

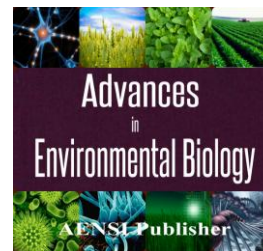


AENSI Journals

Advances in Environmental Biology

ISSN-1995-0756 EISSN-1998-1066

Journal home page: <http://www.aensiweb.com/AEB/>



Psychological problems, Biology, Psychotherapy: Effectiveness of acceptance and commitment therapy (ACT) on reducing symptoms of depression among Multiple Sclerosis patients (MS)

¹Mina Mojtabaie and ²Zahra-Sadat Khoshcheshm

¹Department of Psychology, Roudehen Branch, Islamic Azad University, Roudehen, Iran.

²Department of Clinical Psychology, College of Psychology, Roudehen Branch, Islamic Azad University, Roudehen, Iran.

ARTICLE INFO

Article history:

Received 24 September 2014

Received in revised form

28 October 2014

Accepted 15 December 2014

Available online 20 December 2014

Key words:

acceptance and commitment therapy, depression, multiple Sclerosis

ABSTRACT

The present study is an attempt to determine effectiveness of acceptance and commitment therapy (ACT) on attenuation of depression among Multiple Sclerosis (MS) patients. Pretest/posttest and control group were used as the study design. To this end, 30 individuals were selected through convenience random sampling from the referrals to Imam Hussein Hospital and Iran MS Society. Then the participants were grouped in control and experiment groups (n = 15). The participants in the both groups were asked to fill out The Beck Depression Inventory (BDI-II). Afterward, the participants in the experiment group received 8-session ACT workshops; while the control group received no intervention. After the intervention, the participants of the both groups were asked to fill out the BDI-II. For data analysis, ANCOVA test was used. The results showed effectiveness of ACT on reducing depression symptoms of MS patients.

© 2014 AENSI Publisher All rights reserved.

To Cite This Article: Zahra-Sadat Khoshcheshm, Psychological problems, Biology, Psychotherapy: Effectiveness of acceptance and commitment therapy (ACT) on reducing symptoms of depression among Multiple Sclerosis patients (MS). *Adv. Environ. Biol.*, 8(17), 870-876, 2014

INTRODUCTION

Depression disorder and many other symptoms of mood disorders are of the most common psychological diseases. The rate of the disease is 15% throughout the life and reaches to 25% among women. Rate of depression among the patients referred to general practitioners is 10% and 15% among hospitalized patients [74].

One of the negative consequences of man's life style in the third millennium is the less attention paid to relationship between body and psyche, which has led to, as the paramount consequence, psychosomatic illnesses. These diseases have long been a problem to human and there is no definite cure for them. Psychosomatic illnesses refer to physical diseases, which have mental factors as their cause or the thing that intensifies the problem. Still, this does not mean that only mental factors are to blame for the physical problem, as they rather function as catalyzer.

MS is a chronic degenerative disease of the central nervous system. It is estimated that more than 2.5 million in the world are suffering from MS and 400,000 of them are in the USA.

MS appears in early maturity age and it is more common among women. Although, the disease in rare cases is lethal, it causes several disabling and physical difficulties. The course of the disease is abnormal and not predictable. The causes of MS are barely known and there is no known cure for it.

MS cause several mental and physical difficulties and the patients have to sustain unpredictable problems, hard treatment regimes, side effects of the medicines, and high levels of physical disabilities. In addition, the mental difficulties are not negligible, including problems in realizing life goals, having a good job, income, communication, and carrying out leisure time and daily life activities. Mental problems caused by MS, comparing with normal population and other chronic diseases, are more rampant. Literature review showed epidemic of depression and disabilities, increase of anxiety, attenuation of subjective well-being, life quality and social relations and role.

Corresponding Author: Zahra-Sadat Khoshcheshm, Department of Clinical Psychology, College of Psychology, Roudehen Branch, Islamic Azad University, Roudehen, Iran

Characteristics of the disease such as nervous disability, intensity of symptoms, improvement and course of the disease all influence mental compatibility level of MS patients. It is notable that these factors are closely related to how the patient copes with the disease and in most of the cases the only predicting elements we have. MS is one of the most common chronic disease of central nervous system, which is featured with demyelination of neurons so that the white pieces generated by demyelination gradually cover the white mass and influence motor and sensory performance.

