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The Effectiveness of Mindfulness Intervention on Increasing the Self-efficacy of Neurological Overeating

Tahmoores Aghajani[1]
Psychology Department, Shahr-e Qods Branch, Islamic Azad University, Tehran, Iran
Rosa Soheilinia[2]
Psychology Department, Science and Research Branch, Islamic Azad University, Tehran, Iran
Somaye Robatmili[3]
Psychology Department, Science and Research Branch, Islamic Azad University, Tehran, Iran

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Abstract: *Introduction & Objective: The purpose of this study was to investigate the effectiveness of Mindfulness Intervention on increasing the self-efficacy of neurological overeating in Tehran. Method: This research is a semi-experimental design with pre-test and post-test design with control group. The statistical population of this study was outpatient outpatients with neurological overload referred to two nutrition clinics in Tehran during 1397. The final sample size of this study was 30 neurological overeating subjects who were selected by purposeful sampling and randomly assigned to two experimental groups (15 subjects) and control (n = 15). The Mindfulness Therapy Package was implemented in the form of 8 weekly 90-minute sessions on the development group. The research tool was the general self-efficacy scale of Sherer et al. (1982). Data were analyzed using covariance analysis. Findings: The results showed no significant difference between the experimental and control groups. And mindfulness therapy did not affect the self-efficacy of patients with neurological overeating. Discussion and conclusion: It is suggested that psychologists and counselors use the results in causative and behavioral and psychological problems of patients with neurological overeating*.

Keywords: *Self-efficacy, Mindfulness, neurological overeating.*

Introduction

Today, given the remarkable advances in medical science, paramedics and technology that has resulted in increase of life expectancy, we observe signs and symptoms of emerging diseases that a deficient treatment isn't available for them and the spread of the diseases has become a new challenge in today societies. The major challenge is in the psychology of mental diseases and their increasing spread and prevalence that has made scholars to develop a solution for their treatment. One of the mental disorders that less has been addressed is neurological overeating. In the fifth edition of the Diagnostic and Statistical Manual of Psychiatric Disorders (DSM-5) (American Psychiatric Association, 2013), the binge eating disorder (BED) has been described as a distinct eating disorder that its prevalence in the normal population is estimated about 3 percent (Heg et al, 2015). The neurological overeating disorder is diagnosed with recurrent overeating episodes. In these episodes, an individual eats much food that someone else wouldn't eat this amount during a similar period and the situation is such that the person has no control on his/her eating (American Psychiatric Association, 2013). Other characteristics of the neurological overeating episodes are: eating faster than usual, eating to the extent that the person feels fullness unpleasantly, and eating without feeling hungry, eating alone due to the embarrassment or guilty feeling or the hated feeling afterwards. Moreover, the periods of neuronal overeating episodes are accompanied with distress and have to be occurring at least once a week and in more than one three-month period. However, as the intentional remedial behavior isn't used with the neurological episodes (while in the mental binge disorder (BN) the intentional remedial behavior is used), as a result, the

[1] Email: t.aghajani2014@gmail.com (Corresponding Author)
[2] Email: rosa_soheilinia@yahoo.com
[3] Email: somayemili@yahoo.com

neurological overeating disorder often is accompanied with overweight or obesity (Elir et al. 2015); such that 15 to 50 percent of the obese people participating in the weight loss programs have the diagnostic criteria for this disorder (Bertoli et al. 2016). However, the obese individuals with neurological overeating disorder are different from the obese individuals without this disorder in terms of psychological features. For example, the rate of self-aversion, depression, anxiety and interpersonal sensitivity in the obese women with neurological overeating disorder is more than non-obese women without the problem (Carrnel et al, 2012; Schag et al, 2013; Vog et al. 2011).

