



ORIGINAL ARTICLE

Efficacy of Mindfulness-based Therapy Efficacy in Reducing Physical Symptoms and Increasing Specific Quality of Life in Patients with Functional Dyspepsia

Sobhan Pur Nik Dast¹, Fariba Maghsoud², Marzieh Assareh², Kazem Khorramdel⁴, Saeid Rajabi^{5*}

¹Ph.D student of Psychology; University of Mohaghegh Ardabili, Ardabil, Iran

²MA of psychology; University of Mohaghegh Ardabili, Ardabil, Iran

³Assistant Professor of Child & Adolescent Psychiatry, Department of Psychiatry, Bahonar Hospital, Alborz University of Medical Sciences, karaj, Iran

⁴Ph.D student of Psychology; University of Mohaghegh Ardabili, Ardabil, Iran

⁵Ph.D student of Psychology; University of Mohaghegh Ardabili, Ardabil, Iran

Email: rajabi.psy1987@gmail.com

ABSTRACT

The present study aimed to examine efficacy of mindfulness-based therapy in reducing physical symptoms and increasing specific quality of life in patients with functional dyspepsia. This is a quasi-experimental study performed using clinical trial method as a pre-test, post-test and follow-up with control group. Statistical population included the patients with gastrointestinal disease who visited Karaj City in the second half of 2013. Then, they underwent biochemical, endoscopic and ultrasound examinations by a gastroenterologist who diagnosed them with functional dyspepsia. Then, 30 patients were selected as the sample whose ages were between 20 and 45 years old and were willing to participate in the project. They were randomly divided into control and treatment groups. All subjects completed indices relevant to symptoms and specific quality of life in patients with functional dyspepsia (NDI) before the intervention. The subjects also recompleted the questionnaire as a follow-up after the intervention and one month after the end of the study. The results showed that mindfulness-based cognitive therapy reduces symptoms of functional dyspepsia and increases quality of life of the patients in treatment group compared with control group. This difference was also observed at one-month follow-up. The results were explained based on theoretical foundations. Then, clinical findings were discussed.

Keywords: Mindfulness based therapy, physical symptoms, specific quality of life, and functional dyspepsia

Received 02.09.2014

Revised 09.09.2014

Accepted 05.10. 2014

INTRODUCTION

Functional gastrointestinal disorders are considered as such functional dyspepsia, which are not life threatening. These play an important role in individual daily activities and psychological conditions. These also have a direct impact on quality of life of these patients (1 and 2). However, it should be mentioned that little systematic research were conducted so far on the role of such diseases in the quality of life of these patients (1). Functional dyspepsia or (FD) is manifested as chronic symptoms and disorders in the upper gastrointestinal tract. However, physical and biochemical signs do not reveal occurrence of this disease. The symptoms include upper abdominal pain, early satiety after eating, stomach fullness, stomach bloating and nausea (3).

The prevalence of FD in Western societies ranges from 17 to 29 percent (4 and 5), in Japan is 20% (6) and in developing countries is estimated as 15% to 30% (7). In addition, 8.5% were diagnosed with dyspepsia in general population of Tehran (8) while 29.9% of general population in Shiraz was diagnosed with this disease (9). Although progression of the disease is not associated with mortality, reduced quality of life, health direct and indirect costs, self-medication therapy and decreased efficiency cause many individual and social problems in these patients [13-10].

The emphasis on key role of psychological therapies (processes) in functional dyspepsia is increasing (14 and 15). As a result, many researchers have identified this disease as a mental disorder. Several researches have focused on sustained somatization in these patients [16 and 17]. Association of

psychological disorders and gastrointestinal somatization disorders and the role of psychological and social factors in severity of the symptoms in this disease motivated the researchers to use psychological and complementary therapies in these patients (21-18). However, few studies were conducted on the effectiveness of psychological interventions in patients with functional dyspepsia. Nevertheless, several studies showed that cognitive therapy and hypnotherapy are effective in reducing the symptoms of functional dyspepsia (22 and 23). In addition, it was reported in a review that relaxation-based therapies, cognitive analytic therapy and psychotherapy are effective in reducing symptoms of dyspepsia in patients at the end of treatment and one year later [24]. Lee et al [25] also found out in a research that individual symptoms associated with gastric motor disorders and visceral hypersensitivity are influenced by psychological stressors. In addition, benefiting from extensive interventions such as psychotherapy and cognitive therapy may be effective in reducing the symptoms of functional dyspepsia.

