

Comparison of modular cognitive-behavioral therapy and behavioral activation on the intolerance of uncertainty in students with generalized anxiety disorder

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Abstract

Context: Generalized anxiety disorder (GAD) is one of the most common psychological disorders. The prevalence of GAD among students is higher than the general population.

Aims: The purpose of this study was to compare the effect of modular cognitive-behavioral therapy (MCBT) and behavioral activation (BA) on the intolerance of uncertainty of students with GAD.

Setting and Design: This research was a semi-experimental design with pre- and post-test design with follow-up conducted for two groups in counseling center of Neyshabur University during the period of January–April 2019.

Materials and Methods: The study population included all students of Neyshabur University. The samples recruited from students who referred to the counseling center of Neyshabur University (45 cases) based on the purposive sampling method. The students who diagnosed with GAD based on Spitzer general anxiety questionnaire and met criteria (45 cases) randomly assigned into three groups of MCBT (15 cases), BA (15 cases), and control group (15 cases).

Statistical Analysis Used: Data were collected using Spitzer general anxiety questionnaire (2006) and Freeston Intolerance of Uncertainty Scale (1994). Data were analyzed using the SPSS version 24 software through repeated measure analysis.

Results: The findings revealed both intervention groups in reduction of the intolerance of uncertainty in comparison to the control group ($P > 0.05$). Results reported by participants in the MCBT group showed greater mean scores as compared to the BA group. However, no significant difference found between groups ($P > 0.05$).

Conclusion: It can be concluded that MCBT implies decreasing the uncertainty severity of students with general anxiety than BA therapy, although the stability of BA therapy was longer. Therefore, it is suggested to use integrated therapeutic approaches.

Keywords: Behavioral activation, Generalized anxiety disorder, Intolerance of uncertainty, Modular cognitive-behavioral therapy

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INTRODUCTION

Generalized anxiety disorder (GAD) is characterized by intense and uncertainty, uncontrollable, and overwhelming concerns with cognitive and physical symptoms.^[1] It is estimated that the prevalence of GAD among Iranian students is higher than the general population (12%–20% vs. 20%–15%).^[2,3]

The uncertainty includes cognitive and behaviors dimension in GAD patients.^[4] Fisher *et al.* found low uncertainty tolerance is related to higher GAD.^[5] In addition, Haegen and Etienne.^[6] Diefenbach *et al.*,^[7] and Koerner *et al.*^[8] reported higher negative emotions such as anxiety among peoples with low intolerance of uncertainty. In fact, people with lower intolerance for uncertainty more likely to engage avoidance behavior, which leads to severe anxiety.^[9] Naturally, GAD is chronic, mostly remained undiagnosed with high comorbidity, and treated difficultly.^[10,11] Among the various therapeutic approaches, cognitive-behavioral therapies (CBT) are well known as most commonly used for GAD treatment.^[12,13] According to these CBT model, emotional disturbances such as low intolerance are responsible for creating negative emotions such as anxiety.^[11] Several studies confirmed the effectiveness of CBT on GAD.^[14,15] However, in recent years, modular CBT (MCBT) developed to meet individual's needs, which follows same techniques with flexible and personalized manner.^[16] Moreover, behavioral activation (BA) as structured therapeutic approaches focused on promoting behaviors.^[17,18] This method increases the contact of the person with the reinforced connections of the environment.^[19] This is a credible process for improving mood and quality of life.^[20] Hirayama *et al.* believed this method decrease anxiety through enhancing individual access to reinforcement resources.^[21] Becker *et al.* also found MCBT is effective on GAD.^[22]

BA targets avoidant behaviors, increase reinforcement is appropriate for managing anxiety;^[18] although GAD cases are more likely to engage avoidant behavior, therefore, the risk of leaving therapy in these cases is high and MCBT as a therapy which is tailored for each case including exposure plus cognitive methods could be effective.^[16] In contrast to CBT, the BA model makes no assumption about clients' thinking patterns. Instead, it presumes a lack in positive reinforcement as the maintaining factor of depression and emphasizes the importance of BA.^[22] Therefore, the present study aimed to answer the question of whether there is a difference between the effect of MCBT and BA on the intolerance of uncertainty of the GAD.

