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The Effectiveness of Dialectical Behavior Therapy on Depression, Stress, Anxiety and Symptoms of Migraine

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Migraine is a debilitating disease in the world today. Depression, stress and anxiety could be mentioned as the most important psychological correlates of migraine. The present study was to investigate the effectiveness of dialectical behavior therapy on depression, stress, anxiety and migraine's symptoms. This quasi-experimental intervention was conducted as a pretest-posttest design with experimental and control groups. The population consisted of all the migraine patients in 5 neurological clinics of the Iran Medical Sciences University. Then, 30 patients from the population agreed to collaborate in the treatment and randomly assigned into two groups (n = 15 per group). The instruments applied in this study was Ahvaz migraine headache questionnaire (Najarian, 1998), and the short version of the Depression Anxiety Stress (DASS-21) Scale (Lovibond & Lovibond, 1995). The dialectical behavior therapy program was conducted for interventional group within 12 sessions. Data was compared through covariance analysis. The results showed a significant difference between the two groups, and we observed reduction of depression, stress, anxiety and migraine's symptoms of DBT group compared with the control group. The implicit inference

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of this study showed the effectiveness of dialectical behavior therapy on decreasing the level of migraine's symptoms and this effect along with the reduction of depression, anxiety and also stress.

Keywords: migraine, dialectical behavior therapy, depression, stress, anxiety.

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Due to rapid urbanization and urban life complications, especially in the field of stressful urban life, various diseases such as headaches is caused. Statistics show that more than 90% of people over the years of their life had experienced headache at least once (Olesen, Goadsby, Ramadan, Tfelt-Hasen & Welch, 2006). Headache is one of the important reasons for visiting doctors and reduces work efficiency.

International Headache Society (IHS) categorized headaches into two categories: primary and secondary. Migraine is the most common primary headache syndrome with no specific pathogenic reason that has adverse effects on different dimensions of physical, psychological, and social health (Bartleson & Cutrer, 2010). In fact epidemiological studies have documented its high prevalence and high socio-economic and personal effects. In the Global Burden of Disease Survey 2010, it was ranked as the third most prevalent disorder and seventh-highest specific cause of disability in the world (International Headache Society, 2013). Studies show that about 10% of the world's population suffers from migraine headaches. Although migraine can be started from childhood, but rarely occurs before the age of five. Lifelong prevalence of headache is 96%, with a female predominance. The global active prevalence of tension-type headache is approximately 40% and migraine is 10%. Migraine occurs most commonly between the ages of 25 and 55 years and it is three

times more common in females. Despite the fact that it causes significant disability, migraine remains underdiagnosed and undertreated (Rizzoli, 2018). However, during adolescence and young adulthood, it is more common and increases by age (Parvaz, Parvaz & Jahanbaznezhad, 2011). 14.2% of US 18 years or more adults reported suffering from migraine or severe headache in previous three months in the 2012 NHIS (Burch, Loder, Loder & Smitherman, 2015).

Family history plays an important role in this disorder, so that 67% of migraine sufferers have a family history of this disorder. The prevalence of migraines has been reported more in women than men and in urban people more than rural residents (Sadock, 2007).

According to the World Health Organization (WHO) high prevalence of migraine puts it in the rank of 20th disease in the category of debilitating diseases (World Health Organization, 2004). Migraine often appears as a period with moderate to severe persistent attacks on one side of the head and pulsating that has accompanied by nausea or photophobia that lasts between 4-72 h. About 53% of patients report that their headaches disrupt their normal activities and affect their work and family relations (Olesen & et al., 2006).

One of the types of primary headaches are migraine (International Headache Society, 2013). Associated symptoms may include nausea, vomiting, and sensitivity to light, sound, or smell. The pain is generally worsening by physical activity. Up to one-third of people have an aura: typically, a short period of visual disturbance that signals that the headache will soon occur.