MS affects people during their generative stage of life when they are more concerned about their family role and responsibilities. The disease tackles independence and abilities to take part in family and social activities and create self-distrust in physical capability of oneself.

Cardarelli [9] wrote about the psychological variables as critical and risky factors in some of the diseases that threaten mental health of human – which directly influence physical health- should the patient be deprived from social support. In the case of MS, avoiding stressful situation and effectively coping with the stresses influence intensity of the symptoms. Around 80% of the patients suffer from different level of disabilities and only 1 out of 5 experiences stability of their condition – i.e. their disabilities do not grow.

As suggested by studies, MS patients suffer higher levels of mental disorders or other relevant symptoms such as depression, stress, and anxiety. These effects are direct results of inflammation and demyelination of neurons or mental and unpredictable effects of the chronic disease. Mental expressions of the disease include anxiety, stress, depression, cognitive disorders, irritability, and anger; among them depression, anxiety, and stress are the most common symptoms [64,30,20].

Longenmayer and Scholttes, Ackerman et al. (2002), Gabb et al. (2003), Karunakaran (2004), and Moher et al. (2005) showed that many psychological factors such as mental conflicts rooted in worries about the disease, death, future and social factors such as losing job or covering the costs of medications all are of stressful factors among MS patients [65].

For years, behavior-cognitive treatment of the first generation was the main psychotherapy method to improve and reduce the symptoms of psychological disorders. However, results of the recent studies have indicated return of the problems during the follow up course and dissatisfaction of the patients with the results.

Acceptance and commitment therapists believe that psychological inflexibility, which is the cause of many physical and mental diseases, is rooted in experiential avoidance, cognitive defusion, unclear values, lack of mindfulness, and so on. The ACT is a cognitive-linguistic approach based on the relational and contextualism framework theory, which is one of the third generation cognitive-behavior treatments. The treatment is considered as an experimental method, which employs experimental exercises and several metaphors to convert problematic treatment concepts into non-problematic concepts and psychological inflexibility into psychological flexibility. Several studies have reported about effectiveness of ACT on psychological symptoms and also variety of physical diseases such as cancer, diabetes, and so on [66,67,58].

Taking into account that Iranian population is young, the rate of MS is high in the population, and weight of psychological factors in the course of the disease is undeniable, there is a clear need to conduct psychological interventions including new treatments with high potentials. Many studies have emphasized ineffectiveness of cognitive-behavior therapy during follow up course and reemerge of the disorders. Given the necessity of bringing in new treatment, the present study is an attempt to answer “whether ACT is effective in reducing the depression symptoms of MS patients?”

Research question:

Is ACT effective in reducing depression symptoms of MS patients?

Methodology:

The study design was quasi-experimental pretest and posttest with control group. Study population was comprised of all MS patients aged 20-45 who referred to Imam Hussein Hospital and Iran MS Society in 2013-2014. A sample group of 30 patients was selected through convenience sampling. The sample size was obtained from Cohen's formula with effect size of 0.5 and test power of 0.75 for the both groups of 15 participants (Sarmad, Bazargan, Hejazi, 2012). Out of the MS patients referred to the mentioned health facilities, 30 patients, at 3-5 stages of the disease course, were selected. The participants were randomly distributed in control and experiment groups (n = 15). The participants in the both groups were asked to fill out the BDI-II and then those in the experiment group attended ACT workshops (8 sessions of 45-60mins), while those in the control group received no intervention. Afterward the participants in the study filled out BDI-II. A brief report of the ACT workshops is listed below.