MATERIALS AND METHODS

This study was a semi-experimental with pretest–posttest and 12-week follow-up with a control group. All samples informed about goals of study. They were assured the data would remain confidential and they are free to leave study anytime. The written consent form signed with all participants. The proposal of the study confirmed with the ethics committee of Islamic Azad University of Neyshabor committee with COD number of the IR.IAU. NEYSHABUR.REC.1397.001.

The statistical population of the study included all referred females in the counseling center of the Neyshabor University during May–September 2018. The study included 45 cases who diagnosed based on the DSM-V as GAD patient through an interview conducted by the supervisor of the center among 85 female undergraduate students. Samples selected through purposive method and then randomly assigned into three groups MBCT ($n = 15$), BA group ($n = 15$), and control group ($n = 15$) through online randomization site.

Inclusion criteria: Score above cut point^[10] in GAD-7 scale,^[23] residence of Neyshabur City, upper secondary education, ages 18–24 years old, and exclusion criteria, including specific disorders of the axis I and under treatment for any physical and mental condition, physical illness, absences of more than two sessions.

All participants in three groups evaluated using the Intolerance of Uncertainty Scale-Short Form (IUS-12) in pre–post intervention and 1 month after the intervention. The following scales were used for the evaluation of participants:

A brief measure for assessing generalized anxiety disorder

the GAD-7: Spitzer *et al.*^[23] developed this questionnaire. This scale included seven main questions and an additional question that measures the degree of interference of anxiety in the individual, social, familial, and occupational functions in four options (0-1-2-3) through Likert method. The cut point is 10. This scale showed good reliability and validity in Iranian samples. The internal consistency of the GAD-7 was excellent (Cronbach = 0.92). Test–retest reliability was also good (intraclass correlation = 0.83). Comparison of scores derived from the self-report scales with those derived from the MHP-administered versions of the same scales yielded similar results (intraclass correlation = 0.83), indicating good procedural validity.^[23] The reliability of scale through correlation coefficient with the Spiel Berger

questionnaire was 0.71, and the validity through Cronbach's alpha coefficient was equal to 0.85 scale.^[24] In this study, the validity through was through Cronbach's alpha coefficient was equal to 0.73.

Intolerance of Uncertainty Scale-Short Form

this questionnaire is developed by Freeston *et al.* (1994) included 27 questions. Items on the IUS-12 are rated on a five-point, Likert-type scale ranging from 1 (not at all characteristic of me) to 5 (entirely characteristic of me), with total scores ranging from 12 to 60. In the pilot study of Freeston *et al.*, internal consistency of the scale was $\alpha = 0.93$. The reliability coefficient of 0.74 was reported over a 5-week period.^[25] The reliability of this scale through Cronbach's alpha was reported adequate (0.82) in Iran and content validity confirmed by experts.^[26] In this study, calculated Cronbach's alpha for this scale was equal to 0.65.

Treatment method

the MCBT group received 12 sessions (each session 90 min twice a week)^[26] and BA treatment 8 sessions (each session 90 min once a week).^[27] The control group did not receive treatment during this stage. The sessions held in counseling center of the Islamic Azad University of Neyshbur. The cases who do not attend in two sessions eliminated (3 cases from BA and 3 cases in MCBT group). Two cases in control group removed, as they were not available in follow-up. After the completion of the research, therapeutic sessions were suggested to the control group. Table 1 shows the content of sessions.

The gathered questionnaires scored and interred to SPSS-20 IBM SPSS Statistics for Windows, version 20 (IBM Corp.,

Armonk, N.Y., USA) to the analysis. The analysis conducted through repeated analysis variance method using Tukey *post hoc*. The statistical significance level considered as 0.05.

RESULTS

All participants were female age range 18–32 with a mean age of $23/40 \pm 3/53$ years. The assumptions of repeated measure checked as Box M were not statistically significant ($F [12,2355/22] = 1.70, P > 0.05$); although Muchly test was significant, therefore, Greenhouse–Geisser index ($F = 123.50, P < 0/05$) used and met criteria. The mean and standard deviation of the intolerance of uncertainty score of participants in the three groups of MCBT, BA program, and control groups shown in pre–post and follow-up stages. In addition, the results of repeated measure indicated a significant difference between groups during time [Table 2].