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Occasionally, an aura can occur with little or no headache following it (Pryse-Phillips, 2003).

Classically the headache is unilateral, throbbing, and moderate to severe in intensity. It usually comes on gradually and is aggravated by physical activity. In more than 40% of cases, however, the pain may be bilateral and neck pain is also commonly associated with it. Bilateral pain is particularly common in those who have migraines without an aura. Less commonly pain may occur primarily in the back or top of the head (Aminoff, Simon & Greenberg, 2009).

There are various ideas about the items that are cause to headaches and one of them is migraines bio-psychosocial theory. This theory proposed by Engel (Engel, 1997) and reflects the complex relationship between psychological, social, and biological factors. Engel's theory is widely used in research into complex healthcare interventions and it is the basis of the World Health Organisation's International Classification of Functioning (WHO ICF), it is also used clinically, and is used to structure clinical guidelines. Critically, it is now generally accepted that illness and health are the results of an interaction between biological, psychological, and social factors (Wade & Halligan, 2017). A bio-psychosocial approach to migraine management needs to reflect these complex relationships. The studies showed that psychological factors can be involved in migraine in four different ways: 1) Migraines can be triggered by psychological factors; 2) Severe migraine can be a significant cause of psychological problems; 3) Even if psychological factors are not significantly involved in some kinds of migraines, psychological techniques can help effectively & 4) longitudinal data demonstrate a complex bidirectional association between mood

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disorders and migraine (Brown, Newman, Noad & Weatherby, 2012).

It noteworthy to mention that one of the most important psychological factors is depression, so that depressions are known as the most common psychological disorder in people with headaches (Lolp, Frandsen, Digre, Katz, Crum, Zhang & Warner, 2016); and researches have shown that 52% of psychiatric patients that suffer from headache are treated their depression. Prevalence of depression in patients with migraine reported 92% and there is a significant relationship between depression severity and intensity of migraine headaches (Bahram Poor, 1995). Major depression is 30 times more common in migraine patients than in the general population (Tietjen et al., 2007).

Also stress and anxiety are recognized as other important psychological factors that have their effect on headaches. Stress can be a caused to and also a great to increased headache. Headaches occur in 80% of people under mental stress (Sauro & Becker, 2009). The results of researches show that migraine is directly related to stress, and psychological factors have significant effects on the frequency and severity of migraine headaches, so that stress can cause headache attacks to a chronic migraine (Breslau, Merikangas & Bowden, 1994). Clinical studies show that people with migraine are more vulnerable in the face of adversity in life (Terwindt, Ferrari, Tijhus, Groenen, Picavet & Launer, 2000). Most patients with migraine who have a history of are anxiety were led to internalized emotions and feelings and finally it ended up to start headaches (Sauro & Becker, 2009). There is a notable literature on the associations between depression/anxiety and migraine headache (Chu, Chih-

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Sung, Jiunn-Tay, Ta-Chuan, Meei-Shyuan, Yueh-Feng & Fu-Chi, 2017; Rahhal, 2017; O'Brien, Slater, 2016).

Considering the adverse effects of headaches on patients' lives and the great role of psychological factors (such as depression, stress and anxiety) in causing and developing a severe headache, psychological treatments are used since late 1970s. More research findings also point to the non-pharmacological effectiveness and psychological treatments (Brown et al., 2012; Rahimiyan Boogar, Besharat, 2013; Nicholson, Buse, Andrasik, Lipton, 2011). The literature suggests that it is important to assess the co-morbid presence of mood/anxiety, thought or personality issues in the selection of patients for treatment groups (Brown & et al., 2012).

One of the treatment methods that can have practical applications in psychological disorders is dialectical behavior therapy. Dialectical behavior approach is a cognitive-behavioral treatment that at first was coined for borderline personality disorder (Linehan, 2003).

This approach integrates interventions of cognitive behavioral therapy (that is based on behavior changing) with eastern philosophy of Zen techniques (that is based on acceptance) (Linehan & Dexter-Mazze, 2008).