Table 1: ACT workshops (Zatel, 2008)

| goals | session |
|---|---------|
| introduction discussing confidentiality issues securing informed consent of the participant for the rest of the intervention general assessment assessing expectations of the referrals introduction to the concept of creative disappointment | 1 |
| examining the effect of the first session on personal life | 2 |
| continuing discussion about creative disappointment | |
| checking the homework of the last session and discussing about creative disappointment | |
| examining the effect of the previous session on personal life | 3 |
| checking the homework of the last session | |
| introducing control as a problem not a solution | |
| introduction to the concept of acceptance- tendency | |
| assigning homework | 4 |
| examining personal experiences of the patients after the last session | |
| checking homework and behavioral commitment | |
| introduction to the concept of ego as a background | |
| assigning homework | 5 |
| examining personal experiences of the patients after the last session | |
| checking the homework of the last session | |
| introduction to cognitive defusion | 6&7 |
| assigning homework | |
| examining the effect of the previous session on personal life | |
| checking the homework of the last session | |
| introduction to the concept of values | 8 |
| clarifying values in different fields of life | |
| assigning homework | |
| examining the effect of the previous session on personal life | 8 |
| reviewing the course | |
| reviewing home practices | |
| discussion behavioral commitment | |

To measure depression, BDI-II with 21 statements was used. Psychometry studies on this inventory have shown high validity and reliability. In general, the inventory is good replacement for its first edition. Beck Steer and Garbin obtained internal validity of the inventory between 0.73 and 0.92 (mean = 0.86), and α for the patient and healthy groups were 0.86 and 0.81 respectively. Pourshahbaz (1993, cited from Taraphijah, 2006) examined the BDI-II on a sample group of 116 individuals. Correlation of the scores and total score of the test was between 0.23 and 0.68, while internal consistency was 0.85 and reliability was obtained (through splitting and Brown – Spearman correction formula) 0.81. Cronbach's alpha was used to check reliability of the posttest of DBI-II ($\alpha=0.76$). In addition, reliability of the assessors pertinent to ACT protocol was equal with 0.78.

Findings:

Hypothesis: ACT is effective in reducing symptoms of depression among MS patients.

The hypothesis was tested by ANCOVA test and the results are listed in Table 2.

Table 2: descriptive statistics in pretest and posttest

| groups | variables | n | mean | SD |
|------------|---------------------|----|-------|------|
| experiment | depression-pretest | 15 | 25/33 | 2/12 |
| | depression-posttest | 15 | 13/20 | 2/11 |
| control | depression-pretest | 15 | 26/53 | 2/03 |
| | depression-posttest | 15 | 22/80 | 3/12 |

As indicated in the Table above, pretest/posttestdepression values of the experiment group are 25.33 and 13.20 respectively. Regarding the control group, depression pretest/posttest values are 26.53 and 22.80 respectively.

Table 3: Covariance analysis of the effectiveness of ACT on depression among MS patients

| cause of error | sum squares | DF | mean squares | F | sig. |
|-------------------------------------|-------------|----|--------------|--------|-------|
| total score of depression (pretest) | 14/249 | 1 | 14/249 | 2/092 | 0/160 |
| effect of CT | 581/248 | 1 | 581/248 | 85/058 | 0/001 |
| residual error | 184/506 | 27 | 6/834 | | |
| total | 69.995 | 29 | | | |

As listed in Table 3, by controlling BDI-II depression score, the main effect of ACT on depression score is significant ($F_{1, 27}=85/058$). That is, difference between posttest results of the control and experiment groups were significant ($\text{sig}=0.05$). Comparison of the mean values shows that mean of posttest depression of the experiment group was less than control group.

Discussion and conclusion:

