



The Effect of a Bioenergy Economy Program on Pain Control, Depression, and Anxiety in Patients with Migraine Headache

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Quantitative Study

Abstract

Background: Psychological problems such as depression and anxiety are very common in patients with chronic headaches and give rise to the repetition and continuity of the headaches. This study aimed to assess the effect of a bioenergy economy program and particularly the biofield attunement on the improvement of the pain control, depression, and anxiety in patients suffering from migraine, a common psychosomatic disorder.

Methods: To collect data, a quasi-experimental method was adopted including pretest, posttest, and follow-up phase. Thirty patients with migraine were selected based on convenience sampling method and put into two experimental and control groups. Data collection tools included Beck Depression Inventory-II (BDI-II), Beck Anxiety Inventory, and Headache Impact Test (HIT-6TM). The data were analyzed using repeated-measures analysis of variance (ANOVA) and covariance (ANCOVA) tests. Both experimental and control groups participated in the entire program to assess the effect of bioenergy economy program on mentioned variables. To assess the effect of biofield attunement, a non-expert person performed the attunement of participants in the control group while an expert bioenergy healer and channel performed attunement procedures for the participants in the experimental group.

Results: The mean scores of pain, anxiety, and depression of 30 participants in pretest differed significantly with those in posttest and follow-up phases; but such a difference was not observed between the scores of posttest and follow-up in control group. Moreover, the participants' mean scores in posttest and follow-up phases differed significantly between the two groups.

Conclusion: Bioenergy economy program caused a significant decrease in anxiety, depression, and intensity and frequency of pain in patients with migraine. The decrease on mentioned variables were consistent in a two-month interval. These therapeutic effects were even more in experimental group who had received real biofield attunement. As bioenergy economy program and biofield attunement is a non-pharmaceutical and harmless care system, it is recommended as an effective method for the reduction of depression, anxiety, and pain in patients with migraine.

Keywords: Migraine, Headache, Bioenergy economy, Biofield, Attunement, Pain, Depression, Anxiety

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Introduction

Migraine, usually unilateral and often pulsating in nature, is the most prevalent headache globally (Aminoff, Greenberg, & Simon, 2009). Among 20 incapacitating conditions, migraine is one of the most disabling ones. Its occurrence in the world is more than 10 percent of the population and 1.7 to 4 percent of adult population suffer from migraine more than 15 days in a month (World Health Organization, 2011). International Headache Society (IHS) classifies migraine into two types, migraine with aura (classic migraine) and migraine without aura. Aura is a reversible neurological disorder which may occur with numbness and tingling of the scalp or a change in senses of sight, smell, hearing, or transient aphasia (Ducros, 2006). The pain usually lasts 4 to 72 hours in adults. The frequency of attacks varies from a few in a lifetime to several times a week, with an average frequency of once a month. The pain is frequently accompanied by nausea, vomiting, sonophobia, photophobia, and lethargy. More than half of sufferers show the symptoms which affect their mood, appetite, or cognition (Bradley, Daroff, Fenichel, & Jankovic, 2008).

Migraine is a neurovascular disorder known to be caused by depression of cortical spreading, neurogenic inflammation, dysfunction of cranial vascular contractile and decreased inhibition of central pain transmission. In migraine, abnormalities are observed in inflammatory markers, such as C-reactive protein (CRP), levels of patients' blood circulation (Yilmaz-Avci, Lakadamyali, Arikan, Benli, & Kilinc, 2015). Although no significant association between the CRP level and migraine is reported in some studies (Fava et al., 2013; Gudmundsson et al., 2009; Guldiken et al., 2008), many studies report the correlation between the elevation of CRP level and an increased risk for psychological distress, depression, anxiety, acute and chronic stress in the general population (Lippi, Mattiuzzi, & Cervellin, 2014; Wium-

Andersen, Orsted, Nielsen, & Nordestgaard, 2013; Nijm, Kristenson, Olsson, & Jonasson, 2007; Coussons-Read, Okun, & Nettles, 2007; Ranjit et al., 2007; Hamer, Gibson, Vuononvirta, Williams, & Steptoe, 2006; Miller, Rohleder, Stetler, & Kirschbaum, 2005). As a result, elevation of CRP level may cause migraine headaches.

Studies indicate unfavorable effects of migraine on patients' quality of life and developing negative mood states. Continuous negative mood states lead to chronic headaches which cause mood and anxiety disorders as comorbidity disorders (Holroyd, 2002).

