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EFFECTIVENESS OF MINFULLNESS-BASED COGNITIVE THERAPIES ON ANXIETY AND PSYCHOLOGICAL WELL-BEING OF HYPERTENSION STRICKEN PAITIENTS' IU

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Abstract: *The research applied a semi-experimental method using pre-test and post-test with control group. The statistical community is made up of all hypertension stricken patients, extracted from Babol based Shahid Beheshti Hospital during three months from August to October 2015 among the mentioned hospital files. Out of this, 32 patients have been selected via non-random sampling method and randomly included in the experimental and control groups; The experimental group has been provided with eight 2.5 h sessions of mindfulness-based cognitive therapy (MBCT). The data have been collected through Intolerance of Uncertainty Scale (IUS). To compare the two experimental and control groups' mean scores, the effect of pre-and post-tests scores and other interventive variables on post-test sores has been applied. The covariance test results indicated that pre-test didn't exert remarkable effect on post-test derived results and also MBCT led to the experimental group's IU decrease. The findings imply that applying MBCT has directly affected the hypertension sufferers' IU drop*

Key words: *MBCT, anxiety, psychological well-being, hypertension.*

1. Introduction

Cardiovascular diseases such as stroke and heart attack are almost the major reason behind mortality in industrial world. WHO estimates that across the world at least 20 million persons per year get afflicted by heart attack and require medical care, the issue considered costly (Gaziano, Bitton, Anand, Abrahams-Gessel, & Murphy, 2010). Hypertension is one of the important risk factors of cardiovascular diseases bringing about inefficiency in endothelium and increased arteriosclerosis. Oxidative stress recognized as the built-up oxidative material to androgen antioxidant capacity and it rises under conditions like hypertension and via inactivation as an important factor in nitric oxide (NO), endothelium related vessel expansion decrease results in hypertension (Plantinga et al., 2007).

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Generally speaking, two thirds of the strokes and a half of the ischemic heart diseases can be attributed to hypertension at non-optimal level; this phenomenon is of the prevalent public health problems growing (Abol-fotouh et al., 1996) so that out of 8 deaths, one is due to hypertension worldwide. Therefore, hypertension is viewed as the third top cause of mortality in the world (Johnson, 2006). Many studies have investigated the psychological variables' effect on the physiological indicators (Gellman et al., 1990; Raikkonen, Matthews, Flory, Owens, & Gump, 1999). These studies revealed that various personal dimensions are interrelated with cardiovascular reactions and personal dimensions are tightly connected with emotions (Jonassaint et al., 2009).

In the recent years, lots of studies have been performed on the effect of anxiety on the onset, duration, and progress. The recent studies derived information on CHD diseases disclosed that anxiety in both healthy and OCD sufferers increases heart events risk (Douglas, & Zipes, 2005). Clinically speaking, in 40 to 65 % of the patients, following myocardial infraction, dominant depression symptoms are observed. While in (MI) of other patients, the outbreak of anxiety and major depression disorders is 20-25% (Frasure-Smith, Lespérance, & Talajic, 1993). Anxiety is of other psychological factors focused on in cardiac sufferers, which has been reported as 50% in the patients with MI (Hippisley-Cox, Fielding, & Pringle, 1998; Januzzi, Stern, Pasternak, & DeSanctis, 2000). Anxiety refers to the reported, unpleasant and vague sensation of worry often accompanying physical symptoms (perspiration, heart beat, dyspnea, headache). The individuals engaged with such emotion have some problems in interrelationships, career performance and optimal physical health; this emotion is easily created by many stress associated conditions and may reflect the person's inability to cope (Leahy, 2002). There are clues signifying this point that integrating medicinal therapy (special TCAs and monoamine oxidase inhibitors) and psychological approaches involving gradual encounter, particularly for the patients based on Spillberger's view, this belief has been evolved it is essential to distinguish whether anxiety is a mood or attribute (Tang, 2001).

