicting the scores of weight loss rate based on the cognitive emotion regulation indexes. Based on the results listed in the table, the adaptive strategy was more able to predict the scores of weight loss rate significantly.
TABLE 3: R, R² AND ADJUSTED R² FOR PREDICTING THE RATE OF WEIGHT LOSS BASED ON THE PERFECTIONISM

<table>
<thead>
<tr>
<th>Model</th>
<th>Multivariate correlation coefficient (R)</th>
<th>Coefficient of determination (R²)</th>
<th>Adjusted R²</th>
<th>Standard error of estimate</th>
<th>Change in R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.41</td>
<td>0.17</td>
<td>0.16</td>
<td>4.13</td>
<td>0.17</td>
</tr>
<tr>
<td>2</td>
<td>0.56</td>
<td>0.31</td>
<td>0.29</td>
<td>3.78</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Table (3) shows the results of stepwise regression analysis for predicting the rate of weight loss based on the perfectionism index. As shown, the regression correlation coefficient was obtained equal to 0.41 and the coefficient of determination 0.17 in model 1 by inclusion of "socially prescribed perfectionism" component as the predictive variable. In other words, 17% of changes in the scores of weight loss rate can be predicted by socially prescribed perfectionism component. In Model 2 the "self-oriented perfectionism" is included in the regression equation as the predictor in addition to the socially prescribed perfectionism. In this case, the regression correlation coefficient was obtained equal to 0.56 and the coefficient of determination 0.31. In this regard, it can be concluded that 31% of changes in the weight loss rate can be predicted by the socially prescribed and self-oriented perfectionism.

TABLE 4: REGRESSION COEFFICIENTS FOR PREDICTING THE SCORES OF WEIGHT LOSS RATE BASED ON THE PERFECTIONISM INDEX

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable coefficient (B)</th>
<th>Standard error of coefficient</th>
<th>Standardized coefficient (β)</th>
<th>t statistic</th>
<th>t Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socially prescribed perfectionism</td>
<td>10.678</td>
<td>1.684</td>
<td>-0.412</td>
<td>6.340</td>
<td>0.00</td>
</tr>
<tr>
<td>Constant Value</td>
<td>-0.224</td>
<td>0.540</td>
<td>-0.412</td>
<td>-4.118</td>
<td>0.00</td>
</tr>
<tr>
<td>Socially prescribed perfectionism</td>
<td>3.461</td>
<td>2.321</td>
<td>-0.424</td>
<td>1.491</td>
<td>0.140</td>
</tr>
<tr>
<td>Self-oriented perfectionism</td>
<td>-0.230</td>
<td>0.500</td>
<td>-0.424</td>
<td>-4.634</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>0.234</td>
<td>0.560</td>
<td>0.380</td>
<td>4.156</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table (4) shows the regression coefficients for predicting the scores of weight loss rate based on the perfectionism index. Based on the results listed in the table, from the perfectionism components, the socially prescribed and self-oriented perfectionism are the appropriate predictors for the scores of weight loss. Based on these results, the prediction equation is as follows:

reduce = 3.46 – 0.23ssp + 0.234oop
4.2 RESEARCH HYPOTHESES TEST

EXPLAINING THE RESEARCH HYPOTHESES ABOUT THE CORRELATION BETWEEN THE WEIGHT LOSS AND COGNITIVE EMOTION REGULATION

Based on the results of correlation matrix, there is a significant correlation between the samples' weight loss and the subscales of Cognitive Emotion Regulations Questionnaire:

1- There is a significant positive correlation between the adaptive cognitive emotion regulation strategies and weight loss. \( R = 0.52, \alpha < 0.05 \)
2- There is a significant negative correlation between the maladaptive cognitive emotion regulation strategies and weight loss. \( R = -0.22, \alpha < 0.05 \)

The cognitive emotion regulation and its strategies are not investigated in studies on the predictors of success in weight loss. However, this relationship can be explained according to the viewpoints on the obesity and overweight and referring to the role of anxiety and emotional distress in obese and overweight people's food intake and also according to the role of cognitive emotion regulation strategies in regulating the emotions, thoughts and behavior associated with it as follows:

In the past, the pre-treatment anxiety and depression were considered as the significant predictors, but these results are not approved or rejected yet. (Teixeira et al, 2005)

Since the high levels of stress are predictors of unhealthy behavior (such as high-fat diet and low exercise), it can be associated with the obesity (Ng and Jeffery, 2003). Most of the obese people accept eating more in anxiety or stress, and also some of the experiments confirm the fact that a number of obese subjects eat more in stressful situations, while the subjects with normal weight eat more in low stressful situations and eat less in stressful situations.

EXPLAINING THE RESEARCH HYPOTHESES ABOUT THE CORRELATION BETWEEN THE WEIGHT LOSS AND MULTIDIMENSIONAL PERFECTIONISM

Based on the results of correlation matrix, there is a significant correlation between the samples' weight loss and two subscales of Tehran Multidimensional Perfectionism Scale:

1- There is a significant positive correlation between the self-oriented perfectionism and weight loss. \( R = 0.28, \alpha < 0.05 \)
2- There is no significant correlation between the other-oriented perfectionism and weight loss. \( \alpha > 0.05 \)
3- There is a significant positive correlation between the socially prescribed perfectionism and weight loss. \( R = 0.3, \alpha < 0.05 \)

The obtained results in two dimensions of self-oriented and other-oriented perfectionism are consistent with the previous studies, but inconsistent in terms of socially prescribed perfectionism. Accordingly, the obtained results are explained as follows:

According to the study by Campbell and Di Paula (2002), the self-oriented perfectionism is positively correlated with the goal pursuit and the self-oriented perfectionism can be considered
as the predictor of progress in the goals. Therefore, the weight loss was one of the considered purposes in this study and it was positively and significantly correlated with the self-oriented perfectionism.

These findings are consistent with numerous studies indicating that unlike the socially prescribed perfectionism, the self-oriented perfectionism is associated with achieving the objective and correlated with positive results. (Childs and Stoeber, 2010)

SUGGESTIONS FOR FUTURE STUDIES

1- It is suggested conducting this study in more comprehensive samples to investigate the repeatability of findings.
2- It is suggested investigating other samples of population with different ages and genders (men, adolescents) and also comparing the results.
3- The individual viewpoint on obesity and overweight is affected by the social and cultural factors, thus it is suggested investigating and comparing the results of this study in women from different cultures.

REFERENCES