So the dialectical behavior treatment is based on mindfulness, tolerance, and distress management (as acceptance component); and emotional regulation and interpersonal effectiveness. In fact, the theoretical orientation of dialectical behavior therapy approach is a mixture of these three theoretical perspectives: behavioral sciences, dialectical philosophy, and Zen practice (Alavi, Modarres Gharavi, Amin Yazdi & Salehi Fadardi, 2011).

Recently, the dialectical behavior therapy applied not only for borderline personality disorder but also for a wide range of other

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disorders. DBT is known as an effective treatment with a full structured program that provides a useful application for therapists (Wagner, Rizvi & Harned, 2007).

The results of different researches show dialectic behavioral therapy effectiveness for psychosomatic disorders such as pain disorders (Narimani, Bagiyan-Kulemarez, Ahadi & Abolghasemi, 2014), mood disorders (Ben-Porath, 2011), Bulimia, and anorexia nervosa disorder (Telch, Agras & Linehan, 2001; Safer, Robinson, Jo, 2010; Safer, Robinson, Jo, 2011), bipolar disorder (VanDijk, Jeffrey & Katz, 2013), trichotillomania (Stacy & Welch, 2012), Posttraumatic Stress disorder, and students abused (Steil, Dyer, Priebe, Kleindienst & Bohus, 2011), aggression and antisocial behavior (Kazdin & Whitley, 2009; Lengua, Honorado & Bush, 2007; Webster-Stratton, 2005), affect regulation (Denise & Ben-Porath, 2010), posttraumatic stress disorder (Steil, Dittmann, Müller-Engelmann, Dyer, Maasch, & Priebe, 2018), in community-based settings (Holbrook, Hunt & See, 2018), suicidal behaviors (Ramaiya, McLean, Regmi, Fiorillo, Robins & Kohrt, 2018), drinking (Wilks, Lungu, Ang, Matsuyama, Yin, & Linehan, 2018), and self-injurious behaviors (Coyle, Shaver & Linehan, 2018).

By considering the negative effects of people with migraine, our present knowledge of the properties and benefites of these behavioral changes along with the use of appropriate psychological interventions which are components of DBT can improve their life quality and can cause significant changes in their rehabilitation. So, because of strong evidence of dialectical behavior therapy effectiveness intervention for many

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psychological disorders and the lack of study of this treatment in patients with migraine in Iran, this study aimed to investigate the group dialectical behavior therapy effectiveness on depression, stress, anxiety and migraine symptoms in people with migraine headache.

Method

This quasi-experimental research was conducted as a pre and post- test design with experimental and control group. The population consisted of all the migraine patients in 5 neurological clinics of the Iran university medical sciences. The research sample included 30 patients that were selected by convenience sampling technique. The sample was randomly assigned into two groups: experimental and control group (n = 15 per group).

Subjects

30 patients with migraine headache diagnosed as migraine patients in five neurological clinics in Tehran, colaborated in the study within a six months period (December 2016- May 2017). The cases included 12 males and 18 females with an average age of 37.16 ±1.34 years old, and a history of migraine diagnosis for an average of 2.48±1.04 years.

Inclusion criteria were: diagnosis of migraines by a neurologist, aged between 20 and 50 years, and level of education at least diploma. Exclusion criteria were: absence more than 3 sessions, having other neurological disorders, having psychological or psychiatric severe disorders that needed treatment.

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Instruments

Ahvaz Migraine Headache Questionnaire (AMQ)

This questionnaire was designed and validated by Najarian (1998). The test consists of 25 questions that is scored on a Likert scale: never, rarely, sometimes and often (1 for never and 4 for most of the time). Najarian reported reliability of this scale through internal consistency and test-retest in the order of .91 and .80. Also its validity measured through correlation with Hospital Anxiety Depression Scale (HADS), sub-scales of hysteria, hypochondria, and anxiety of short form Minnesota Multiphasic Personality Inventory (MMPI) that correlation coefficients were equal to .49, .34, .36, .49 and .46, respectively, that all were significant in .05. In this study, alpha coefficients were equal to .93.