A recent research, using biopsychosocial framework and development of latest views on factors causing headaches, considers the role of psychological factors in occurrence and outcomes of headache (Nicholson, Houle, Rhudy, & Norton, 2007). Anxiety can be a risk factor which triggers headache attacks in an individual who has prior (genetic or learned) vulnerability (Breslau, Chilcoat, & Andreski, 1996). Certain personality traits can make the individual prone to headache. Besides, stressful emotional experiences work as a factor to increase attacks. Onset of migraine headaches is often related to frustration, psychological tensions, depression, suppressed anger, and other emotional factors. Besides, psychological traits show a pattern of excess self/other blaming/criticism in migraine sufferers (Nicholson et al., 2007; Drummond, & Passchier, 2006; Olesen, & Goadsby, 2006; Spierings, Ranke, & Honkoop, 2001; Rasmussen, 1993; Levor, Cohen, Naliboff, McArthur, & Heuser, 1986; Popper, & Eccles, 1977).

The most common correlation between emotion and pain is the correlation between depression and pain (Tshccannen, Duchro, & Wilson, 2000). The researches indicate that people who suffer from pain are likely to have depression which is a major predictor of headache and disability (Materazzo, Cathcart, & Pritchard, 2000; Marcus, 2000; Duckro, Chibnall, & Tomazic, 1995).

Moreover, migraine sufferers' perceptions of life requirements as threats and fear of pain can increase stress response which leads to troublesome behaviors (like poor sleep patterns, excess use of caffeine and medication, and evading from social behaviors reinforcement) (Nicholson et al., 2007; Biga, & Lipton, 2006). Anxiety and fear of pain may cause sufferers' use of pain killers prior to headache attacks. As such, using medication to prevent pain is reinforced and the cycle of recurrent use of pain killers is shaped. This cycle misses one's chance to learn pain prevention strategies or regulation of headache triggering factors which consequently causes an increase in headache disorder, attack aggravation, and perceived disability to control headache and its related factors which in turn leads to unfavorable outcomes in one's performance and quality of life. Therefore, an increase in stress experience hinders the use of psychological and social resources (Nash, & Theborge, 2006). Studies on pain control indicate that chronic pain is caused by pain and stress interpretation which correlates with poor coping and performance (Holroyd, & Lipchik, 1999; Martin, 1985). The perception that factors related to headaches are out of individual's control (external locus of control) and perceived disability to control these factors (low self-efficacy) explain this correlation. High anxiety and fear related to pain is correlated with one's inability to control headaches (Nash, & Theborge, 2006). On the other hand, based on the gate control theory (GCT) of pain, interaction between peripheral stimuli and cortical variables such as mood and anxiety has an effect on enhancing or moderating the pain perception (Drummond, & Passchier, 2006). In some longitudinal studies, the association between mood disorders and migraine is reported to be bidirectional (Olesen, & Goadsby, 2006; Rasmussen, 1993). All sorts of emotional states, like being anxious, worried, and depressed, can make the gates of pain more open. Having a lot of tension in body is a

common way of opening the pain gates (Melzack, & Katz, 2013; Melzack, & Wall, 1965). Repeated migraines, like chronic repeated stress, may lead to allostatic dysfunction and consequently structural and functional damages are manifested (Borsook, Maleki, & Becerra, 2012; McEwen, & Seeman, 1999). The mentioned negative changes may influence pain processing, increase central sensitivity, and affect the pain experience in patients with migraine (Radat, 2013; Borsook et al., 2012). Functional MRI (fMRI) findings show that in response to painful heat stimuli, the perigenual cortex of the patients with migraine become more activated than that of patients without migraine. Perigenual cortex is the brain area responsible for allostatic dysfunction in rats (Tessitore, Russo, & Esposito, 2011). Besides, the overuse of analgesic and headache symptomatic medications might affect allostasis too (Minen et al., 2015).

Control methods of common headaches are divided into two major classifications. Medication treatments applied with the aim of affecting the pathology of the migraine including antidepressant, beta blockers, and pain relievers (Aminoff et al., 2009). The second classification is non-drug alternative and/or complementary treatments which conceptualizes headache as a psychosomatic disorder. Such treatments focus on physiologic responses related to headache (relaxation training, biofeedback ...), behaviors, emotions, and cognition (cognitive-behavioral therapy including stress management, mindfulness, acceptance and commitment therapy ...) (Brown, Newman, Noad, & Weatherby, 2012; Nicholson, Buse, Andrasik, & Lipton, 2011). Cognitive-behavioral therapies focus on creating effective confronting and coping responses, hinder negative emotions to reinforce patients' self-efficacy, and decrease their disability through changing inefficient interpretation, modifying thought patterns and inefficient cognition. Such treatments are suggested in accompany with biological

treatments for headache management. Besides, combinations of psychophysical treatments, complementary and alternative medicine which are known as body-mind approaches (like hypnosis, meditation, reiki, yoga, and energy-based approaches) are applied (Clark, & Beck, 2010; Penzien et al., 2005). Most of energy-based treatments as complementary treatments are included in energy medicine and/or mind-body interventions (Goli, 2010).