Of such variables interacting with hypertension is psychological well-being. Mental well-being is a significant construct in personal trait interpretation related studies and has been defined as a positive assessment of life and balance between positive emotion and negative emotion (Walker & Schimmack, 2007). Ryff's model is considered as one of the most significant models in psychological well-being area; Ryff (1995) considers his psychological well-being model as an effort for growth and advancement to make the potential personal capabilities realized. In autonomous psychology, personal growth and well-being are defined as man optimal function (Nell, 2011). Domination of the environment, purposefulness in life, having positive communication with others and self-acceptance are the psychological well-being components in Ryff's model (1989). Autonomy is created when the individual recognizes herself /himself the reason behind her/his activity outcomes (Bauer & Mulder, 2006). Personal growth means the individuals have to constantly develop in various life dimensions in order to reach high levels of psychological function (Ryff, 1989). This issue suggests that the person has to persistently get engaged in the tasks and solve the problems to expand those capabilities of their own. Dominating the environment means the individual's capability to manage life. As described, the person feeling dominating the environment can intervene in diverse aspects of the environment, change and promote them (Keyes, 2002). Having a vivid perception of goal in life, feeling orientated and purposefulness are viewed as the basis of mental health. This scale also is determined via the assistance of features like

purposefulness and orientation in life and experiencing meaningfulness in the past and present life (Ryff, 1989). The existence of goal in life is positively associated with satisfaction with life and happiness (Bronk, Hill, Lapsley, Talib, & Finch, 2009; Steger & Dik, 2010). Having positive relationships with others is critical for the individual's well-being and increases their happiness and better performance. Also positive relationships with other predict life satisfaction (Diener & Biswas-Diener). Rodgers (1959) stated that self-acceptance points to the individual's satisfaction with life. Self-acceptance is a sort of insight causing the individual to reach real knowledge about their strengths and weaknesses (Ryff & Singer, 2008) Besides, Davis and Hoviet (2003) recognized self-acceptance and stated that lower levels of self-acceptance accompany higher levels of mental problems (quoting Nell, 2011). Thus it can be said the individuals with higher levels of well-being experience positive emotions and have positive evaluation of the events surrounding them while those with lower levels of well-being evaluate their life events unfavorable, and experience more negative emotions such as anxiety, depression and anger (Diener, Lucas, & Oishi,2002).

MBCT Mindfulness-based Cognitive Therapy is a skill training program assisting to train the referring individuals to identify and separate from mental states whose characteristic is self-continuing patterns of obsessive and negative ruminative thoughts. MBSR extracted meditational exercises and traditional derived psychological training methods along with discussions addressed in the group context facilitate these goals (Didonna, 2009). Therefore, unlike traditional cognitive therapy, in this approach, no direct efforts are made to challenge or reconstruct cognition and the central skill is the response capacity to abhorring cognitions, sensations and emotions, turning feasible via a non-judgmental attitude accompanied with momentary consciousness acceptance (consciousness at any time) (Segal, Williams, & Teasdale, 2002).

In this regard, some studies have been performed addressing MBSR; Yang, Hong-Fu, Jing (2015) studied mindfulness-based stress reduction and mindfulness-based cognitive therapies on HIV stricken people; a systematic review and meta-analysis in 7 papers describing the obtained results with overall 620 HIV stricken individuals enrolling in 6 random follow-ups and 1 semi-experimental follow-up have been included in the final meta-analysis. The overall quality of the studies has been moderate since the majority of the study criteria have been implicit (covert), being exposed to high deviation risk since. Moreover, some of the patients receiving MBSR or MBCT training for 8 weeks and 6 months, respectively, have displayed improved CD4+. Xie, Jian-Gong, DeSanto Iennaco, and Ding (2014) demonstrated that MBCT in psychotic disorders intervention has had significant impact on psychotic disorders in China. Gu, Jenny; Strauss, Bond, & Cavanagh (2014) in a research compared the effectiveness of MBSR and MBCT. Two-Stage meta-analysis structural Equation Modeling (TSEEM) has been used to study whether these mechanisms moderate MBIs effect on the clinical outcomes. This review has identified the strong evidence and compatibility for mindfulness on sympathy and worry and primary and insufficient evidence for self-sympathy and psychological flexibility as the underlying mechanisms of MBIs.