Mindfulness-based cognitive therapy is one therapy, which is effective in improving the symptoms in patients with functional dyspepsia. However, this therapy was not used much. This therapy is a short-term intervention (8 sessions) and is structured according to Kabat-Zinn Mindfulness-based Stress Reduction Model (quoting Segal et al). The principles of cognitive therapy are added to this model as well (26). Mindfulness is considered as a sense of balance, which is not biased. It helps the individuals to accept their emotions, as they happen (27). The purpose of mindfulness training as a therapy lies in reducing avoidant experiences and a tendency to experience unpleasant physical sensations, emotions and thoughts (28). Although a similar study was not conducted on the role of MBCT therapy in treating dyspepsia, the effectiveness of various types of psychological interventions on functional dyspepsia was confirmed in several studies as previously mentioned [22-25]. In addition, several other studies examined and confirmed the impact of mindfulness techniques in reducing physical symptoms and improving the quality of life in other gastrointestinal disorders such as IBS [29, 30]. Moreover, combining mindfulness and coping techniques was reported effective in reducing physical symptoms in patients with IBS and depressed patients.

Although evidence on the impact of psychological factors on emergence, severity or continuity of functional dyspepsia diseases increasing, studies have reported that psychological interventions are not effective in reducing symptoms of functional dyspepsia. The present study aimed to determine the effectiveness of mindfulness-based cognitive therapy in reducing symptoms of functional dyspepsia and increasing quality of life in these patients. These researches strengthen psychological research in this area considering increased dimension.

METHOD

Research Design

This is a quasi-experimental study, which was performed using clinical trial method a pre-test, post-test and follow-up with control group. Statistical population included all patients with gastrointestinal disease who visited Karaj City in the second half of 2013. They were diagnosed with functional dyspepsia by a gastroenterologist using biochemical, endoscopic and ultrasound examinations. Then, 30 patients who were between 20 and 45 years old and were willing to participate in the project were selected as the sample based on clinical interviews. Then, they were randomly divided into control and experimental groups. All subjects completed indices relevant to symptoms and specific quality of life in patients with functional dyspepsia (NDI) before the intervention. The subjects recompleted the questionnaire as a follow-up after intervention and one month after the end of the study.

Research tool

The gastroenterologist used NDI questionnaire to evaluate the patients. This questionnaire consisted of two parts: assessment of symptoms and specific quality of life in patients with functional dyspepsia. This was designed by Talley et al in 1999 (31).

The scores of symptoms included upper abdominal pain, stomach irritation, nausea, vomiting, heartburn, and bloating, early satiety feeling and feeling heavy after meals (stomach fullness felling). This is calculated based on severity, prevalence and being bothersome in a 5-degree Likert Scale based on level of distress (none to highly severe). However, quality of life was scored based on 25 questions in terms of anxiety, stress, disturbance in living affairs, eating and drinking, and level of knowledge and control of the disease. Reliability of the NDI index was obtained in a range between 70 and 76 percent using internal consistency (Cronbach's alpha) while validity of this index was reported in a range between 71 and 83 percent using the correlation between symptoms' scores in a research. In the present study, reliability of the questionnaire was obtained as 78% using Cronbach's alpha while it was obtained as 82% considering quality of life.

Description of cognitive therapy sessions using mindfulness and group styles: This method was first designed by Segal et al (quoting Mohammad Khani et al) (33). In this study, it was attempted to develop

mindfulness training based on symptoms of functional dyspeptic patients. Eight sessions were designed whose duration were 90 minutes, which lasted approximately for 60 days.

Summary of sessions

Session I: introducing the participants to each other, executing the pretest, conscious breathing and muscle relaxation

Session II: Physical checking exercises, home assignments in terms of being aware of pleasant events and common activities in life

Session III: Practicing conscious seeing and hearing, practicing how to pay attention to thoughts as just thoughts, not facts, sitting consciously and focusing on breathing, being aware of unpleasant events

Session IV: emphasis on understanding physical emotions, conscious walking home assignment of checking the body, longer conscious sitting

Session V: discussing on how to spend half of the training courses and describing the experiences, effects and commitment to home assignments, conscious sitting and developing awareness of thoughts, discussing the role of mindfulness in response to daily stress

Session VI: Long-term sitting meditation, awareness of breathing, practicing review of home assignments, discussing on preparation for the end of training sessions and home assignments to identify and understand the feelings and naming them during the week.

