



Effectiveness of Cognitive-Behavioral Group Therapy on Openness to Experience and Improving the Quality of Interpersonal Relationships

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Quantitative Study

Abstract

Background: This experimental study aimed to examine the effectiveness of cognitive-behavioral group therapy (CBGT) on openness to experience and improvement in the quality of interpersonal relationships.

Methods: The statistical population of this study consisted of all individuals referred to three accredited psychological centers in Tehran, Iran, in 2017. Using simple random sampling, 20 participants were selected, and after screening, were assigned to two groups (CBGT and control groups). Pretest was conducted for both groups. Then, the CBGT group received 12 sessions of intervention while the control group received no intervention. Ultimately, the posttest was performed for both groups. The research tools used included the Revised NEO Personality Inventory (NEO PI-R) (Costa and McCrae) which is a personality inventory and the Quality of Relationships Inventory (QRI) (Pierce and Sarason) which has recently been developed to measure the quality of interpersonal relationships.

Results: The obtained data were analyzed using analysis of covariance (ANCOVA). The results revealed that CBGT has a significant effect on openness to experience and improves the quality of interpersonal relations.

Conclusion: It is believed that social support helps stressful situations in three ways. First, family members, friends, and others can directly provide financial resources for a person. Second, members of social networks can provide informational support by giving suggestions and these various efforts can solve stressful problems. Such suggestions help the individual see the problem from a new perspective. Thus, he/she can solve it or minimized the resulting damages. Third, members of social networks can provide emotional support by reassuring a person that he/she is valuable, interesting, and honorable and increase his/her self-esteem and self-concept in life.

Keywords: Cognitive behavioral therapy, Openness to experience, Quality improvement, Interpersonal relations

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Introduction

The human being is a social creature and

one of his responsibilities in this world is to establish, develop, perpetuate, and strengthen his interpersonal relations (Yalom, 2010). Interpersonal relationships are the most important factors of our life from birth to death (Yalom, 1996). The

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greatest punishment for a human is loneliness (e.g., solitary confinement). Therefore, none of the potential abilities of human beings can grow, unless in the context of interpersonal relations and they are not able to learn, create, establish, and ultimately survive, unless in the context of their social relations (Herman & Lawrence, 2010). Human beings cannot establish effective interpersonal relationships without learning to do so from birth. This is a lifelong learning, which continues as long as the human being is alive. The continued existence of life and society depends on improving the quality of interpersonal relationships (Yalom, 2011). Openness, as one of the main dimensions of personality, has been less acknowledged among psychologists and experts compared to neuroticism and extroversion. The constituent elements of openness (including active illusions, sensitivity to beauty, attention to inner emotional experiences, and independent judgment) often play a considerable role in theories and assessment of personality. Often, the unity of these features is in the desired index. Open-minded individuals are curious about their surrounding world and their lives are full of experiences (Haghshenas, 2011). Since personality is defined with relatively stable characteristics in thought, behavior, and emotions and, contrary to what the existential and interpersonal theorists believe, the tools that have been made to assess personality throughout the history of psychometrics are developed according to this definition. The Five-item Personality Questionnaire is a reliable personality test that examines five aspects of personality including neuroticism, extraversion, openness, agreeableness, and conscientiousness (Schultz and Schultz, 2013). The human being is generally a social creature. Stories, movies, plays, and poems approve the fact that our sadness and happiness (the misery and propriety) rely on our relationship with each other. We spend

most of our life interacting with others or thinking of it. The more effective and successful relationships we have with each other, the more we achieve success. Moreover, our mental health has a full correlation with the quality of our relations with others (Hofmann & Smits, 2008). Many scholars and scientists suggested that one of the health indicators could be the relationship with others, its maintenance, and collaboration with others (Pasha & Atashpour, 2006). Those who are unable to establish relationships due to some reasons are often faced with stress, feeling of emptiness, and increasing isolation. Accordingly, we should have interaction with each other in order to avoid isolation and its harmful impacts. Warm and sincere relationships with others can be the source of confidence, comfort, and tranquility for each of us. Social supports are the social bounds of humans that cause security, peace, importance, and respect (Corey & Corey, 2012). Interpersonal relations are the foundation of human identity and perfection and form the primary basis of relationships. Effective communications result in the improvement of the quality of relationships, while ineffective communications prevent humans from flourishing, and thus, they can become toxic and destroy their relationships (Herman & Lawrence, 2010). We form relationships in order to find our identity and strengthen our relationships to solve our problems and find facilities. Generally, these interpersonal relations can create the basis of our life and happiness. Interpersonal relations can be the vital blood and vein for purposeful relations (Wood, 2005). Establishing a relationship or improving existing relationships are among the most positive events throughout life. This would lead to the improvement of the quality of relationships and a more favorable future. On the contrary, loss of a relationship can be one of the worst and the most uncomfortable experiences (Atashpour & Kazemi, 2003). Intimate relations with