Kurdyak, Newman, and Segal (2014) displayed that MBCT has reduced non-mental (psychological) health utilization integrative scale compared with emergency ward non-mental health primary treatment and the therapist's non-psychological specialists' visit. Van Son et al. (2014) in a study dealt with MBCT for diabetic patients and those with sensational issues; the long-term follow-up findings of a long-term random controlled

follow-up: in the follow-up on 139 outpatients with diabetes type I and type II and reduced level of sensational health in MBCT (NO=70) with a waiting list with regular treatment (TAU: NO=69) have been randomly selected. The primary outcomes showed stress, anxiety, depressive symptoms and diabetes disorder. The secondary outcomes included health status and blood sugar level control (HBALC). With respect to the significance of paying attention to anxiety and psychological well-being in hypertension stricken patients, the major point in this study is whether MBCT influences hypertension stricken patients' anxiety and psychological well-being?

2. Methodology

The study has been done on experimental or semi-experimental design using pre-test and post-test with control group. The statistical community is made up of 250 patients with hypertension (the patients have been diagnosed with hypertension by the cardiologists), the ones extracted from Babol based Shahid Beheshti Hospital during three months from August to October 2015 out of this hospital files. Employing non-random sampling method, 32 hypertension sufferers (matched in terms of age, gender, and living conditions) have been selected and absolutely randomly, 16 ones have been included in the control group and 16 other ones in the experimental group. The subjects included in the experimental group have been given eight 2.5 h sessions of MBCT (Table 1), while the control group hasn't undergone such therapy. Both groups have been evaluated in terms of anxiety and psychological well-being (Pre-test and post-test).

In the current research, in order to measure anxiety, anxiety scale has been used to measure anxiety level and this scale has been designed to measure anxiety, including 21 statements. Each statement reflects one of the anxiety symptoms experienced by the ones clinically anxious or those being located in anxiety stimulating conditions. This scale has achieved high internal consistency and its items correlation with each other ranges 0.30-0.71 (M =0.60). This test has been implemented on 83 patients with one week interval for re-test, achieving high correlation (0.75). This scale has high reliability. Its internal consistency coefficient (alpha Cronbach) has been 0.92, it reliability with re-test with one week interval has been 0.75 and its questions correlation has varied between 0.3 and 0.75 (Wetherell & Gatz, 2005). In this study, alpha-Cronbach coefficient has been obtained 0.88.

MBCT psychological sessions account Table 1

Session	Account
The 1st to 4th sessions' topic: – Giving an account of the importance of mindfulness at the moment and being here and now and opening the concept of mindfulness for the members using several techniques and learning daily routines and taking care of them. – Distracted mind relaxation through breathing and body review exercises, sitting meditation and doing exercises bringing you to the present time. – Learning to stay at the moment without avoiding people and monitor tossing thoughts.	
The 5th to 8th sessions' topic: - Fully aware of thoughts, feelings and accepting them without direct judgment and interference. - Changing mood and though via taking them as mere thoughts rather than realities. - Consciousness of aggressive symptoms and regulating the program facing aggressive symptoms. - Planning for future and using the momentary presence techniques for life and generalizing them to whole life cycle.	