Session VII: sitting meditation, awareness of breathing, body, sounds, thoughts and review of exercises, reviewing home assignments, practicing the relationship between activity and innovation and home assignments based on previous practices

Session VIII: body review, sitting meditation, a short discussion and review on barriers to deployment of the methods, finding and resolving the barriers to do continuous exercises, reviewing previous materials and finally summarizing and implementation of posttest.

The data was analyzed by SPSS version 19 after data collection. Statistical methods used here included descriptive statistics, multivariate analysis of covariance (MANCOVA) and multivariate analysis of variance (ANCOVA).

FINDINGS

In descriptive section, the mean age of all patients was 37.86 years old. In addition, 21 subjects were females while 9 subjects were males in both treatment and control groups. The participants in terms of educational levels had cycle to MSc degrees in both groups. Table 1 shows mean comparison of changes in gastrointestinal symptoms and quality of life in the two groups at pre-test post-test and one-month follow-up distinctly.

Table 1 Mean and standard deviation of scores of symptom and quality of life of the subjects in both treatment and control groups at pre-test, post-test and follow-up

Dependent variables	Group	Pretest		Posttest		Follow-up	
		Mean	SD	Mean	SD	Mean	SD
Functional dyslexic symptoms	Treatment	50.60	13.12	29.32	12.59	25.11	10.80
	Control	63.33	18.83	32.30	12.73	21.29	26.21
Quality of life	Treatment	63.33	18.83	32.30	12.73	21.29	26.12
	Control	60.21	9.40	58.50	16.11	59.33	11.38

Since there are two dependent variables (symptoms of functional dyspepsia and quality of life), multivariate analysis of covariance (MANCOVA) is the best statistical method for this research. Then, Levine test was performed in terms of equality of covariance of variances, linearity, multicollinearity and homogeneity of slope of regression line before performing MANCOVA. Levine's test results showed that hypotheses of equality of variances, linearity, multicollinearity and slope of regression line in terms of dependent variables are statistically significant. Therefore, (MANCOVA) can be used given the equal sample size.

Table 2- results of multivariate covariance analysis of mean scores of functional dyslexic symptoms and quality of life at post-test in both control and experimental groups

Test name	value	F	Df hypothesis	Df error	Effect size	Statistical power	Level of significance
Peeli effect	0.88	83.1	2	25	0.88	1	<0.001
Wilks Lambda	0.19	83.1	2	25	0.88	1	<0.001
Hetling effect	4.28	83.1	2	25	0.88	1	<0.001
The greatest root on	4.28	83.1	2	25	0.88	1	<0.001

Contents of Table 2 shows that there is a significant difference between treatment and control groups in terms of dependent variables at $P < 0.001$ level of significance. Accordingly, it can be stated that there is significant difference in at least one of the dependent variables (symptoms of functional dyspepsia and quality of life) between the two groups. In order to interpret this difference, two analyzes of covariance was performed in the context of MANCOVA whose results are listed in Table 3. In addition, the effect size indicated that 88% of the difference between the two groups is related to experimental intervention. The statistical power of the test is equal to 1, which decreases the probability of type II error to zero.

Table 3- Results of ANCOVA analysis in the context of MANCOVA regarding mean scores of functional dyspepsia and quality of life in both treatment and control groups at post-test

Test name	Sum of squares	Degree of freedom	Mean of squares	F	Effect size	Statistical power	Level of significance
Functional dyslexia symptoms	13365.12	1	13365.12	84.32	0.66	1	0.001
Quality of life	17564.41	1	17564.41	142.44	0.78	1	0.001

According to contents of Table 3 regarding column of significance, it is observed that the difference between treatment and control groups in terms of functional dyspepsia variable ($f=84.32$) is significant at $P < 0.001$ level of significance. In addition, the difference between treatment and control groups in terms of quality of life variable ($f=142.44$) is significant at $P < 0.001$ level of significance. Moreover, the effect size coefficient indicated that 66 percent of the difference between the two groups in terms of functional dyspepsia variable and 78% of the difference between the two groups in terms of quality of life variable were related to the experimental intervention. The statistical power of the test was equal to 1, i.e. the probability of type II error is zero.