Effectiveness of ACT on reducing depression symptoms of MS patients living in Tehran city was examined. Study population of the study was comprised of female and male MS patients between 20-35 years old who referred to Imam Hussein Hospital and Iran MS Society in 2013-14. Using convenience sampling, 30 participants were selected and randomly grouped in control and experiment groups ($n = 15$). BDI-II was used at first to measure pretest depression and then the experiment group members were asked to take part in ACT workshop (8 sessions). After the intervention, the participants were asked to fill out BDI-II to obtain posttest depression. ANCOVA was used to test the hypothesis of the study "ACT is effective in reducing depression symptoms among MS patients." The results showed a significant difference between the control and experiment groups after the intervention. In addition, ETA was obtained 75.9%. The results are consistent with Forsit, Hicking, Bianchi; Motto; Goadiano et al.; Mojtabaei and Asghari (under publication); and Khajehpour et al. (under publication). Several studies have examined the effect of ACT on wide range of mental disorders and problems and many have confirmed effectiveness of the treatment, including Zetel and Heiz (1986), Leiri and Beich (1990), Zetel and rain (1999), Band and Bans (2000), Lopes (2000), Blak (2002), Zetel (2003), Goadiano (2004), Branster, Wilson, Hildenbernt and Mirnch (2004) Hiez, Beist et al. (2004), Barpi and Langer (2005), Heblo (2006), Heiz and Masoda (2006), Tiohieg (2007), Karson, Geil and batokerm (2007), Leonardo, Lormson and Folt (2008), baroch, Kanter, Bosich (2009), etc.. ACT is a treatment approach that employs acceptance, mindfulness, commitment, and behavior change processes to create psychological flexibility. The main structure of ACT is psychological flexibility, which refers to capability to carry out effective action consistent with personal values even if there are problems and hardships in doing it. Results of studies have indicated importance of psychological acceptance especially on psychological performances. Patients that reported higher tendency to experience negative psychological experiences, emotional experiences, and bad memories had better social, physical, and emotional performance [85]. Heiz also argued that rather than removing the problematic factors, ACT helps the patients to accept their regulatory emotions, get rid of the control of linguistic rules – the causes of their problems, and stop struggling with such rules. Basically, ACT is a process-oriented treatment and clearly puts emphasis on flexible and compatible improvement of acceptance of psychological experiences and commitment to increase valuable activities regardless of the content of the experiences. These are the characteristics, which cannot be found in the majority of psychological treatment including cognitive behavior therapy. Moreover, the purpose of the treatment techniques prescribed by ACT is not to improve effective and rational thinking or foster emotions, but rather to reduce avoidance of psychological experiences and improve awareness of them; in particular, the emphasis is on mindful relationship with the moment by following a struggle-free and non-assessment approach.

By elaborating on the results, one may conclude that, it might be the case that medical and drug intervention and even other psychological intervention could lead to attenuation of physical difficulties and other symptoms, but the point is that effectiveness ACT was also confirmed. In general, and given the theoretical aspects of ACT, one may say ACT replaces clinical problems (e.g. mood disorders, anxiety, and physical problems) by psychological flexibility. In addition, considering process-based nature of the treatment, the patient feels the changes (e.g. lessened experimental avoidance and cognitive defusion with thoughts and beliefs pertinent to the problems) throughout the treatment.

Recommendations:

Future study might find it interesting to focus on follow-up course and assess stability of the results. In addition, using experimental method instead of quasi-experimental method is also recommended. It will be fruitful to find a way to determine the most effective steps in the treatment course in reducing symptoms of depression. Taking into account novelty of ACT and that many studies in other countries, like the present one, have confirmed its effectiveness, using ACT to treat other issues such as mood disorders, anxiety disorders, anger, drug abuse in different age groups is recommended.

REFERENCES

- [1] Abramoitz, M., 2008. *Family Doctor Handbook (MS)*, Translated by Hematkah F., Iran MS Society
- [2] Atkinson, R., S. Atkinson L Richard, R. Hilgard Ernest, 2001. *Psychology Base* Translated by Berahani M., Birashk B.m Beik M., Zamani R., Shamlo S., Shahraraie M., Karimi U., Gahan N., Moheidin M., Hashemian K., 2nd vol., Tehran, Roshd Publications
- [3] Azad, H., 2005. *Psycho-pathology 2*, Tehran, Besat Publication Institute