“Bioenergy economy” is an integrative health program. Many evidences show effectiveness of the therapeutic elements of bioenergy economy such as relaxation (Murphy, & Donovan, 1997; Benson, 1976), body awareness (Geggus, 2004; Stein, 2000; Baginski, & Sharamon, 1997; Wilber, 1977), bioenergy/body psychotherapy (Levin, & Mead, 2008; Staunton, 2002; Hurwitz, 2001; Oschman, 2000; Watson, 1999; Lubeck, 1991; Reich, 1974), and bioenergy healing (Lee, Pittler, & Ernst, 2008; Herron-Marx, Price-Knol, Burden, & Hicks, 2008; Hodge, 2007; Vitale, & O'Connor, 2006; Bell, Lewis, Brooks, Lewis, & Schwartz, 2003; Tiller, 2002; Gallo, 2002; O'Mathuna, 2000; Winstead-Fry, & Kijek, 1999). But there were not any evidence-based study on the clinical effectiveness of the whole package.

Research findings suggest that bioenergetic approaches have positive results in treating psychological and physical problems such as addiction, post-traumatic stress disorders, allergies, stress, anxiety and pain, and cardiac dysrhythmia. The findings also reported improved mood, increased speed of healing, increased feeling of being healthy, and improved quality of life (Marcus, Blazek-O'Neill, & Kopar, 2013; Crawford, Leaver, & Mahoney, 2006; Wardell, & Engebretson, 2006; Zafarnia, Abbaszadeh, Borhani, Miri, & Soleimani, 2006; Zolfaghari, & Hazrati, 2001; Weymouth, & Sandberg-Lewis, 2000; Astin, 2000).

The main goals of bioenergy economy intervention are to increase the coherence of energy-information flow and self-

organization of body via development of body awareness, increasing mind-body coordination, and modification of lifestyle. The aim of current study is to assess the effect of bioenergy economy program and particularly the biofield attunement on depression, anxiety, pain intensity and pain frequency of patients with migraine.

Methods

Research design: As for research method, a quasiexperimental design including pre-test, post-test, and follow-up stage was adopted.

Participants: Statistical population of the current research was all the people with migraine headaches who referred to the psychosomatic clinic and offices of neurologists in Isfahan city, Iran, in the year 2013. To select participants involved in the study, convenience sampling was used; that was, patients suspected to have migraine were interviewed, examined and assessed clinically in accordance with diagnostic criteria of the IHS by a neurologist or a psychiatrist and those who were diagnosed to have migraine, were included in the study. The participants were randomly divided into two groups. All names were written on a list and numbered. Even numbers and odd numbers were assigned in control and experimental groups, respectively. Study method was single blind; that was, although all the participants in control group and experiment group participated in the entire program and used sedatives as medication but the participants were unaware that the members of the latter group was under sham attunement of a non-expert person while control group members received their attunements from a channeled bioenergy healer.

Participant's inclusion criteria: All participants had to be at least 15 and at most 65 years old. They had to have headaches in the past 6 months for which they had consulted to a specialist, had gone under medication, and had at least experienced two migraine attacks in the past month. Moreover, the absence of psychotic disorders and brain

disorders (such as brain tumors) had to be diagnosed by the psychiatrist and neurologist.

Exclusion criteria: The continuous absence of participants in weekly training meetings and practicing other confusion assessment method (CAM) during study conduct weeks were conditions under which participants were excluded from the study.

Procedures of bioenergy economy: The experimental group received bioenergy economy with real "biofield attunement" while the control group received bioenergy intervention with sham "energy attunement". Therapeutic and training principles of bioenergy economy intervention were in the framework of "bioenergy economy" package based on operational and educational protocols of the Energy Medicine University, California, United States (Energy Medicine University, 2012) established by Goli (Goli, 2010). During 10 clinical training sessions of 90 minutes, one training session per week, this project focused on training conscious release of tension in muscular, cognitive, and energy levels and teaching conscious guide of will, body awareness, and stress-release relaxation techniques. Participants were supposed to perform exercises they were taught in weekly sessions daily. Meetings sessions were as follows:

First session: Familiarity with the entire program and group members; pre-test; the role of stress in health; muscular economy, body-emotion-thought cycle; practicing progressive relaxation training (PRT) technique; participants' feedbacks; presenting the homework.

Second session: Familiarity with bioenergy economy program; cathexis and satisfaction development; release only (RO) technique; happiness that I created (team work); draw attention to happiness and values in life; participants' feedbacks; presenting the homework.

Third session: Week experiences review; sustainable happiness (team work); sustainable happiness rehearsal; cue controlled relaxation; participants' feedback;

presenting the week program.