DASS-21

Depression, anxiety, and stress scale designed by Lovibond & Lovibond in 1995 and include a set of three self-report scales for assessment of negative emotional states of depression, anxiety, and stress. To complete the questionnaire a person has to determine the status of a symptom during the previous week. Since this scale can provide a comparison between different symptoms during the week, it can be used to evaluate treatment progress over time. This scale has three subscales and 21 items. Each subscale consists of seven questions that scored from zero (does not apply at all in my case) to three (completely true in my case). Antony et al., (1998) assessed this scale with factor analysis and the results of their research again suggest the existence of three factors: depression, anxiety, and stress; and alpha

coefficients for these factors were equal to .97, .92 and.95. The reliability and validity of this inventory in Iranian populations was confirmed by Samani and Jokar (Fathi-Ashtiani, 2010). In this study, alpha coefficients of depression, anxiety, and stress were equal to .94, .96 and .98.

All participants were asked to complete study measures; AMQ and DASS-21 questionnaires. Then they were randomly assigned in two groups: DBT group (intervention group) and Waiting List (WL) as the control group, (each group=15). They were selected by using a sealed envelope method. Participants were *matched* according to analysis of paired difference test. There was not any significant difference between age (t=1.389, sig=.173), gender (Chi-square=1.200, sig=.273), and duration of migraine (t=1.131, sig=.265). These data indicate successful randomization.

Dialectical behavior therapy is a treatment technique that is based on Linehan & Deimof (Linehan & Dexter-Mazze, 2008) and Salbach-Andrae, Bohnekamp, Pfeiffer & Lehmkuhl (2008). In this treatment plan was applied to the group and a DBT group therapy version was administered by a trained specialist and consisted of 12 weekly 60 minutes' group sessions. After the 12-week period, all participants completed the same measures of the first evaluation. During this time, WL group did not participate in any new intervention or treatment. The Sessions includes a weekly program according to Table 1.

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Table 1
Content Dialectical Behavior Therapy Sessions

Sessions	Content of program
1	Introduction to group meetings, description of the concept of the problem, and preparing sample.
2	Mindfulness training: emotional awareness, and knowledge.
3	Investigating the thoughts and feelings and explain coping responses that are internal or external.
4	Training distress tolerance: stability in crisis skills, distraction, relieving yourself by using senses and practicing mindfulness.
5	Help people to control their impulsive behaviors and provide feedback to reach a reasonable mastery level and control over their own self.
6-7	Reducing the vulnerability of the body (such as bulimia and anorexia, drugs, alcohol, sleep problems), stress, and physical pressure; identify self-destructive behavior; self-monitoring without judgment, decrease cognitive vulnerability and increase positive emotions.
8-9	Emotion Regulation Training: knowing why emotions are important, emotion detection, reducing vulnerability and emotional pain, increasing positive emotions and the changing emotions by doing the opposite of affection.
10	Enhanced interpersonal effectiveness: maintaining healthy relations with family, friends and so on.
11	Important personal skills: self-describing and ability to express oneself, assertiveness, negotiation skills and self-esteem.
12	Review the last sessions and conclusion, answer to questions

The data was analyzed by SPSS software. Means and standard deviations were calculated for pre- and post- intervention for

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AMQ, depression, anxiety, stress in DBT, (dialectical behavior therapy) and WL (waiting list) groups. The T-test was conducted to evaluate differences between groups before and after intervention and *P* values less than .05 was considered as statistically significant. A multivariate analysis of covariance was conducted to investigate the intervention effectiveness designed to reduce participants' depression, anxiety, stress, and symptoms of migraine. The independent variable was dialectical behavior therapy program and the dependent variables consisted of scores on depression, anxiety, and stress in DASS-21; and symptoms of migraine in AMQ.