- [4] Bacher, J., S. Minka, J. Holi, 2008. *Psycho-pathology*, translated by Seyed Mohammadi S., Tehran, Arasbaran Publications
- [5] Barraca, J., 2006. Las terapias de conducta de tercera generación: ¿parientes políticos o hermanos carnales? (Editorial del monográfico). *EduPsykhé. Revista de Psicología y Educación*, 5(2): 147-157. (Third-Wave Behavior Therapies: In-laws or full brothers?)
- [6] Beck, A.T., 1976. *Cognitive therapy and emotional disorders*. New York: International Universities Press.
- [7] Berens, N.M., and S.C. Hayes, 2007. Arbitrarily applicable comparative relations: Experimental Evidence for relational operants. *Journal of Applied Behavior Analysis*, 40: 45-71.
- [8] Biglan, A., S.C. Hayes and J. Pistorello, 2008. Acceptance and commitment: Implications for prevention science. *Prevention Science*, 9: 139-152.
- [9] Cardarelli, K.M et al., 2007. Sense of control and diabetes mellitus among U.S. adults: A cross-sectional analysis. *Biopsychosocial Medicine.*, 1(19): 1-6.
- [10] Chwastiak, A.L., E.L. Gibbons, M.D. Ehde, M. Sullivan, O.J. Bowen, He. Bombardier et al., 2005. Fatigue and psychiatric illness in a large community sample of persons with multiple sclerosis. *J Psychosomat Res.*, 59: 291-98.
- [11] Davidson, J., J. Neil, A. Kring, 2004. *Psycho-pathology*, Translated by Seyed Mohamadi S., Tehran, Virayesh Publications
- [12] Davison, G.C. and J.M. Neal, 2001. *Abnormal Psychology* (8th ed). New York: John Wiley & sons INC.
- [13] Degen, L.M., 2008. Acceptance-based emotion regulation, perceptions of control, state mindfulness, anxiety sensitivity, and experiential avoidance: Predicting response to hyperventilation. Unpublished doctoral dissertation. American University.
- [14] Delavar, A., 2001. *Research Methods in psychology and educational science*, Tehran, Virayesh Publication
- [15] Dennison, Laura, Moss-Morris, Rona and Chalder, Trudie, 2009. A review of psychological correlates of adjustment in patients with multiple sclerosis. *Clinical Psychology Review*, 29(2): 141-153.
- [16] Dimatheo, M.R., 1991. *Health psychology*, translated by Mousavi Asl S., Salarifar M (2009), Tehran, Samt publications
- [17] Donna, J.B., B. Cathy, 2002. An overview of assistive technology for persons with Multiple Sclerosis. *J Rehab Res Develop*, 39(2): 299-312.
- [18] Dymond, S., and D. Barnes, 1995. A transformation of self-discrimination response functions in accordance with the arbitrarily applicable relations of sameness, more-than, and less-than. *Journal of the Experimental Analysis of Behavior*, 64: 163-184.
- [19] Eizadi, R., M. Abedi, 2013. *Acceptance and commitment based treatment*, Tehran, Jangal Publications
- [20] Feinstein, A., K. Feinstein, 2001. Depression associated with multiple sclerosis looking beyond diagnosis to symptom expression. *Journal of Affective Disorders*, 66: 193-98.
- [21] Flaxman, P.E., J.T. Blackledge and F.W. Bond, 2011. *Acceptance and commitment therapy: The CBT distinctive features series*. Hove: Routledge.
- [22] Fletcher, L., and S.C. Hayes, 2005. Relational Frame Theory, Acceptance and Commitment Therapy, and a functional analytic definition of mindfulness. *Journal of Rational-Emotive and Cognitive-Behavioral Therapy*, 23(4): 315-336.
- [23] Fukui, S., A. Kugaya, H. Okamura, M. Kamiya, M. Koike, T. Nakanishi, S. Imoto, K. Kanagawa a Y.A. Uchitomi, 2000. Psychosocial group intervention for Japanese women with primary breast carcinoma: a randomized controlled trial. *Cancer.*, 89: 1026.1036.
- [24] Gaudiano, B.A., 2004. Acceptance and commitment therapy for psychiatric in patients with psychotic symptoms. On publish doctor dissertation of Drexel University.
- [25] Gaudiano, B.A., K. Nowlan, L.A. Brown, G. Epstein-Lubow and I.W. Miller, 2013. An open trial of an acceptance-based behavioral psychotherapy for major depression with psychotic features. *Behavior Modification*, 37: 324-355.
- [26] Ghafari, S., 2006. *Surveying the effect of muscle generative relaxing technique on MS patients' daily life under Iran MS Society observation*, MS dissertation in internal-surgery nursing, Tarbiat Modares
- [27] Ghoraei Ardakani, S., P. Azadfalsh, S. Tolaei, 2012. *Effectiveness of ACT on reducing pain experience by women suffering from chronic headache*, *Clinical Psychology Studies Quarterly*, pp: 39-50.
- [28] Given, C., B. Given, M. Rahbar, S. Jeon, R. McCorkle and B. Crimprich, 2004. Does a symptom management intervention affect depression among cancer patients: result from a clinical trial? *Psycho-Oncology*, 13: 818.830.
- [29] Guthri, E., 2005. over view of Multiplesclerosis : U.S. pharm.
- [30] Habek, M., M. Brinar, V.V. Brinar, M.C. Poser, 2006. Psychiatric manifestations of multiple sclerosis and acute disseminated encephalomyelitis. *Clin Neurol Neurosurg*, 108: 290-94.
- [31] Haljin, R., S. Kros Vitebron, 2007. *Psycho-pathology from clinical viewpoint regarding mental disorders*, translated by Seyed Mohammad S., Tehran, Ravan Publications.