Forth session: Week experiences review; sustaining happiness and processing levels of cathexis; impulsive, reactive, active levels of energy processing; energy investment forms and their results (team work); conditioning key technique; participants' feedbacks; presenting the week program.

Fifth session: Week experiences review; body awareness and happiness obstacles in body; free flow of energy in body; vibrational exercises and grounding; participants' feedbacks; presenting the week program.

Sixth session: Week experiences review; emphasis on "awareness" of bioenergy flow in body; happiness is reinforced by gratitude; gratitude reframing; "obstacles in gratitude toward self/other/universe" (team work); familiarity with attunement and the role of energetic system in mind-body coordination, biofield attunement vibrational exercises, grounding and hands-on energy emission techniques.

Seventh, eighth, ninth session: week experiences review, exercise correction (team work), answering to questions, practicing the current exercises.

Tenth session: Review of the experiences during past three months, team work, answering to questions, encouraging to follow the exercises, first post-test.

Instruments:

A) Beck Depression Inventory-II (BDI-II). The questionnaire consists of 21 items. Each item received a score from zero to three. Studies indicated the reliability and validity of this questionnaire for diagnosing depression (Marnie, 2005). In Iran, in a study to evaluate the reliability and validity of BDI-II, the results indicated Cronbach's alpha of 0.78 and the reliability in test-retest with an interval of two weeks was 0.73 (Gharraee, 2003). In this study, Cronbach's alpha level obtained from BDI-II was equal to 0.88.

B) Beck Anxiety Inventory (BAI). The questionnaire is designed to measure anxiety levels and consists of 21 items. Each item on a scale of four-point Likert questionnaire (not

at all, mild, moderate, and severe) should be marked based on the severity of symptoms one has experienced in the past week. Five types of content, concurrent, construct, diagnostic, and agent validity for this test is measured that all indicated the effectiveness of this instrument in measuring the intensity of anxiety (Beck, Epstein, Brown, & Steer, 1988). Persian version of this questionnaire is suitable for clinical evaluation and research in the Iranian population as it had validity of 0.72 and reliability of 0.83 and internal consistency of 0.92 in study conducted by Kaviani and Mousavi (2008). In this study, the Cronbach's alpha was equal to 0.79 For BAI.

c) The Headache Impact Test (HIT-6TM). This test was used to collect data concerning the intensity and frequency of pain suffered by participants, as well as their social behavior. Scoring and its interpretation are based on an English version of The Standard Criterion for Quality published by the Glasgow/Smith/Cline Group (2001) which is made up of six questions designed to measure the intensity of migraine and the extent to which it has impact on patients' temperament, mentality, and daily activities.

The questionnaire is based on six axes: (1) pain frequency, (2) social behavior, (3) individual behavior, (4) fatigue and vital energy, (5) cognitive behavior, (6) psychological behavior, all of them were examined in the current study as subscales. Total score of the test ranges from 36 to 78, a situation in which higher scores indicate the greater impact on headaches. These scores can be interpreted in terms of four distinct factors: (1) intensity of headaches, (2) frequency of the occurrence of headaches, (3) levels of headache-induced inability, and (4) quality of the patient's life and his social behavior. Besides, this questionnaire has a permanence score of 0.80, an internal score of 0.89, a validity score of 0.82, and an alpha quotient of 0.95 (Kosinski et al., 2003). Headache Impact Test has been standardized in Iran (Ghorbani, & Chitsaz, 2011), as a result of which, its permanence and validity

scores (0.83 and 0.80, respectively) have been determined by means of a testing-retesting procedure. In addition, the Cronbach's alpha used in this research to test the impact of headache has been 0.73.

Research method: Having explained the purpose of the study to participants, their written consent was obtained to meet research ethical requirements, it was announced that whenever they tended not to continue attending the meetings, they can opt out. Then participants were divided randomly into two experimental and control groups. Having taken pre-test from both groups, bioenergy economy training program were taught to them in ten ninety-minute sessions by a bioenergy economy trainer and channel. Participants practiced weekly taught exercises. Besides, a printed summary and voice recordings of taught exercises on CD were given to participants at the end of each session. Two days after each session, researchers called each participant to get their feedback and see if they had any problem in execution of exercises. In the sixth training session, as part of the bioenergy economy program, energy "attunement" was executed for the participants of the experimental group by a bioenergy channel, while those in control group just received sham energy "attunement" by a non-expert in a single blind manner; that was, participants in the control group were unaware who attuned them.