Accordingly, there is no difference in posttest scores between cognitive-behavioral MCBT and BA therapy, and both groups of treatment with the control group have a significant difference in scores ($P < 0.05$). However, the mean scores show the effect of MCBT is more than the BA [Table 3]. The diagram of the trend analysis scores of both treatment and control groups in the pre-test, post-test, and follow-up stages in the following graph is quite clear [Figure 1].

DISCUSSION

The purpose of this study was comparison of MCBT and BA on the intolerance of uncertainty, GAD. The results of this study showed that there is no significant difference

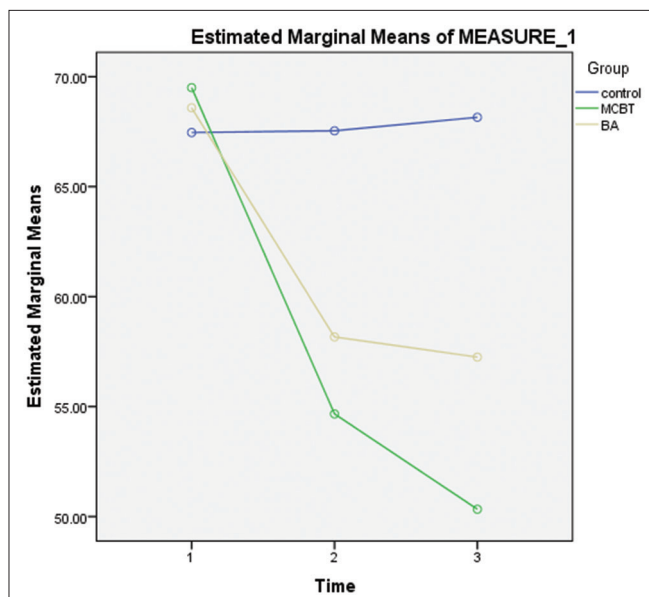
Table 1: Content of modular cognitive-behavioral therapy and behavioral activation program

Modules	Session	Treatment
MCBT	First	Introduction, goals, group rules, what is GAD, how program works? Making the ladder of fear
	T second	Is to teach about anxiety and symptoms, to prepare references for practicing exposure
	Third	Implementation of the cognitive reconstruction unit, recording two-column thoughts, recording five-column thoughts, homework
	Fourth	Implementation of the reconstruction unit, seven-column thoughts recordings, home submission
	Fifth	Selection of steps below the fear ladder, scoring back to the fear thermometer and homework
	Sixth	Training of negative thinking modes, completion of meeting tables, reviewing sessions, homework
	Seventh	Training on social skills units, providing assignments according to the conditions of each reference
	Eighth	Training on social skills unit, classroom homework, homework
	NNinth	Homework review, training on how to preserve achievements and prevent the return of disease
	Tenth	Review sessions and fixes encouragement to commit to skills training, summaries and feedback
	Eleventh and eleventh	Follow up and review sessions
BA program	First	Introduction, goals, group rules, content of program, what is GAD, how program works?
	T second	Is to register your daily activities program in a week and use it in the face of avoidance
	Third	Teach pleasant activities and mastery
	Fourth	ACTION skill training (evaluation - selection-try-add-add-never give in - result of view)
	Fifth	Training the TRAC skills and overcoming the avoidance of TRAP
	Sixth	Collaborative discussion on how to better utilize ACTION, TRAP, and TRAC skills
	Seventh	Self-study training
	Eighth	Checking exercises, summary and feedback

MCBT: Modular cognitive-behavioral therapy, BA: Behavioral activation, GAD: Generalized anxiety disorder

Table 2: Analysis of variance with repeated measure for comparison of pretest, posttest, and followup of uncertainty variable