- [32] Harris, R., 2009. ACT Made Simple: An Easy-To-Read Primer on Acceptance and Commitment Therapy. Oakland, CA: New Harbinger.
- [33] Hayes, L.L., P.A. Bach and C.P. Boyd, 2010. Psychological Treatment for Adolescent Depression: Perspectives on the Past, Present, and Future. *Behaviour Change*, 27(1): 1-18. doi: 10.1375/bech.27.1.1
- [34] Hayes, S.C., 1989. Nonhumans have not yet shown stimulus equivalence. *Journal of the Experimental Analysis of Behavior*, 51: 385-392.
- [35] Hayes, S.C., 1993. Why environmentally based analyses are necessary in behavior analysis. *Journal of the Experimental Analysis of Behavior*, 60: 461-463.
- [36] Hayes, S.C., 1994. Content, context, and the types of psychological acceptance. In S. C. Hayes, N. S. Jacobson, V. M. Follette, & M. J. Dougher (Eds.), *Acceptance and change: Content and context in psychotherapy* (pp. 13-32). Reno, NV: Context Press.
- [37] Hayes, S.C., 2002. *Acceptance and commitment therapy*. New Harbinger publication.
- [38] Hayes, S.C., 2002. Acceptance, mindfulness, and science. *Clinical Psychology: Science and Practice*, 9(1): 101-106.
- [39] Hayes, S.C., 2004. Acceptance and Commitment Therapy and the new behavior therapies: Mindfulness, acceptance and relationship. In S. C. Hayes, V. M. Follette, & M. Linehan (Eds.), *Mindfulness and acceptance: Expanding the cognitive behavioral tradition* (pp. 1-29). New York: Guilford.
- [40] Hayes, S.C., 2005. Fleeing from the elephant: Language, cognition and post-skinnerian behavior analytic science. *Journal of Organizational Behavior Management*, 24(1/2): 151-173.
- [41] Hayes, S.C., 2008. Climbing our hills: A beginning conversation on the comparison of acceptance and commitment therapy and traditional cognitive behavioral therapy. *Clinical Psychology: Science & Practice*, 5: 286-295.
- [42] Hayes, S.C., 2008. *Get out of your mind and into your life: easyread larg bold edition*. Accessible publishing systems PTY, Ltd
- [43] Hayes, S.C., D. Barnes-Holmes and B. Roche, (Eds.). 2001. *Relational Frame Theory: A Post-Skinnerian account of human language and cognition*. New York: Plenum Press.
- [44] Hayes, S.C., and A.J. Brownstein, 1986. Mentalism, behavior-behavior relations, and a behavior-analytic view of the purposes of science. *The Behavior Analyst*, 9(2): 175-190.
- [45] Hayes, S.C., and J. Lillis, 2012. *Acceptance and Commitment Therapy*. American Psychological Association (Theories of Psychotherapy Series).