Results

In baseline testing regarding to depression, anxiety, stress, and symptoms of migraine, all participants answered to AMQ and DASS-21 questioners. The participants' pre-intervention AMQ, depression, anxiety and stress scores are shown in Table 2. The T-test was conducted to evaluate differences between two groups in baseline also shown in Table 2.

Table 2
Before Intervention Variables of Randomized Participants

Variable	DBT Group	WL Group	Difference Statistic
AMQ	64.782(5.323)	62.043(8.352)	t=1.321, sig=.193
Depression	17.625(4.016)	15.608(3.421)	t=1.897, sig=.064
Anxiety	11.826(2.4430	10.956(2.364)	t=1.227, sig=.226
Stress	10.304(1.829)	10.173(2.348)	t=.211, sig=.834

Note: Standard deviation values are presented in parentheses

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According to Table 2, T-test for comparing baseline mean differences revealed DBT and WL groups did not significantly differ from any dependent variables at baseline (before intervention); and this indicates successful randomization.

After baseline testing, all participants were randomly assigned into 2 groups: DBT and WL (each group consists of 15 subjects), and DBT group completed a special group therapy protocol. The participants' post-intervention AMQ, depression, anxiety, and stress scores are shown in Table 3. The T-test was conducted to differences between two groups also shown in Table 3.

Table 3
Effects of DBT on all Dependent Variables

Variable	DBT Group	WL Group	Difference Statistic
AMQ	52.652(7.183)	61.087(7.913)	t=3.785, sig=.000
Depression	13.739(2.863)	16.087(3.907)	t=2.690, sig=.010
Anxiety	6.739(1.629)	10.913(2.130)	t=7.463, sig=.000
Stress	6.391(1.117)	10.260(1.388)	t=10.410, sig=.000

Note: Standard deviation values are presented in parentheses

According to Table 3, after DBT intervention, difference appeared on all dependent variables (Table 3). For analyzing the effect of intervention on all variables "multivariate covariance

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analyzing" test was used. Before that by the Kolmogorov-Smirnov test for normality of the distribution of scores, and the Leven and Box test for equality of variances and homogeneity of regression, assumptions of parametric covariance tests were confirmed. These results illustrated in Tables 4, 5 and 6.

Table 4
Box's Test of Equality of Covariance Matrices

Box's M	F	df1	df2	sig
16.809	1.515	10	4135.378	.127

The results of Box test showed that the observed covariance matrices of the dependent variables are equal across groups.

Table 5
Levene's Test of Equality of Error Variances

Variable	F	df1	df2	Sig
AMQ	3.026	1	30	.089
Depression	3.839	1	30	.056
Stress	.099	1	30	.755
Anxiety	.572	1	30	.453

The results of Levene test showed that the error variances of the all dependent variables are equal across groups.

The results of Kolmogorov-Smirnov test have showed the test distributions of the all dependent variables are normal.

Then multivariate covariance analyzing test was conducted. The results of multivariate covariance test showed that all of value were less than significant level (For example the value of Wilks'

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Lambda=.093, F=89.970, sig=.000, Partial Eta squared=.907, Observed Power= 1.000). So there was significant difference between the two groups at least in one dependent variable. For

Table 6

Estimated Marginal Means on all Dependent Variables

Dependent Variable	Groups	Mean	Std. Error	Kolmogorov -Smirnov Z	Sig
AMQ	Pre test	63.282	6.90	.743	.639
		56.869	8.60	.591	.876
Depression	Pre test	16.652	3.83	.835	.488
	Post test	14.913	3.58	1.130	.156
Stress	Pre test	10.239	2.07	1.523	.190
	Post test	8.326	2.31	.877	.425
Anxiety	Pre test	11.391	2.41	.886	.413
	Post test	8.826	2.82	.866	.442

analyzing data from effects of DBT on each dependent variable "univariate covariance analyzing" test was used (Table 7).