DISCUSSION

The present study aimed to determine the effectiveness of mindfulness-based cognitive therapy on physical symptoms and specific quality of life in patients with functional dyspepsia. Data analysis results showed that mindfulness-based cognitive therapy reduces symptoms of functional dyspepsia and enhances the quality of life of patients in treatment group compared with control group. In addition, this difference was observed at one-month follow-up. Although similar exact literature supporting the results of this study is not available, the results of this study are consistent with those researches, which used successfully other psychological treatments and particularly other forms of mindfulness therapies in treating mental and physical problems in psychosomatic disorders (34, 35). In the present study, mindfulness training as a third generation cognitive - behavioral therapy was effective in treating physical symptoms and enhancing the quality of life in dyspeptic patients. These results are consistent with those researches, which used effectively different aspects of mindfulness training in treatment of other gastrointestinal disorders such as IBS (38-36). Dousman conducted a research in 1995 and showed that cognitive-behavioral therapy similar as interpersonal psychotherapy and relaxation techniques can reduce anxiety, pain and depression in gastrointestinal disorders (39). Reduction in severity and physical symptoms was also observed in patients at one-month follow-up in the treatment groups compared to control group in the former research. These findings are in line with those obtained by Gaylord et al (29) and Ljotsson et al (30).

In order to explain the results of this research and the therapeutic efficacy, it can be stated that functional dyspeptic patients use problem-focused coping styles less than average. They also less seek social support. These patients are also less able to define their problems logically. Therefore, they are less able to find flexible solutions. (40, 41). Mindfulness training gradually leads to cognitive changes in patients' thoughts and actions. They also benefit from conditional strengthening principles due to step-to-step efforts for gradual improvement. Thus, the patient tries to go to the next step in order to see himself step closer to success. This tendency to move toward a step closer to success continually treats the disease in a step-to-step measure. In addition, the patient continues his personal treatment with calmness and awareness and resolves his flaws and problems. In addition, this mindfulness method allows the individual to undergo stressful experiences by reducing autonomic responses. In addition, activation of stress response systems and physical symptoms is reduced as time passes, awareness is increased and life events are accepted. In this respect, KabatZin (2005) believed that mindfulness-based cognitive therapy is a cognitive restructuring, which is effective in reducing automatic negative thoughts and depression in these patients in which the therapist does not directly proceed to design data and engage in dysfunctional attitudes (42).

Moreover, mindfulness training may improve gastrointestinal tract function by reducing central nervous system function in patients with functional dyspepsia. Techniques that deal with cognitive-behavioral skills needed to manage stress and anxiety break the cycle of irritability, anxiety, anger and severity of gastrointestinal symptoms. Patients manage their emotions and increase their physical activities in order to overcome the fear associated with dyspepsia. Then, they experience positive behavioral and cognitive change cycle, which can be effective in improving psychological function and decreasing physical symptoms.

Mindfulness-based treatments affect both physical and mental aspects. Then, it's highly effective for several clinical disorders and physical diseases [28, 37]. In this context, KabatZin suggested that focusing on pain without any emotional reaction and irritation in long-term meditation sitting could reduce emotional responses caused by pain [42]. In fact, paying attention to present time and exposure to unpleasant thoughts and feelings and not avoiding these feelings can ultimately enhance the quality of life in these patients along with cognitive changes.

Following conditions were considered as the main limitations of this study: Heavy diagnostic methods costs for screening patients with functional dyspepsia resulted in small sample size; there was no medication or placebo group for further comparisons; short duration of follow-up intervention effect. According to research results, therapeutic effects of mindfulness reduced symptoms in patients with functional dyspepsia. As a result, the cost of health care system in these patients may be reduced.

CONCLUSION

The research results showed that mindfulness-based cognitive therapy could be effective in reducing functional dyspeptic symptoms and improving quality of life in these patients. Therefore, cooperation of gastroenterologists with psychologists and psychiatrists can help bring positive results in treating these patients.

ACKNOWLEDGEMENT

Hereby, we appreciate sincere helps of all physicians and respected staff of health centers in Karaj City as well as dear participants who sincerely cooperated with using this research.