- [46] Hayes, S.C., J. Luoma, F. Bond, A. Masuda and J. Lillis, 2006. Acceptance and Commitment Therapy: Model, processes, and outcomes. *Behavior Research and Therapy*, 44(1): 1-25.
- [47] Hayes, S.C. and A. Masuda, 2006. Acceptance and commitment therapy: Model, Process and outcomes. *Journal of Behavior and Cognitive Therapy*, 44: 1-25.
- [48] Hayes, S.C., J. Pistorello and A. Biglan, 2008. Acceptance and commitment therapy: Model, data, and extension to the prevention of suicide. *Journal of Behavior and Cognitive Therapy*.
- [49] Hayes, S.C., K.D. Strosahl and K.G. Wilson, 1999. *Acceptance and commitment Therapy*. New York: Guilford.
- [50] Hayes, S.C., K.D. Strosahl and K.G. Wilson, 2012. *Acceptance and commitment therapy: The process and practice of mindful change* (2nd edition). New York, NY: The Guilford Press.
- [51] Hayes, S.C., K. Strosahl and K.G. Wilson, 2003. *Acceptance and Commitment Therapy: An experiential approach to behavior change*. New York: Guilford Press.
- [52] Hayes, S.C., and K.G. Wilson, 1993. Some applied implications of a contemporary behavior-analytic account of verbal events. *The Behavior Analyst*, 16: 283-301.
- [53] Hernandez-Reif, M., T. Field, T. Field, H. Theakston, 1998. Multiple sclerosis patients benefits from massage therapy. *Journal of Bodywork and Movement Therapies*, 2(3): 168-74.
- [54] Hofmann, S.G., and G.J. Asmundson, 2008. Acceptance and mindfulness-based therapy: New wave or old hat? *Clinical Psychology Review*, 28(1): 1-16.
- [55] Hoseini, S., 2005. *Surveying the effects of group cognitive therapy on cutting depression and adding to mental health of the MS patient under Iran MS Society observation*, M.S. dissertation in General Psychology, Faculty of Psychology and Educational Science, Alzahra University
- [56] Human Heidarzali, 2010. *Introduction to scientific method in behavior sciences*, Samt Publications
- [57] Janardhan, V., R. Bakshi, 2002. Quality of life in patients with multiple sclerosis: the impact of fatigue and depression; *J Neural Sci.*, 23(4): 51-58.
- [58] Khajepour, M., B. Birashk, S. Dabagh, Sh. Habibzadeh Sheikh, S. Arabnejad, *Effectiveness of ACT on reducing depression symptoms among the youth*, *Novel Psychology Findings Journal*, *under publication
- [59] Lillis, J., and S.C. Hayes, 2007. Applying acceptance, mindfulness, and values to the reduction of prejudice: A pilot study. *Behavior Modification*, 31(4): 389-411.
- [60] Luoma, J.B., S.C. Hayes and R.D. Walser, 2007. *Learning ACT: An Acceptance & Commitment Therapy Skills-Training Manual for Therapists*. Oakland, CA: New Harbinger & Reno, NV: Context Press.