Results of research have considered the self-efficacy construct as effective in the eating disorders. Studies show that self-efficacy of eating behavior is a predictor index of weight loss and increases during the programs designed and implemented for weight loss, prevents again weight and enhances the motivation and adherence to this behavior. In general, it can be argued that self-efficacy is an important factor that has to be considered in the training program and nutrition advices for loss weight; otherwise, it isn't sufficient just to provide information concerning healthy behavior (Palsdotir, 2008). Self-efficacy is based on the assumption that a person imagines that is able to organize phenomena and events in order to advice to his/her desirable situation through proper behavior and action (Bendora, 1993). In the other word, self-efficacy is associated with the beliefs and mentality of everyone to fulfill his/her goals (Conner, 2015). In fact, the stress due to lack self-fulfillment results in reduction of self-efficacy and instead if social support is received and self-fulfillment is developed, the self-fulfillment sense increases in people (Avanzi, Well, Frakorli and Vendik, 2015). So that the high self-efficacy of a group's leader can spread to the group's members and results in a desirable team performance. High self-efficacy and self-esteem of the group member in turn effect on the elf-fulfillment of the team members and enhances it (Fransen, Hasslem, Stephens, Van Busler, Corper and Bowen, 2015). The high self-efficacy of members not only can be concentrated on "we" as a mental reality, but also is effective for conversion of "we" into an operational unit. Self-efficacy manages personal relationships as well, and individuals with higher self-efficacy experience higher self-esteem and mental health (D.J. Anta, Isenberg, Kapphar, Skeka, Tramanto and Caprara, 2015). Individuals with higher subjective and objective self-efficacy show more resistance against smoking (Simon, Connell, Kung, Moren, Cavallo, Kamenja and Krishnan-Sarin, 2015). Parker, Marsh, Kiaruchi, Marshal and Abdul Jabbar (2014) in a study on self-efficacy found that there is a strong and significant relationship between obesity and self-efficacy and as well as between self-efficacy and self-image of every individual.

During the recent decades, the effective interventions in the treatment and reduction of the symptoms of mental disorders have been considered that are based on mindfulness. Training mindfulness emphasizes mostly on the learning through direct experience because it is developed in body. By support of instructor, participants during exercises and conversation can identify their organs carefully and can accompany with the description of their sensory experience in that organ. It is the beginning point to understand the direct nature of experience and learning how to relax body again. Our body is the most appropriate and available point for direct perception of momentarily emotional experiences and being in present (Kabat,Zin, 2003). Mindfulness interventions have been applied frequently in the health cares to help patients' recovery to manage pain, stress, etc. to their life quality (Wiliams and Kabat-Zin, 2011). In fact, mindfulness is among the therapeutic methods in which intelecutal awareness is emphasized (Prent, McKay, Pogue and Forhand, 2016). The mindfulness intervention method has been designed such that trains individuals to be more aware and approach to their thoughts, emotions and physical senses in other way. The mindfulness method helps people to look at the all stimuli that come in every moment in their awareness area without judgment and yet with insight (Shapiro, Stein, Bishab and Kordova, 2005). Mindfulness is a simple way related to the all experiences that can reduce pain and suffering and a stage for development of positive personality. It is an inner mental process that can change the way we response to inevitable problems. Not only has it responds to daily challenges, but also responds to mental problems such as impulsiveness in individuals with border personality disorder (Soler et al. 2016), depression (Vaseskook et al. 2015), mental delusions (Segal, Jermer and Otendski, 2008) and physical rehabilitation (Hardison and Roll, 2016). Katterman et al. (2014) carried out a systematic review on "the mindfulness intervention in neurological overeating, emotional overeating and weight loss". In this study 14 research were reviewed that addressed to the mindfulness intervention

on neurological overeating, emotional overeating, and weight changes. Results showed that mindfulness intervention reduces neurological overeating and emotional overeating significantly.

Increasing prevalence of the neurological overeating disorder and the extensive complications of it for an individual and society and even the risk of death in the affected individuals and its negative impacts on various aspects of life indicate the importance of addressing to this issue. By review of the studies regarding overeating disorders it was found that self-efficacy variable has a remarkable part in the appearance and duration of this disorder. On the other hand, results of the studies on the treatment of overeating disorder showed that among different psychotherapy methods, the mindfulness-based treatment has been effective significantly regarding the neurological overeating disorder through affecting on the interfering factors.

Methodology

The method used in this study in terms of objective is applied and in terms of data gathering has a semi-experimental design with pre-test and post-test design with control group and random assignment of subjects. The statistical population of this study was outpatient outpatients with neurological overeating referred to two nutrition clinics in Tehran in 2018. The statistical sample of this study included was 30 persons who were selected purposefully and then 15 people were assigned randomly to experimental group and 15 people were assigned to control group. The experiment group received mindfulness training for 8 weekly 90-minute sessions and the control group remained in the waiting list. Finally, a similar pot-test questionnaire was implemented for both groups. A summary of the mindfulness sessions is presented in table 1.

The research tool was the general self-efficacy scale of Sherer et al. (1982). The general self-efficacy questionnaire (GSE) questionnaire has been developed by Sherer et al. (1982) in order to measure the general self-efficacy beliefs. This scale has 17 items to measure three aspects of behavior including desire to trigger a behavior, desire to expand attempt to complete a task and resistance in confrontation with obstacles. The general self-efficacy questionnaire is regulated based on Likert scale from the range of totally disagree to totally agree. Scoring the scale is such that each item is given a score from 1 to 5. The items 1, 3, 8, 9, 13 and 15 are scored from right to left and the other items are score a reverse, that is, from left to right. Therefore, the maximum score that is achievable from this scale is 85 and the minimum score is 17 (Majidian, 2005). Sherer reports the validity of the general self-efficacy questionnaire .76 by Cronbach alpha method (Arabian et al. 2004). The scale was translated and validated in Iran by Bakhtiari Barati (1997). Reliability of the self-efficacy scale in the studies of Bakhtiari Barati (1997), Abdinia (1998) and Arabian et al. (2004) has been reported .79, .85 and .91, respectively.