At the end of the tenth session, post-test was taken from both groups and two months after outset of intervention and the post-test, both groups were evaluated in terms of follow-up phase to examine the effect of the time interval on the effects caused by the program. Due to ethical principles of beneficence, process of real biofield attunement was done for the participants in control group. Research lasted four months and a half from. Data were analyzed using software SPSS (version 20, SPSS Inc., Chicago, IL, United States). There was a within groups variable (pre-test, post-test,

Table 1. Results of repeated-measures ANOVA with repeated measure to examine bioenergy-based therapy intervention on psychological symptoms of depression and anxiety

Variable	Source of changes	Sum of squares	Degree of freedom	The mean of squares	F	Level of significance	The eta quotient (extent of impact)
Depression	Total	3178.689	2	1589.344	60.514	< 0.001	0.676
	Error	1523.311	58	26.264			
Cognitive depression	Total	104.289	2	52.144	10.439	< 0.001	0.265
	Error	289.711	58	4.995			
Physical depression	Total	1796.289	2	898.144	57.305	< 0.001	0.664
	Error	909.044	58	15.673			
Anxiety	Total	2986.822	2	1493.411	52.353	< 0.001	0.644
	Error	1654.511	58	28.526			

follow-up) and a between groups variable (control and experimental groups). Therefore, variance with repeated-measures (ANOVA) and covariant (ANCOVA) were used to find both intragroup and intergroup significant differences, respectively.

Results

First of all, all participants were measured in three phases of pre-test, post-test, and follow-up and were compared using repeated-measures ANOVA to detect the significant difference caused by the bioenergy economy training intervention in general (with sham and real biofield attunement). The results of the analysis are given in tables 1 and 2.

The results of repeated-measures ANOVA with repeated measure given in table 1, indicate that there exists a significant

difference between the mean scores of depression, cognitive depression, physical depression, and anxiety in pre-test and post-test ($P < 0.05$); that is, these variables mean score decreased significantly in the post-test compared to pre-test. Besides, these variables mean scores had decreased significantly in follow-up phase compared to pre-test but the post-test and follow-up phase results were not significantly different ($P < 0.05$).

The results of ANOVA with repeated measure given in table 2 show that there exists a significant difference between the mean scores of migraine components in pre-test, post-test, and follow-up phase ($P < 0.05$). These variables decreased significantly in post-test and follow-up phase compared to pre-test but they did not differ significantly in post-test and follow-up stage (Figures 1, 2, and 3).

Table 2. The results of repeated-measures ANOVA with repeated measure to examine bioenergy-based therapy intervention on migraine

Variable	Source of changes	Sum of squares	Degree of freedom	The mean of squares	F	Level of significance	The eta quotient (extent of impact)
Migraine	Total	3226.956	2	1613.478	44.330	< 0.001	0.605
	Error	2111.044	58	36.397			
Pain frequency	Total	90.822	2	45.411	41.254	< 0.001	0.587
	Error	63.844	58	1.101			
Social performance	Total	64.089	2	32.044	19.791	< 0.001	0.406
	Error	93.911	58	1.619			
Individual performance	Total	107.489	2	53.744	20.896	< 0.001	0.419
	Error	149.178	58	2.572			
Vitality	Total	57.867	2	28.933	17.218	< 0.001	0.373
	Error	97.467	58	1.680			
Cognitive performance	Total	127.489	2	63.744	31.022	< 0.001	0.517
	Error	119.178	58	2.055			
Psychological distress	Total	105.622	2	52.811	26.471	< 0.001	0.477
	Error	115.711	58	1.995			

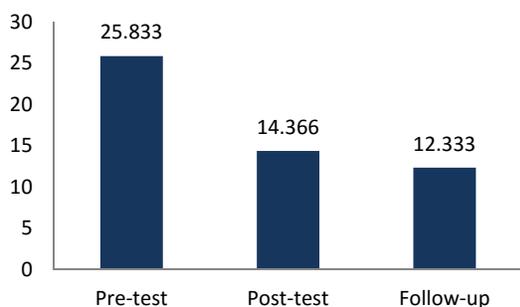


Figure 1. A comparison of depression scores during pre-, post-, and follow-up tests

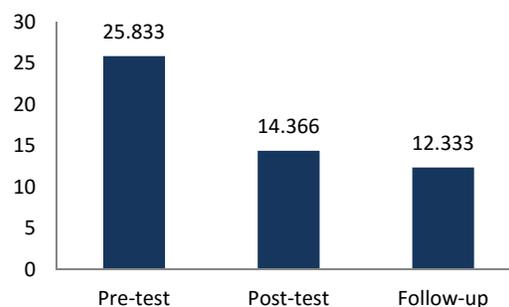


Figure 2. A comparison of anxiety scores during pre-, post-, follow-up tests

As to examine the effectiveness of biofield attunement on mentioned variables, the analysis with covariance was conducted (Table 3). To examine the equality of variances, Levine test was used and, to test normal distribution of data as a prerequisite analysis of covariance, Kolmogorov-Smirnov test was used.