Table 7

Univariate Covariance Tests on all Dependent Variables

Source	Mean Square	F	Sig	Partial Eta squared	Observed Power
AMQ	1414.110	60.003	.000	.600	1.000
Depression	127.951	14.701	.000	.269	.963
Stress	145.944	172.676	.000	.812	1.000
Anxiety	214.098	60.560	.000	.602	1.000

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According to Table 7, after adjusting for pre-intervention scores, there was significant difference between the two groups on pre-test and post-intervention scores on depression [F (14.701), P<.000], anxiety [F (60.560), P<.000], stress [F (172.676), P<.000] and migraine symptoms [F (60.003), P<.000]. The effect sizes according to partial eta-squared were between .141 and .711. Rules of thumb for the size of experimental effects suggest that a partial eta-squared of .06 to .14 can be considered as a medium effect size and more than .14, as a large effect (Cohen, 1988). So, large effects are found for all variables, and the variation of AMQ difference explains 60% of the variation in the measurements. Similarly, the variation of depression difference explains 26%, the variation of stress difference explains 81%, and the variation of anxiety difference explains 60% of the variation in the measurements.

Finally, for comparing the post-test scores of two groups, marginal post-test means were compared. The results are shown in Table 8.

Table 8

Estimated Marginal Means on all Dependent Variables

Dependent Variable	Groups	Mean	Std.Error
AMQ	DBT Group	50.957[a]	1.046
	WL Group	62.782[a]	1.046
Depression	DBT Group	13.134[a]	.636
	WL Group	16.692[a]	.636
Stress	DBT Group	6.427[a]	.198
	WL Group	10.226[a]	.198
Anxiety	DBT Group	6.525[a]	.405
	WL Group	11.127[a]	.405

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The results of Table 8 demonstrate that the experimental group had fewer score than the control group in the post-test on all variables. These confirm the research hypothesis.

Discussion

This study evaluated the effectiveness of a Dialectic Behavioral Therapy program for migraine symptoms, depression, stress, and anxiety. Most participants experienced reductions as a result of participating in the DBT.

It was found that DBT produced clinically meaningful changes on measures of depression, stress, and anxiety. These findings are comparable to other reports in DBT studies. For example, researches of Narimani et al. (2014); Lengua & et al. (2007); Webster-Stratton (2005); Denise & Ben-Porath (2010) & Najarian (1998) that showed the DBT effectiveness on mood and emotional problems like depression, anxiety, stress, anger, emotional instability and irritability.

Also it was investigated that DBT produced clinically meaningful reductions on measures of migraine symptoms. Although there is not any specified investigation about applying DBT on migraine headache, but this results are comparable to other studies of DBT effectiveness (Wagner et al. 2007; Narimani et al. 2014; Ben-Porath et al. 2011; Telch et al. 2001; Safer et al. 2010 & 2011; VanDijk et al. 2013; Stacy et al. 2012; Steil et al. 2011; Kazdin et al. 2009; Lengua et al. 2007; Webster-Stratton, 2005 & Denise et al. 2010).

Most studies about the causes of migraine headache focused on the triggers of migraine attacks. Inspection of seven recent studies [Andress-Rothrock, King & Rothrock (Andress-

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Rothrock, King & Rothrock, 2010), Deniz, Aygul, Kocak, Orhan & Kaya (2004), Ierusalimschy & Moreira Filho (2002), Karli, Zarifoglu, Calisir & Akgoz (2005), Kelman (2007), Leone, Vila & McGowan (2010) and Spierings, Ranke & Honkoop (2001)] suggests that the most common headache triggers are: stress, anxiety, and negative emotions; sensory triggers (flicker, glare, eyestrain, noise, odors); hunger; lack of sleep or excess of sleep; foods and drinks (particularly chocolate, cheese), and drinking alcohol; menstruation; and weather (cold, heat, high humidity). Many other factors have been listed including exercise, fatigue, sexual activity, smoke, and head and neck movements. As this list of triggers pointed stress, anxiety and negative emotions are the first on this list.