In the present research, in order to measure psychological well-being, psychological well-being test of Ryff & Gatz has been applied. Psychological well-being is multicomponent concept and encompassing self-acceptance, positive relationships with others, autonomy, dominating the environment, purposeful life and personal development. This scale is made up of 84 items and each item includes 6 options as "absolutely disagree", "somewhat disagree", "slightly disagree", "slightly agree", "somewhat agree", and "absolutely agree". To get the score related to each scale, it is sufficient to sum up all statements' scores with the question subscale's score. By summing up the 84 statements 'scores, the total psychological well-being score is gained. Ryff (1989) executed this test on a 321 subject sample to find out the normalization of the psychological well-being scales. He reported this scale subscales' consistency coefficient this way: autonomy = 0.76, dominating the environment = 0.90, personal development = 0.87, positive relationships with others=0.91, purposeful life = 0.90 and self-acceptance = 0.93. E CORECT SCRIS autonomy = 0.76.

The study data have been analysed using the statistical package for social science – (SPSS18). To describe the data, the statistical indicators as mean and standard deviation in pre- and post-test stages have been applied. To compare the mean scores of the two groups, the scores' effect of the pre-test and other interventive variables on post-test scores, covariance has been used.

3. Findings

The findings indicated that 50% of all respondents have been women and 50% men. Thirty-eight percent (38%) of the experimental group respondents have had diploma (max frequency) and 6% graduate and higher education (min frequency). In the control group, 31% of the respondents have had diploma (max frequency) and 6% graduate and higher education (min frequency). Also 50% (max frequency) of the respondents in the experimental group aged 45-50 years (max frequency) and 19% aged 56-60 years (min frequency) and in the control group, 44% aged 50 years (max frequency) and 19% aged 56-60 years (min frequency).

The findings in table 2 revealed that following MBCT dependent variable intervention, between the mean scores of pre-test and post-test in the experimental group, some changes have been imposed on every variable. While in the control group, the mean score of IU variable (no intervention), no apparent difference has popped up. Considering this point that in IU variable, p-value is more than significance level as 0.05, it is concluded that the study variables are normal. Thus to examine the study hypotheses, parametric tests have been employed (one of the verified covariance tests). The findings revealed that the significance level of Levene test in pre-and post-test is more than error level (α=0.05) and H0 based on the variances' homogeneity is supported. Thus there is no reason for the variances heterogeneity. So there is no reason for the variances' heterogeneity.

As observed in table 3, the covariance test resulted squares sum (ANCOVA = 1216.696) and the ratio obtained from the test is F = 124.128 with p = .004. Then the hypothesis can be verified with confidence level P=95% at error level α=0.05%.

Anxiety & psychological well-being variable indicators Table 2

Test of Homogeneity		Kolmogorov-Smirnov		Control group		Experimental group		Study variables	
p	Levene	test result	p	SD	M	SD	M		
.09	2.99	normal	.78	11.81	29.43	5.13	30.25	Pre-test	anxiety
.05	3.11	normal	.16	15.05	27.56	5.03	15.01	Post-test	
.07	3.44	normal	.94	56.56	345.78	35.18	329.25		well-being
.05	3.52	normal	.46	80.89	355.75	44.05	408.25		

Covariance analysis results in MBCT on anxiety Table 3

Partial Eta Squared	p	F	Mean Square	df	Type III Sum of Squares	Source
.253	.008	5.800	720.087	2	1440.174	Corrected Model
	.001	17.717	2199.497	1	2199.497	Intercept
	.241	1.431	177.643	1	177.643	Anxiety Pre-test
	.004	9.800	1216.696	1	1216.696	group
			124.148	29	3600.256	Error
				32	19533.00	Total
				31	5040.469	Corrected Total

a. R Squared = .151 (Adjusted R Squared = .92)

This conclusion is drawn that ANOCOVA has showed that the effect of the independent variable (Group) is significant, that is, after removing the pre-test's effect, there is a meaningful difference in the mean scores of anxiety and the group in post-test. Accordingly, H0, that is, the significance of the two groups' mean difference in the post-test, is rejected after probable omission of the pre-test.