- [61] Madani, H., 2001. *Surveying the effect of self-observation on self-dignity of MS patients under Iran MS Society observation*, M.S dissertation on Internal-Surgery Nursing, Tarbiat Modares University
- [62] Masoudi, R., I. Mohammadi, F. Ahmadi, A. Hassanpour Dekordi, 2009. *Effect of self-observation training on Orem Framework on the aspects of life quality of MS patients*, *Scientific and Research Journal of the Faculty of Nursing and Midwifery*, 22nd period, No. 60.
- [63] Masuda, A., S.C. Hayes, M.P. Twohig, C. Drossel, J. Lillis and Y. Washio, 2009. A parametric study of cognitive defusion and the believability and discomfort of negative self-relevant thoughts. *Behavior Modification*, 33: 250-262.
- [64] Mitchell, A., J. Benito-Leon, M.J. Morales Ganzalez, J. Rivera-Navarro, 2005. Quality of life and its assessment in multiple sclerosis: integrating physical and psychological components of wellbeing. *Lancet Neural.*, 4: 556-66.
- [65] Mohammad Rezve, N., H. Afshar, 2008. *Determining psychological and social factors in emergence of stress among MS patient*, *Journal of Principles of Mental Health*, 10th year, 4: 305-310.
- [66] Mojtabaei, M., N. asghari, effectiveness of acceptance and commitment therapy to reduce symptoms of depression in women with breast cancer. *Indian journal of fundamental and applied life science* (in press)
- [67] Mojtabaei, M., N. gholam hosseini, effectiveness of acceptance and commitment therapy to reduce symptoms of anxiety in women with breast cancer. *Indian journal of fundamental and applied life science* (in press)
- [68] Muto, T., 2012. A treatment-evaluation of Acceptance and Commitment Therapy for an adult with chronic depression: Toward bridging between traditional case reports and randomized controlled trails. *Japanese Journal of Psychosomatic Medicine*, 52(9): 810-818.
- [69] Ozakbas, S., I. Cagiran, B. Ormeci, E. Idiman, 2004. Correlation between multiple sclerosis functional composite, expanded disability status scale and health-related quality of life during and after treatment of relapses in patients with multiple sclerosis. *J Neurol Sci.*, 218: 3-7.
- [70] Pakdaman, H., 2008. *MS epidemic in Iran*, *M.S Journal*, No. 28
- [71] Petajan, J.H., 1996. Impact of aerobic training on fitness and quality of life in Multiple Sclerosis. *Ann Neurol.*, 39(4): 432-41.
- [72] Rozenhan, D., M. Sligman, 2000. *Psycho-pathology- abnormality psychology*, Translated by Seyed Mohammadi S., Tehran, Arasbaran Publications
- [73] Saavdara, K., 2007. *Towards a new acceptance and commitment therapy treatment of problematic anger for couple* on publish doctor dissertation of institute graduate school of psychology
- [74] Saduk, B., J. Saduk, V. Alkot, 2009. *Short psychology, behavior science/ clinical psychology*, Translated by Zarei F., Tehran, Arjmand Publications
- [75] Sarmad, Z., A. Bazargan, E. Hejazi, 2004. *Research method in behavior science*, Tehran, Agah Publications
- [76] Seaward Bl. *Managing Stress*. Translated by: M Gharachedghi. Tehran: paykan, 2002.
- [77] Stauffer, M., 2006. *Understanding multiple sclerosis*. Jackson: University Press of Mississippi.
- [78] Taraghijah, S., 2006. *Comparing the effect of group consultation with cognitive-behavior approach and spiritual approach to depression among girl students in Tehran*, Doctorate dissertation, Faculty of Psychology and Educational Science, Tarbiat Moalem University, Tehran.
- [79] Tarner, J., B. Kelly, 2000. Emotional dimensions of chronic disease-West J Med., 172: 124-8
- [80] Breakkan, K.C., 2006. *Acceptance and commitment therapy intervention for combat veterans with post traumatic stress disorder*. On publish doctor dissertation of Spalding University.
- [81] Twohig, M.P., 2007. *A randomized clinical trial of Acceptance and commitment therapy versus progressive relaxation training in the treatment of obsessive compulsive disorder*. On publish doctor dissertation of University Nevada.
- [82] Twohig, M.P., 2009. *Acceptance and Commitment Therapy for Treatment-Resistant Posttraumatic Stress Disorder: A Case Study*. *Cognitive and Behavioral Practice*, 16(3): 243-252.
- [83] Twohig, M.P., A. Masuda, A.A. Varra and S.C. Hayes, 2005. *Acceptance and Commitment Therapy as a treatment for anxiety disorders*. In S. M. Orsillo & L. Roemer (Eds.), *Acceptance and mindfulness-based approaches to anxiety: Conceptualization and treatment* (pp. 101-130). New York: Kluwer/Springer-Verlag.
- [84] Wilson, K.G., and S.C. Hayes, 1996. Resurgence of derived stimulus relations. *Journal of the Experimental Analysis of Behavior*, 66(3): 267-281.
- [85] Zettle, R., 2007. *ACT for Depression: A Clinician's Guide to Using Acceptance & Commitment Therapy in Treating Depression*. Oakland, CA: New Harbinger
- [86] Zettle, R.D., and S.C. Hayes, 1986. Dysfunctional control by client verbal behavior: The context of reason giving. *The Analysis of Verbal Behavior*, 4: 30-38.