Group	Mean±SD						Sources	SS	df	MS	F
	Pretest		Posttest		Follow-up						
Control	67.4	8.2	67.5	7.3	68.1	6.6	Time	1823.7	1	1823.7	112.0*
MCBT	69.5	6.8	54.6	5.5	50.3	6.8	Time × group	1255.6	2	627.8	38.5*
BA	68.5	7.3	58.1	6.9	57.2	6.1	Error	553.5	34	16.2	

**Figure 1:** Scores of in pre-post and follow up times in three groups of BA, MCBT and control

between MCBT and BA in the intolerance of uncertainty of participants in intervention groups. Although the effectiveness of MCBT was higher as compared to BA group, there was no statistically significant difference between the intervention groups. These findings were in harmony with the results of Dimidjian *et al.*^[28] who found among more severely patients, BA was comparable to antidepressant medication, and both significantly outperformed cognitive therapy. Lorenzo-Luaces and Dobson^[29] also reported no differences between the effectiveness of BA and cognitive therapy in pot test stage or follow-up period even when considered moderation role of the severity of illness. Bolinski *et al.*^[30] showed cognitive therapy or BA approaches led to significant and comparable symptom reduction. There was no clear evidence of differential change with respect to purported underlying mechanisms.

These findings are explainable according to the Dugas *et al.*^[31] cognitive model of uncertainty intolerance, it is believed that people's beliefs about uncertainty, positive beliefs about worries, cognitive avoidance strategies play an important role in persistence of anxiety. Inability to the intolerance of uncertainty is a kind of cognitive bias that affects the perception, interpret, and respond to vague

Table 3: Post hoc test for comparing the mean uncertainty of uncertainty in groups

Groups	MD	SE	Significant
Control			
MCBT	9.5	2.5	0.001*
BA	6.3	2.5	0.01**
MCBT			
BA	3.1	2.9	0.23

* $P > 0.001$, ** $P > 0.05$

situations at the cognitive, emotional, and behavioral levels. Those who feel low intolerance in uncertain condition; believe that uncertainty is stressful and uncomfortable; uncertainty about future is unjust; negative events are unexpected and should be avoided. In addition, an uncertainty interferes with the individual's ability to act adaptively. Cognitive avoidance refers to a variety of strategies that leads to avoiding the cognitive and emotional content of the threatening one. Although people engage to avoidance behavior to reduce anxiety, this leads to higher anxiety.^[32]

The present study demonstrates the effectiveness of both treatments. However, MCBT showed higher effect than BA on reducing uncertainty. This finding explained with the underlying mechanism of effectiveness of two methods. The uncertainty is a kind of cognitive bias that effects on perceives, interprets, and answers. The vague situations affect the cognitive, emotional, and behavioral levels^[31] and in the cognitive-behavioral management of the process of cognitive processes such as restructuring automatic thoughts and the interpretation of cognitive abilities and through sessions. On the other hand, repeated exposure to certain conditions that a person is exposed to anxiety and inability to express reinforced behaviors could enhance the self-esteem and reduce the worry. These key element extremely effect uncertainty.^[33]

We expected a higher effectiveness of MCBT as uncertainty tolerance is a cognitive bias. However, as Lorenzo-Luaces *et al.*, (2014) suggest in their extensive review, noncognitive interventions can produce changes in cognitions.^[34] The BA intervention included planning; targeting is a behavioral therapy for anxiety, in which patients play their normal role by reviewing day-to-day behaviors and enhancing enjoyable activities and positive interactions with the environment.^[35] In BA group, participants encouraged to become more active in

front of negative emotions and concerns. In this study, the BA group trained by ACTION's skills which equips them to problem-solving techniques and helped to exposure with catastrophic thoughts.^[27] In MCBT group plus to exposure to catastrophes and ambitious. The thoughts identified and participant challenged with thoughts using mark sheets. Finding how the thoughts became false through challenging equipped them to cognitive skill to change thoughts. The results of the treatment are consistent with the results of Chen and Yang's research.^[33] This study involved with some limitation as it is conducted in a small society of students who referred to counseling center of university. We were not able to check physiologic factors, which effects anxiety level also the participants came from different economical level with different stress sources. On the other hand, conducting research and keeping participants in such long time was a main challenge of the study.