As a result, there is a critical difference between the experimental and control groups in terms of anxiety (F = 124.128, p > 0.05). Considering the mean scores, it can be concluded that MBCT influences hypertension suffering patients' anxiety; in addition, η factor=0.253. Concluding, the independent variable could account for 26% of the anxiety variation.

Covariance analysis results in MBCT on psychological well-being Table 4

Partial Eta Squared	p	F	Mean Square	df	Type III Sum of Squares	Source
0.150	.09	2.572	11249.37	2	22498.748(a)	Corrected Model
	.001	16.467	72010.49	1	72010.493	Intercept
	.75	0.103	448.74	1	448.748	psychological well-being Pre-test
	.03	5.137	224.65.28	1	22465.288	group
				29	126815.252	Error
				32	4818882.00	Total
				31	149314.00	Corrected Total

a. R Squared = .151 (Adjusted R Squared = .92)

As table 4 depicts, the covariance test resulted squares sum (ANCOVA=22465.288) and the ratio resulted from the test is $F = 5.137$ with $p = .031$. Then the hypothesis can be confirmed with confidence level p = 95% at error level α = 0.05%.

Thus the conclusion is that ANOCOVA has displayed that the effect of the independent variable (Group) is meaningful, that is, after the pre-test's effect is removed, there is a critical difference in the mean scores of well-being and the group in post-test. Consequently, H0, that is, the significance of the two groups' mean difference in the post-test, is rejected after probable omission of the pre-test. Therefore, a significant difference exists between the experimental and control groups in terms of well-being ($F = 5.137$, $p > .05$).Taking the mean scores into account, it is concluded that MBCT affects hypertension suffering patients' psychological well-being; in addition, η factor = .253. Concluding, the independent variable could account for 15% of the psychological well-being variation.

4. Conclusion

The findings assumed that "MBCT results in the hypertension sufferers' anxiety drop ", it can be asserted that due to their disease, the patients with hypertension have aggressive behavior sometimes not being tolerated by others and also because the mental tensions they suffer from block them to achieve their goals. The findings suggested that the strategies the patients acquire through MBCT exercises like breathing control and relaxation and concentration build-up programs, and meditation on daily routines caused them to control endocrine gland when being under tension and prevent permanent irritability with people, feeling unable to resist, permanently or temporarily being disinterested in life, fearing diseases, feeling guilty, feeling wicked and hurting oneself, feeling frustrated, and not having someone to trust. Generally speaking, MBCT leads to anxiety reduction.

This results is consistent with the that of the studies by Dugas, Schwartz, and Francis (2004), Kurdyak, Newman, and Segal (2014) and Gu, Strauss, & Cavanagh (2014) and Yang, Yan-Hui Liu, Hong-Fu Zhang, Jing-Ying (2015) and Xie, Jian-; Zhou, Gong, DeSanto Iennaco, and Ding (2014). Regarding the achieved results, the nurses and the paramedics permanently dealing with low tolerant patients are recommended to hold training courses for relaxation and anxiety control so that, when required, to be able to apply such programs for controlling the patients as much as possible.

In addition, the findings demonstrated that "MBCT increases the hypertension stricken patients "psychological well-being", so it can be inferred that mental relaxation and concentration based exercises can bring about joy and happiness in daily life and raises healthy efficiency, using concentration exercises such as meditation and yoga allows the individual to slightly contemplate under pressures and cope with them whole-heartedly, the issue creating stable mood, conscious intelligence, conscientious social behavior and happiness inclination in the individual so that she/he could plan for life accurately and purposefully and view the issues realistically and create special coordination between the values, interests and attitudes in practice.

Thus MBCT puts the hypertension stricken individual exposed to anxiety and depression in healthy mental status or psychological well-being; the result is compatible with that of the studies conducted by Van Son et al. (2014), Gu, Strauss, & Cavanagh (2014), Xie, Jian-; Zhou, Gong, DeSanto Iennaco, and Ding (2014).

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