REFERENCES

1. El-Serag HB, Talley NJ. (2003). Health-related quality of life in functional dyspepsia. *Aliment Pharmacol Ther*; 18:387-93.
2. Halder SL, Locke GR 3rd, Talley NJ, Fett SL, Zinsmeister AR, Melton LJ 3rd. (2004). Impact of functional gastrointestinal disorders on health-related quality of life: a population-based case-control study. *Aliment Pharmacol Ther*; 19:233-42.
3. Talley NJ, Stanghellini V, Heading RC, Koch KL, Malagelada JR, Tytgat GN. Functional gastroduodenal disorders. *Gut* 1999;45(Suppl II):37-42.
4. Zagari RM, Law GR, Fuccio L, Cennamo V, Gilthorpe MS, Forman D, Bazzoli F. (2010). Epidemiology of functional dyspepsia and subgroups in Italian general population: A endoscopic study. *Gastroenterology* ;138(4):1302-11.
5. Shaib Y, El-Serag HB. (2004). The prevalence and risk factors of functional dyspepsia in a multiethnic population in the United States. *Am J Gastroenterol*;99(11):2210-6.
6. Okumura T, Tanno S, Ohhira M, Tanno S. (2010). Prevalence of functional dyspepsia in an outpatient clinic with primary care physicians in Japan. *J Gastroenterol*;45(2):187-97.
7. Lacy BE, Cash BD. (2008). A 32-year-old woman with chronic abdominal pain. *JAMA*; 299(5): 555-6.
8. Bazrkar M, Pourhoseingholi M, Habibi M, MoghimiDehkurdi B, Safaei A, Pourhoseingholi A, et al. (2009). Uninvestigated dyspepsia and its related factors in an Iranian community. *Saudi Med J* ;30:397-402.
9. Khademolhosseini F, Mehrabani D, Zare N, Salehi M, Heydari ST, Beheshti M, et al. (2010). Prevalence of Dyspepsia and its Correlation with Demographic Factors and Lifestyle in Shiraz, Southern Iran. *Middle East J Dig Dis*;2:24-30.
10. Holtmann G, Gapsin J. (2008). Failed therapy and directions for the future in dyspepsia. *Dig Dis* ;26(3):218-24.
11. Brook RA, Kleinman NL, Seon Chough R, Melkonian AK, Smeeding JE, Talley NJ. (2010). Functional dyspepsia impacts absenteeism and direct and indirect costs. *Clin Gastroenterol Hepatol* ;8(6):498-503.
12. Dickerson LM, King DE. (2004). Evaluation and management of nonulcer dyspepsia. *Am Fam Physician* ;70:107-14.
13. Brook RA, Kleinman NL, Seon Chough R, Melkonian AK, Smeeding JE, Talley NJ. (2010). Functional dyspepsia impacts absenteeism and direct and indirect costs. *Clin Gastroenterol Hepatol*;8:498-503.
14. Levy RL, Olden KW, Naliboff BD, Bradley LA, Francisconi C, Drossman DA, et al. Psychosocial aspects of the functional gastrointestinal disorders. *Gastroenterology* 2006;130: 1447-58.
15. Feinle-Bisset Ch, Andrews M. Treatment of functional dyspepsia. *Current Treat options Gastroenterol* 2003;6:297-89.
16. Porcelli P, De-Carne M, Fava GA. Assessing somatization in functional gastrointestinal disorders: integration of different criteria. *Psychother Psychosom* 2000;69:198-204.