Regarding depression, physical depression, cognitive depression, and anxiety variables, the results given in table 3 reveal that, the level of significance for the experimental groups was less than 0.05. It follows that biofield attunement has had a significant impact on reduction of

Table 3. Results of covariance analysis designed to investigate impacts of biofield attunement on the psychological symptoms of depression and anxiety

Variable	Source of changes	Sum of squares	Degree of freedom	The mean of squares	F	Level of significance	The eta quotient (extent of impact)
Depression	Pretest group	0.211	1	0.211	0.007	0.934	0.000
	Posttest group	449.817	1	449.817	14.970	0.001	0.365
	Experimental group	189.065	1	189.065	6.292	0.019	0.195
	Error	781.238	26	30.048			
	Total	2504.667	29				
Cognitive depression	Pretest group	5.261	1	5.261	1.012	0.324	0.037
	Posttest group	62.225	1	62.225	11.973	0.002	0.315
	Experimental groups	26.042	1	26.042	5.011	0.034	0.162
	Error	135.122	26	5.197			
	Total	397.200	29				
Physical depression	Pretest group	12.893	1	12.893	.609	0.442	0.023
	Posttest group	74.357	1	74.357	3.513	0.072	0.119
	Experimental group	183.735	1	183.735	8.681	0.007	0.250
	Error	550.318	26	21.166			
	Total	1258.967	29				
Anxiety	Pretest group	100.249	1	100.249	3.927	0.058	0.131
	Posttest group	890.144	1	890.144	34.873	< 0.001	0.573
	Experimental group	251.044	1	251.044	9.835	0.004	0.274
	Error	663.665	26	25.526			
	Total	3435.867	29				

depression, cognitive depression, physical depression, and anxiety in migraine patients (Figures 4, 5, and 6).

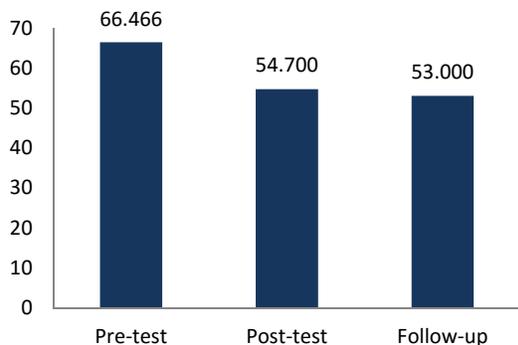


Figure 3. A comparison of migraine during pre-, post-, follow-up tests

The extent of impact of bioenergy economy on anxiety (27.4%), depression (19.5%), Cognitive depression (16.2%), and physical depression (25.0%) can be seen.

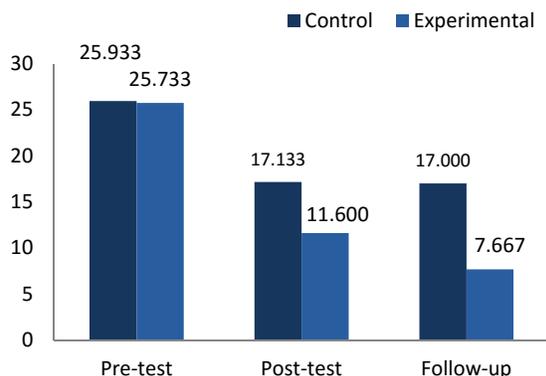


Figure 4. A comparison of depression scores obtained by the control and experimental groups during pre-, post-, and follow-up tests.

The results shown in the table 4 reveal that, with reference to migraine, pain frequency, individual and the social behavior, vitality of the subjects, cognitive performance, and psychological distress as variables, the level of significance associated with the experimental groups is less than 0.05. Therefore, a therapy based on bio-energy economy has had a significant impact on the variables in question.

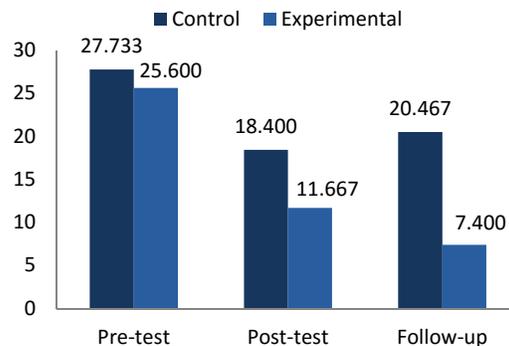


Figure 5. A comparison of anxiety scores obtained by the control and experimental groups during pre-, post-, follow-up tests

Discussion

In line with the reported findings, the aim of this study was to investigate the effectiveness of bio-energy economy program in general and biofield attunement in particular on improving depression and reduction of anxiety, pain intensity, and pain frequency in patients with migraine.