Traditionally, there was an interest in the triggers of headaches because of this idea that if triggers can be avoided, then headache would be reduced. Advice to identify and avoid triggers has been the standard prevention for decades. A recent study argued about this traditional avoidance approach, because of impossibility of avoiding all triggers (Martin, John Reece, Callan, MacLeod, Kaur, Gregg & Goadsby, 2014). They explain the problem in two ways. First, the effort to avoid every potential trigger could be make it stressful, and may lead to reduced internal self-efficacy on the long run. Second is about impossibility of avoidance in today's life. Let's bring in mind if it is possible to avoid these important trigger like stress, anxiety, and negative emotions. Is this possible that completely avoiding from stress, anxiety and negative emotions can happen? Furthermore, is it useful?

In the stress literature, it has been argued that research findings demonstrate that the avoidance approach is not adaptive (Snyder & Pulvers, 2001) and at the end of avoidance are associated with

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higher levels of general psychopathology and a lower quality of life (Hayes, Strosahl, Wilson, Bissett, Pistorello & et al., 2004). The results were consistent with the anxiety literature in that short exposure increased nociceptive responses, whereas very long exposure decreased nociceptive responses. The study was repeated for the validated headache triggers of negative emotions and stress (Martin, Lae & Reece, 2007) with similar results.

The arguments about triggers avoidance, and the findings linking prolonged exposure to decreased trigger potency, have led to apply an alternative approach which focused more on encounter, control, management, and acceptance (Martin et al., 2014).

As it was mentioned in introduction, DBT is based on mindfulness and tolerance of suffering and distress as acceptance component, and emotional regulation and interpersonal effectiveness as changing components. Dialectical behavior therapy combines acceptance and empathy of client-centered approach, problem solving of cognitive-behavioral therapy with social skills training (Martin & MacLeod, 2009). Therefore, it causes people to deal with stress, anxiety, and negative emotions, accept them and turn them into a desired controlled shape. So DBT is one of psychological techniques which aim to change the individuals experience and control their stress, anxiety, and depression; and this intervention tends to be an effective treatment for migraine headache, too.

This study makes two contributions to our knowledge of such treatment. First, it was consistent with previous findings, it indicates that DBT can reduce migraine symptom. Secondly, this study investigates that the DBT also can decrease stress, anxiety,

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and depression. It will be important that, future studies replicate this study in large random samples and with more control on variables that may have effected on results.

Limitation

Nevertheless, the current study has some limitations. First, therapy program was performed in a sample who voluntarily participated and thus may not be representative of the target population. Secondly, in this study, both groups contain male and females. Thus in relation to the sex difference prevalence, the results should be considered with caution. In addition, the patients who accepted to participate in this study, have had different type of migraine, therefore, the influence of migraine type in DBT effectiveness should be considered. Third limitation is about Hawthorne effect in experimental group. It should be noted that control group did not have any intervention. So, the influence of experimental group and Hawthorne effect should be considered in results. Also the results are based on a relatively small number of samples and so caution should be considered in interpreting the data. A reliance strictly on self-report measures of treatment outcome was a limitation for interpreting the treatment effects. Another limitation was also as the sample was recruited from treatment settings and individuals were motivated in seeking treatment, so our results may not generalize to general community. Despite these limitations, this study will provides much needed information about benefits of applying dialectic behavioral therapy approach in migraine, stress, anxiety, and depression management.

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Ethical Considerations

Ethical issues including informed consent, right to withdraw from research**,** Confidentiality, respect for privacy and beneficence-harmfully when conducting research; and plagiarism, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. when writing article by the author have been completely observed.

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