17. Porcelli P, Affatati V, Bellomo A, De-Carne M, Todarello O, Taylor GJ. Alexithymia and psychopathology in patients with psychiatric and functional gastrointestinal disorders. *Psychother Psychosom* 2004;73:84-91.
18. Kroenke K, Rosmalen JG. Symptoms, syndromes, and the value of psychiatric diagnostics in patients who have functional somatic disorders. *Med Clin North Am* 2006;90:603-26.
19. Sha MC, Callahan CM, Counsell SR, Westmoreland GR, Stump TE, Kroenke K. Physical symptoms as a predictor of health care use and mortality among older adults. *Am J Med* 2005;118:301-6.
20. Kroenke K. Patients presenting with somatic complaints: epidemiology, psychiatric comorbidity and management. *Int J Methods Psychiatr Res* 2003;12:34-43.
21. Soo S, Forman D, Delaney BC, Moayyedi P. Systematic review of psychological therapies for nonulcer dyspepsia. *Am J Gastroenterol* 2004;99:1817-22.
22. Haug TT. Cognitive therapy in functional dyspepsia. *International Congress Series*. 2002; (1241): 127-130.
23. Ebell M. Hypnotherapy effective for functional dyspepsia. *Am Fam Physician*. 2003; 61(10): 222.
24. Soo S, Forman D, Delaney BC, Moayyedi P. A systematic review of psychological therapies for nonulcer dyspepsia. *Am J Clin Hypnos*. 2004; 47(3): 222.
25. Lee HJ, Lee SY, Kim JH, Sung IK, Park HS, Jin ChJ, et al. Depressive mood and quality of life in functional gastrointestinal disorders: Differences between functional dyspepsia, irritable bowel syndrome and overlap syndrome. *Gen Hosp Psychiatry* 2010;32:499-502.
26. Segal ZV, Williams JMG, Teasdale JD. *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York, UK: Guilford Press; 2002.
27. Kabat-Zinn J, Massion AO, Kristeller J, Peterson LG, Fletcher KE, Pbert L, et al. Effectiveness of a meditation-based stress reduction program in the treatment of anxiety disorders. *Am J Psychiatry* 1992; 149(7): 936-43.
28. Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *J Pers Soc Psychol* 2003; 84(4): 822-48.
29. Gaylord SA, Whitehead WE, Coble RS, Faurot KR, Palsson OS, Garland EL, et al. (2009). Mindfulness for irritable bowel syndrome: protocol development for a controlled clinical trial. *BMC Complement Altern Med*; 9: 24.
30. Ljotsson B, Andreevitch S, Hedman E, Ruck C, Andersson G, Lindfors N. (2010). Exposure and mindfulness based therapy for irritable bowel syndrome--an open pilot study. *J Behav Ther Exp Psychiatry* ; 41(3): 185-90.
31. Talley NJ, Haque M, Wyeth JW, Stace NH, Tytqat GN, Stanghellini V, et al. (1999). Development of a new dyspepsia impact scale: the Nepean Dyspepsia Index. *Aliment Pharmacol Ther*; 13:225- 35.
32. Tally NJ, Verlinden M, Jones M. (2011). Quality of life in functional dyspepsia: responsiveness of the Nepean Dyspepsia Index and development of a new 10-item short form. *J Gastroenterol Hepatol* 2011;26:49-52.
33. Mohammadkhani P, TamannaifarSh, JahaniTabesh O. (2006). *Mindfulness-based cognitive-therapy for depression*. 1sted. Tehran, Iran: Faradid Application; p. 302. [In Persian].
34. Blanchard EB, Lackner JM, Sanders K, Krasner S, Keefer L, Payne A, et al. (2007). A controlled evaluation of group cognitive therapy in the treatment of irritable bowel syndrome. *Behav Res Ther* ; 45(4): 633-48.
35. Naliboff BD, Frese MP, Rappagay L. (2008). Mind/Body psychological treatments for irritable bowel syndrome. *Evid Based Complement Alternat Med*; 5(1): 41-50.
36. Bishop SR. (2002). What do we really know about mindfulness-based stress reduction? *Psychosom Med*; 64(1): 71-83.
37. Baer RA. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science & Practice*; 10: 125-43.
38. Grossman P, Niemann L, Schmidt S, Walach H. (2004). Mindfulness-based stress reduction and health benefits. A metaanalysis. *J Psychosom Res* 2004; 57(1): 35-43.
39. Drossman DA. (1995). Diagnosing and treatment patients with refractory functional gastrointestinal disorders. *Ann Intern Med* ; 123: 688-97.
40. Lee SY, Park MC, Choi SC, Nah YH, Abbey SE, Rodin G. (2000). Stress, coping, and depression in non-ulcer dyspepsia patients. *J Psychosom Res*; 49: 93-9.
41. Cheng C, Hui W, Lam S. (2004). Psychosocial factors and perceived severity of functional dyspepsia symptoms: A psychosocial interactionist model. *Psychosom Med*;66:85-91.
42. Kabat-Zinn, J. (2005). *Coming to our senses: Healing ourselves and the world through mindfulness*. New York: Hyperion.

CITATION OF THIS ARTICLE

Sobhan P N D, Fariba M, Marzieh A, Kazem K, Saeid R. Efficacy of Mindfulness-based Therapy Efficacy in Reducing Physical Symptoms and Increasing Specific Quality of Life in Patients with Functional Dyspepsia. *Bull. Env. Pharmacol. Life Sci.*, Vol 3 [12] November 2014: 46-51