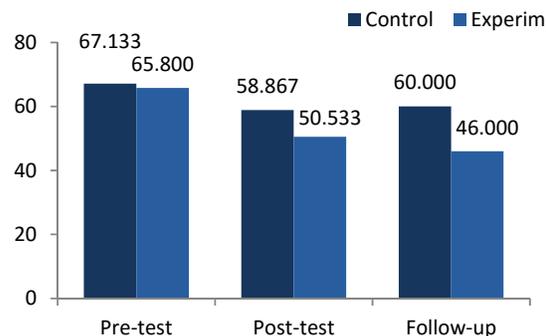


Figure 6. A comparison of migraine scores obtained by the control and experimental groups during pre-, post-, follow-up tests

The results comparing the pre-test and post-test of all 30 participants have shown that there exists a significant difference in the scores of the post-test. That is, the bioenergy economy program (both with real and sham attunement) has been effective on depression improvement and reduction of anxiety, pain intensity, and pain frequency in patients with migraine and this effect was consistent in a two-month interval; that is, participants' state were stable over time.

Table 4. Results of Covariance Analysis Designed to investigate the effect of biofield attunement on Migraine Signals

Variable	Source of changes	Sum of squares	Degree of freedom	The mean of squares	F	Level of significance	The eta quotient (extent of impact)
Migraine	Pretest group	11.491	1	11.491	0.576	0.455	0.022
	Posttest group	951.494	1	951.494	47.726	< 0.001	0.647
	Experimental group	399.717	1	399.717	20.049	< 0.001	0.435
	Error	518.356	26	19.937			
	Total	3174.000	29				
Pain Frequency	Pretest group	0.002	1	0.002	0.002	0.962	0.000
	Posttest group	40.275	1	40.275	48.787	< 0.001	0.652
	Experimental group	20.463	1	20.463	24.788	< 0.001	0.488
	Error	21.464	26	0.826			
	Total	105.367	29				
Social Performance	Pretest group	0.967	1	0.967	0.789	0.382	0.029
	Posttest group	24.035	1	24.035	19.631	< 0.001	0.430
	Experimental group	8.241	1	8.241	6.731	0.015	0.206
	Error	31.832	26	1.224			
	Total	111.867	29				
Individual Performance	Pretest group	0.656	1	0.656	0.344	0.563	0.013
	Posttest group	20.236	1	20.236	10.612	0.003	0.290
	Experimental group	38.670	1	38.670	20.280	< 0.001	0.438
	Error	49.577	26	1.907			
	Total	150.700	29				
vitality	Pretest group	2.262	1	2.262	1.724	0.201	0.062
	Posttest group	31.820	1	31.820	24.247	< 0.001	0.483
	Experimental group	5.555	1	5.555	4.233	0.044	0.140
	Error	34.121	26	1.312			
	Total	118.800	29				
Cognitive Performance	Pretest group	1.803	1	1.803	1.393	0.249	0.051
	Posttest group	49.534	1	49.534	38.267	< 0.001	0.595
	Experimental group	8.386	1	8.386	6.478	0.017	0.199
	Error	33.655	26	1.294			
	Total	112.167	29				
Psychological Distress	Pretest group	1.402	1	1.402	1.085	0.307	0.040
	Posttest group	18.045	1	18.045	13.963	0.001	0.349
	Experimental group	19.639	1	19.639	15.196	0.001	0.369
	Error	33.601	26	1.292			
	Total	101.467	29				

Besides, to examine the effectiveness of biofield attunement, post-tests scores analysis of the two groups using covariance revealed a significant difference; that is, although both sham and real attunements were effective to gain desired results and caused significant difference between the pre-test and post-test

of all 30 participants, but the program was more beneficial for the experimental group and this further improvement observed was significant compared to the control group. It can be concluded that real attunement has significant impact on improving depression and reduction of anxiety, pain intensity, and

pain frequency in patients with migraine. The effects in control group can be explained in terms of placebo effects and expectancies participants have from the program.

Moreover, although no significant difference was observed in scores of post-test and follow-up of all participants and their state were stable, the results of participants' follow-up mean scores in experimental group was significantly more than to those in control group. That is, the effect of the program was more stable for former group in long-term than participants in the latter group.