CONCLUSION

Considering the result of the research, the elements of the process of CBT and BA have been able to reduce the severity of the intolerance of uncertainty among students with GAD. Therefore, considering the extent of the negative effects of anxiety on students' lives, the use of these treatments in relation to the treatment of anxious students is suggested. It is also suggested that research be done in subsequent studies using random sampling in different age groups.

Conflicts of interest

There are no conflicts of interest.

Authors' contribution

Elahe Beheshtian developed idea, reviewed the studies, gathered data, drafted reports. Hasan Tozandeh Jani drafted paper, supervised intervention, and contribute in writing. Mohammad Reza Saffarian Tousi contributed in the analysis of data, translation, and drafting.

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REFERENCES

- Eagleson C, Hayes S, Mathews A, Perman G, Hirsch CR. The power of positive thinking: Pathological worry is reduced by thought replacement in generalized anxiety disorder. *Behav Res Ther* 2016;78:13-8.
- Rahmanian BI. The Predictive Role of Happiness, Optimism and Demographical Status in Engagement in Health-Related Behaviors; 2013.
- Sharifi V, Amin-Esmaceli M, Hajebi A, Motevalian A, Radgoodarzi R, Hefazi M, *et al.* Twelve-month prevalence and correlates of psychiatric disorders in Iran: The Iranian mental health survey, 2011. *Arch Iran Med* 2015;18:76-84.
- Fisher PL, Wells A. Conceptual models of GAD. *Psychiatr Ann* 2011;41:127-32.
- Birrell J, Meares K, Wilkinson A, Freeston M. Toward a definition of intolerance of uncertainty: A review of factor analytical studies of the intolerance of uncertainty scale. *Clin Psychol Rev* 2011;31:1198-208.
- Haegen MV, Etienne AM. Cognitive processes across anxiety disorders related to intolerance of uncertainty: Clinical review. *Cogent Psychol* 2016;3:1215773.
- Diefenbach GJ, Gilliam CM, Tolin DF. Metacognitive beliefs in late-life GAD. *J Exp Psychopathol* 2012;3:768-81.
- Koerner N, Mejia T, Kusec A. What's in a name? Intolerance of uncertainty, other uncertainty-relevant constructs, and their differential relations to worry and generalized anxiety disorder. *Cogn Behav Ther* 2017;46:141-61.
- Beesdo-Baum K, Jenjahn E, Höfler M, Lueken U, Becker ES, Hoyer J, *et al.* Avoidance, safety behavior, and reassurance seeking in generalized anxiety disorder. *Depress Anxiety* 2012;29:948-57.
- van der Heiden C, Muris P, van der Molen HT. Randomized controlled trial on the effectiveness of metacognitive therapy and intolerance-of-uncertainty therapy for generalized anxiety disorder. *Behav Res Ther* 2012;50:100-9.
- Mollanorouzi AH, Soleimani E. The Comparison of Adlerian Treatment and Cognitive-Behavioral Therapy on Reducing Symptoms in Students Suffering from GAD. NJ, USA: 2019;25:865-73.
- Wells A. *Cognitive Therapy of Anxiety Disorders: A Practice Manual and Conceptual Guide*. J Sabzevar Univ Med Sci: John Wiley and Sons; 2013.
- Gould RA, Otto MW, Pollack MH, Yap L. Cognitive behavioral and pharmacological treatment of GAD: A preliminary meta-analysis. *Behav Ther* 1997;28:285-305.
- Butler G, Fennell M, Robson P, Gelder M. Comparison of behavior therapy and cognitive behavior therapy in the treatment of generalized anxiety disorder. *J Consult Clin Psychol* 1991;59:167-75.
- Durham RC, Allan T. Psychological treatment of generalised anxiety disorder. A review of the clinical significance of results in outcome studies since 1980. *Br J Psychiatry* 1993;163:19-26.
- Chorpita BF, Taylor AA, Francis SE, Moffitt C, Austin AA. Efficacy of modular cognitive behavior therapy for childhood anxiety disorders. *Behav Ther* 2004;35:263-87.
- Farchione TJ, Boswell JF, Wilner JG. Behavioral activation strategies for major depression in transdiagnostic cognitive-behavioral therapy: An evidence-based case study. *Psychotherapy (Chic)* 2017;54:225-30.
- Ekers D, Webster L, Van Straten A, Cuijpers P, Richards D, Gilbody S. Behavioural activation for depression; an update of meta-analysis of effectiveness and sub group analysis. *PLoS One* 2014;9:e100100.
- Fernández-Rodríguez C, Villoria-Fernández E, Fernández-García P, González-Fernández S, Pérez-Álvarez M. Effects of BA on the quality of life and emotional state of lung cancer and breast cancer patients during chemotherapy treatment. *Behav Modif* 2019;43:151-80.
- Hirayama T, Ogawa Y, Yanai Y, Suzuki SI, Shimizu K. BA therapy for depression and anxiety in cancer patients: A case series study. *BioPsychoSoc Med* 2019;13:9.
- Zhang X, Norton J, Carrière I, Ritchie K, Chaudieu I, Ancelin ML. Risk factors for late-onset generalized anxiety disorder: Results from a 12-year prospective cohort (the ESPRIT study). *Transl Psychiatry* 2015;5:e536.
- Becker EM, Becker KD, Ginsburg GS. Modular cognitive behavioral therapy for youth with anxiety disorders: A closer look at the use of