Table (1): A summary of mindfulness sessions

Sessions	Contents
1	Implementing pre-test, communication and conceptualization, necessity of using mindfulness training and getting familiar with relaxation
2	Training relaxation of 14 groups of muscles including forearm, arm, shin back muscle, thighs, abdomen, chest, shoulders, neck, lips, eyes, jaws, forehead (lower part) and forehead (upper part)
3	Training relaxation of 6 groups of muscles including arms and legs, legs and thighs, abdomen and chest, neck and shoulders, jaws and forehead, lips and eyes, and relaxation task for home
4	Review of the previous session, getting familiar with the way of breathing mindfulness, training inhale and exhale technique calmly and without thinking about other thing and training the technique of watching breathing and home task on mindful breathing before sleep for 15 minutes.
5	Training the technique of attention to the body motion in breathing, concentration on the organ and their motion and looking for physical sense, home task of mindful eating, eating calmly and attention to the flavor and appearance of food
6	Training paying attention to mind, positive and negative thoughts, thought being pleasant or unpleasant, permitting to negative and positive enter into mind and removing them easily from mind without judgment and deep attention to them and home task and writing positive and negative experiences without judging them

7	Complete mindfulness, repeating the training of session 4,5,6 each for 15 to 25 minutes
8	Conclusion of the training sessions and implanting post-test

Analysis of the data obtained from implementing the questionnaires was conducted through SPSS software in two descriptive and inferential (covariance analysis).

Findings

In order to examine the above hypothesis, the Mankwaa test was used. But before the Mankwa test, the presumption of equality of variances and covariance should be checked. In Table 2, the results of Levine's test are presented to examine the equality of dependent variable variances. According to the results, the presumption of the equality of variances for dependent variable is supported, so the Mankwa test can be used.

Table (2): Results of Levin' test

Variable	F	Df1	Df2	Sig
General self-efficacy	.554	1	28	.161

In table 3 the results of Box test to examine the assumption of zero equality of covariance matrix observed of the dependent variables in the groups have been presented. Results of this test show that the assumption of the equality of covariances is confirmed (confirming the zero assumption). Therefore, results of the test of covariances equality also support the feasibility of using Mankwa test.

Table (3): Box test to examine the covariance matrices

Box test	3.258
F	.479
df1	6
df2	5680.30
.Sig	.824

Therefore, in order to compare the variables of the two experiments and control groups Mankwa test was used, that its results are presented in table 4.

Table (4): Mankwa test

trace		value	F	Significance	Eta2	power
groups	Pillai trace	0.486	7.243	0.001	0.468	0.962
	Wilkes Lambda	0.514	7.243	0.001	0.468	0.962
	Hoteling trace	0.945	7.243	0.001	0.468	0.962
	Roy's root	0.945	7.243	0.001	0.468	0.962

According the results, in general, there is a significant difference between groups in the dependent variables; then the author's hypothesis was supported. The statistical power also implies the sufficiency of the sample size and the rate of difference between the two groups was approximately 48 percent.

Table (5): Mankwa test results

Variable	Total squares	Freedom degree	Squares mean	F	.Sig	Eta2
General self-efficacy	56.677	1	56.677	3.796	.063	.132

In table 5 the results of Mankwa test have been presented separately for variables. According the results there wasn't a significant difference in the general self-efficacy variable. Therefore, the hypothesis was rejected.

Discussion and Conclusion

Results of Mankwa test separately for the variables showed that there wasn't a significant difference between the two groups in the general self-efficacy variable, and then the second sub-hypothesis was rejected. This finding was unaligned with the results Soodani (2015). Soodani (2005) in a study