Current study findings are in line with those studies examined the impact of bioenergy economy intervention on anxiety (Marcus et al., 2013; Bowden, Goddard, & Gruzelier, 2011; Birocco et al., 2011; Jain, & Mills, 2010; Zafarnia et al., 2006; Vitale, & O'Connor, 2006; Crawford, Leaver, & Mahoney, 2006; Wardell, & Engebretson, 2006; Shore, 2004; Olson, Hanson, & Michaud, 2003; Zolfaghari, & Hazrati, 2001; Weymouth, & Sandberg-Lewis, 2000), depression, mood improvement (Marcus et al., 2013; Bowden, Goddard, & Gruzelier, 2011; Shore, 2004), and pain intervention (Marcus et al., 2013; Birocco et al., 2011; Jain, & Mills, 2010; Vitale, & O'Connor, 2006; Olson et al., 2003). Considering that in the present study, it was shown that all participants in a 2-month follow-up had a reduction in symptoms of anxiety compared to the control group, the findings are consonant with other research follow-up findings about bio-energy intervention in the long-term effects on anxiety (Wardell, & Engebretson, 2006; Weymouth, & Sandberg-Lewis, 2000).

Many studies explored the association between CRP values and migraine (Lippi et al., 2014). Waeber and Moskowitz (2005) conceptualized and postulated the neurogenic inflammation to include inflammatory mechanisms involved in migraine. In this theory, anti-inflammatory drugs are considered to stop migraine attacks. Furthermore, as inflammation is an

important factor which leads to atherogenesis and atherothrombosis, it can be known as the cause of migraine occurrence, especially migraines with aura. Stress may also lead to inflammation (Gudmundsson et al., 2009).

Sympathetic nervous system and the hypothalamic-pituitary adrenocortical axis are activated by psychological stress that leads to release of stress hormones. Stress hormones releases, and cytokine release caused by stress, create the response to trigger inflammation (Wium-Andersen et al., 2013). Thus, reducing distress by psychosomatic interventions like bioenergy economy can reduce inflammation and subsequently migraine intensity.

In addition, gate control theory explains the cognitive aspect of pain by central control mechanism hypothesis which affects and is under the influence of sensory incomes. Moreover, psychological factors such as anxiety, depression, and uneasiness, which had been regarded as responses to pain, are known to have an important role in processing of pain-related information (Melzack, & Katz, 2013). Pain control gates open or close due to many factors. Positive mood, distraction, and deep relaxed breathing may cause the gates to be completely or partially closed while strong emotions like fear, anxiety, and expecting the worst can open the gates (Katz, & Rosenbloom, 2015). Relationship between stress and pain gate control after inflammation and migraines can represent the environmental effectiveness of the bioenergy economy program.

As mentioned before, it seems that in the state of deep relaxation and inactive concentration which occurs in relaxation, meditation, and attunement, alpha waves develop. The resulted healing is due to the fact that the system has enough time for energetic self-organization. When a person is under the influence of electromagnetic field emission of a therapist specialized in bioenergy, attunement would have deeper impact (Goli, 2008). In this approach,

"attunement" is a healer presence in which a bio-field pattern will be transferred to another person as a harmonious and healthy blueprint, and attunes his/her biofield, too. During this process, the individual acquires the ability to receive and guide bioenergy (Astin, 2000). Attunement restructures free movement of energy and makes possible redirection of energy from areas with surplus energy to the ones with deficiency. This leads to energy cleansing and releasing of trapped energy, and energy blockings in old patterns. The base of energy-based treatments is transferring information to cells and tissues. These methods act through bio-field, energy centers, and energy pathways. Due to development of bio-energy balance, inner healing process (nereupsychoimmunological change) is activated and the energy patterning connection coordination is increased (Oschman, 2000). Besides, attunement causes an increase in biofield integration and coordination leading to system's sustainability, grounding, coherence, and inner peace; a decline in allostasis; system's resilience returning to its homeostasis. Consequently, system's resonance and immunity increase which in turn leads to more sense of grounding. Although these claims are reported by people's experience, further research needed to support them.

Considering the findings of this study, it can be concluded that as stress and anxiety play a prominent role in headache occurrence and this have implications for the assessment of anxiety and stress and the use of anxiety reduction strategies at different stages of headache attacks and its development, and also, due to high rates of comorbid psychiatric disorders in patients with headaches, it is recommended that all the patients with headache be at least screened for having depression and anxiety. Since most migraine treatment includes medication therapy, the necessity and importance of non-pharmacological methods of treatment in the form of CAM therapy along with medication

is evident more than before. Bioenergy economy program is a holistic approach based on coordinated use of cognitive, behavioral, mindful, body-centered interventions and energy development and active participation of patients in their health promotion. It increases the individual's adaptation with the environment. Treatment is secondary outcome of this procedure. The results of this study show that bioenergy economy program (both with real and sham attunement) may help many patients with migraine to decrease their anxiety, depression and pain intensity and frequency of their headaches.

Further research is recommended to be conducted in larger groups and with double blind study designs.

Conflict of Interests

Authors have no conflict of interests.

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