- specific modules and their relation to treatment process and response. *Sch Ment Health* 2012;4:243-53.
23. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: The GAD-7. *Arch Intern Med* 2006;166:1092-7.
 24. Naeinian M, Shairi M, Sharifi M, Hadian M. To study reliability and validity for a brief measure for assessing GAD (GAD-7). *CPAP* 2011;2:41-50.
 25. Freeston MH, Rhéaume J, Letarte H, Dugas MJ, Ladouceur R. Why do people worry? *Pers Individ Dif* 1994;17:791-802.
 26. Bigdeli I, Abdollahpour A, Hosseini SM. Personality-cognitive correlates of social phobia: Mediator role of intolerance of uncertainty. *Pract Clin Psychol* 2014;2:17-25.
 27. Chorpita BF, Daleiden EL, Weisz JR. Identifying and selecting the common elements of evidence based interventions: A distillation and matching model. *Ment Health Serv Res* 2005;7:5-20.
 28. Dimidjian S, Hollon SD, Dobson KS, Schmaling KB, Kohlenberg RJ, Addis ME, *et al.* Randomized trial of behavioral activation, cognitive therapy, and antidepressant medication in the acute treatment of adults with major depression. *J Consult Clin Psychol* 2006;74:658-70.
 29. Lorenzo-Luaces L, Dobson KS. Is behavioural activation more effective than cognitive therapy (CT) in severe depression? A reanalysis of a landmark trial. *Int J Cogn Ther* 2019;12:73-82.
 30. Bolinski F, Hendriks GJ, Bardeel S, Hollon SD, Martell C, Huijbers MJ. Cognitive therapy or behavioural activation for major depressive disorder in Dutch mental health care: Pilot effectiveness and process trial. *Int J Cogn Ther* 2018;11:343-58.
 31. Dugas MJ, Gagnon F, Ladouceur R, Freeston MH. Generalized anxiety disorder: A preliminary test of a conceptual model. *Behav Res Ther* 1998;36:215-26.
 32. Dugas MJ, Marchand A, Ladouceur R. Further validation of a cognitive-behavioral model of generalized anxiety disorder: Diagnostic and symptom specificity. *J Anxiety Disord* 2005;19:329-43.
 33. Hui C, Zhihui Y. Group cognitive behavioral therapy targeting intolerance of uncertainty: A randomized trial for older Chinese adults with generalized anxiety disorder. *Aging Ment Health* 2017;21:1294-302.
 34. Lorenzo-Luaces L, German RE, DeRubeis RJ. It's complicated: The relation between cognitive change procedures, cognitive change, and symptom change in cognitive therapy for depression. *Clin Psychol Rev* 2015;41:3-15.
 35. Turner AP, Jakupcak M. Behavioral activation for treatment of PTSD and depression in an Iraqi combat veteran with multiple physical injuries. *Behav Cogn Psychother* 2010;38:355-61.