addressed to the effectiveness of mindfulness-based cognition therapy (MBCT) on the overeating disorder, self-control ad quality of life of married women referring to the overeating association of Ahvaz city. Its results showed that the mindfulness-based cognitive therapy approach leads to the reduction of the symptoms of overeating disorder, improvement of self-control and life quality of experiment group compared to the control group. Follow-up with a one-month interval demonstrate d the effect of the mindfulness-based cognitive therapy on overeating disorder, self-control and quality of life. Results of studies have considered the self-efficacy construct as effective in eating disorders. Studies show that self-efficacy of eating behavior is the predictor index of weight loss and increases during the programs designed and implemented for weight loss, prevents again weight and enhances the motivation and adherence to this behavior. In general, it can be argued that self-efficacy is an important factor that has to be considered in the training program and nutrition advices for loss weight; otherwise, it isn't sufficient just to provide information concerning healthy behavior (Palsdotir, 2008). However, the results of the present study implied the ineffectiveness of mindfulness training in the improvement of self-efficacy. Studies show that self-efficacy of eating behaviors is a predictive indicator of weight loss and increases in weight loss programs designed for weight loss and prevents weight gain and increases motivation and adherence to this behavior.

Evidence from Jessica's research (2010) indicates that people with neurological overeating have low self-efficacy. In the study of Bardon-Kenny et al. (2006) it was found that self-efficacy with idealism is one of the important variables in the prediction of eating disorder and the individuals with low self-efficacy exhibit much eating behavior. Also in the study of Preze and Thomas (2003) it was found that increase of self-efficacy reduces eating behaviors. Self-efficacy is the confidence in oneself ability to control thoughts, emotions and activities and therefore is effective on the outcome of actions. Self-efficacy expectations effect on the real performance of individuals, emotions, behavior choice and eventually the level of attempt for an activity (Militad and Savang, 2003). It seems that the self-efficacy construct due to being deep hasn't been affected from intervention and probably given the research background through various follow-up in intervals and with longer training courses, it may be possible to judge with higher confidence about the effectiveness of the intervention. In the present research it has been affected by the intervention. Self-efficacy is a personality variable that it's thinking and cognitive aspect is more evident. This cognitive, despite of impulsiveness, aspect probably requires deeper interventions to be changes. Mindfulness isn't a technique to understand past or correct the mistake thinking ways in the past and wouldn't addresses directly to the treatment of problems, but consciously considers the underlying stimuli of cognitions and emotions and subjects the hidden contents of life to awareness; thereby, it shows without judgment or blame that emotions consists of thoughts, physical senses, raw feelings and impulse, that the same feature can be the ineffectiveness of mindfulness on self-efficacy. Because self-efficacy is a variable deeper than is affected by mindfulness and this explanation seems logical given that mindfulness goal isn't to make ideological changes.

Mindfulness is a method to train mind and acts like a microscope that shows the deepest patterns of mind; when mind is observed in practice the thoughts and emotions are disappeared automatically (Wiliams and Penman, 2012). Mindfulness, as lifestyle, using the meditation exercises that are integrated in the daily life helps people get familiar with the dual states of mind and consciously utilize them in the form of a coherent mind. Through this method, individuals find that they don't think only, they also can observe their thinking. Through formal meditations (such as breathing and body meditations, conscious Yoga meditation and body inspection meditation), as well as informal mediations (such as consciously eating, walking, showering …) and habit breaking exercises, individuals learn that be present in "here" and "now" (Wilimas and Penman, 2011). Inability in the presence in the moment now causes that a distance is created between the individual and reality and the possibility of proper understanding the situation and providing intellectual and conscious answers is taken away from him/her (Omidi and Mohamadkhani, 2009). Several scientific studies have shown that the reason for many mental problems of individuals is their lack of presence right here and right now in their every moment of life, while the mindful individuals perceive the internal and external realities freely and without distortion and have a great ability in the confrontation with an extensive range of thoughts, emotions and experiences (including pleasant and unpleasant) (Nejati et al. 2012). Mindfulness is accompanied

with component such as admission (reality), presence (in the present time), and avoidance (from rumination) and include goals such as promotion of welfare and awareness of self and environment with adjustment of mind. Despite of many psychology therapy schools and of course consistent with the goals and assumptions of positive psychology, the objective of applying mindfulness isn't ideological changes but its goal is to help becoming aware of processes that make an individual prone to a damaging mentality or sticking to the mental states (Mohamadkhani et al. 2005). One of the important principles in the mindfulness is "to abandon". Mindfulness approach holds that human being, in general, has stuck to many things: to beliefs, particular events, particular times, a landscape, a desire, and the issue make humans vulnerable and helpless and intensify the feeling of losing control of their life. But when people learn to abandon these issues and obtain more awareness and admission to them, hence, they will consider the problems and issues with a more clear and open mind. Although in this study in order to control the disturbing variables and probable biases, the sample population was divided into two experiment and control groups; yes, there were some limitations in this study as well. This research was conducted merely on the patients with neurological overeating and therefore its results have to be generalized carefully. The small size of the sample was due to the rareness individuals with merely neurological overeating problem.

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