others are the most involving experiences throughout life. Falling in love, having good friends, and having good relations with parents, children, and sisters or brothers are considered to be important in interpersonal relationships (Hofmann, 2004). Most people consider good relationships for their happiness more important than any other affair, which is approved by empirical studies. Campbell, Converse, and Rodgers (1976) examined the significance of different issues for individuals in their lives. They found that good friends, marriage, and successful familial life are more important to individuals than financial and professional improvements (Prochaska & Norcross, 2016). When Klinger (1977), in his research, questioned "What makes your life meaningful?" all the participants answered to love somebody and to be loved (Nadaf Shargh, 2014). The correlation between good relationships and a peaceful feeling has been proved by many researches. Researchers found a significant relationship between having few friends and the problems involving depression, stress, and fatigue (Mojarrad Kahani, Ghanbari Hashem Abadi, & Modares Gharavi, 2012). An interesting finding is that individuals deprived of relationships with others often experience hallucination, physiological disorders, depression, and confusion. Kingsley Davis, An American sociologist and demographer, (1940, 1947) argued that imprisonment and isolation is one of the most oppressive punishments. The majority of people are able to tolerate hunger and pain more than social isolation. The human being needs social relations and connections throughout his life (Cassidy, 1999). Even those who have social connections throughout their life are affected by the deprivation of such relations (Wood, 2005). The findings astonishingly revealed that isolated individuals or those without any attachment are more likely to have health problems involving apoplexy, tuberculosis, cancer, alcoholism, and accidents compared to those who remarried

and lived within a network of intimate relationships (Mennin, 2006). They also have a higher rate of death and suicide (Mennin, 2006). The cessation of an intimate relationship due to divorce or the death of one of the parents, a friend, or spouse is one of the most stressful life experiences (Forgas, 1994). Mental problems mainly result from interpersonal relationships, in other words these problems appear in relationships with others; thus, treatment should be provided for both simultaneously. Group therapy presents individuals the best opportunity to correct their communications first in the group, and then, in the outside world (Yalom, 2011). Group therapy not only discards disorder symptoms and recreates personality in a short time, but also, through discarding disorder symptoms, increases the capacities of patients in continuous self-awareness (Godoy et al., 2005). That is, group therapy provides an opportunity for individuals to improve the quality of their relationships by obtaining insight into the self and their communicational world, transmitting knowledge, gaining emotional experience, and being in a small social environment (Corey, 2006). Moreover, the individual's ability to analyze and perceive others' mental states is associated with reasoning on why such mental states exist and predicting them. Understanding the minds of others and self-awareness (conscious knowledge of one's own character, feelings, motives, and desires) are parallel to each other. Therefore, those who have a deeper cognition of themselves can also understand others better and accurately predict others' behaviors, and as a result, they experience fewer problems in relationships with themselves and others (Lantz & Gregoire, 2000). Group therapy helps individuals better understand themselves and others (Latifian & Seif, 2007). Cognitive therapy (CT) examines the impacts of false thoughts on mental disorders by focusing on the importance of emotions and behaviors in individual's

mental functions. Beck, in working with his clientele, recognized the distortions or cognitive errors which affect the individual's feelings, thoughts, and behaviors. There is a complete assessment to change the individual's beliefs through the tools designed by Beck et al. In group therapy, the cognitive therapist assesses behavioral change with the help of authorities (Overholser, 2005). Several researches have shown the considerable effect of the cognitive approach on public mental disorders compared with behavioral approaches and pharmacotherapy (Navabinejad, 2014). Changes in individuals in the treatment group have not originated from group relationships, but are due to the use of cognitive-behavioral therapist guidelines. Hence, the cognitive approach is focused on special changes in each group session and problem-based structures (Kolko, et al, 2010). In these therapy patterns, it is suitable if the changes are evaluated before each session to study the signs and adjust the solutions including Beck's Depression Inventory. In addition, cognitive group interventions focus on performing cognitive and behavioral practices. Some cognitive group interventions may apply specific types of techniques such as problem-solving techniques, while others may be designed to help people who suffer from mental disorders such as depression (Navabinejad, 2014). Cognitive-behavioral therapy (CBT) approaches vary greatly, but they have in common the features of therapist-client relationships, psychological distress resulting from chaos in cognitive processes, focusing on changing the cognitions to establish the desired changes in feeling, and short-term therapy and training based on special problems (Corey, 2012). CBT approaches are based on the regular training model and all of them are focused on the role of assignment, giving responsibility to the client so that he/she will accept an active role in therapy sessions and outside

the sessions, and using cognitive and behavioral guidelines in order to make change. CBT is based on the hypothesis that recreation of personal expressions by the individual results in equal recreation of his/her behavior. Therefore, behavioral texts including classic conditioning and reactant and behavioral exercise assignment may be used for unclear processes of mental thought and inner dialogue (Free, 2003). To the author's knowledge, no research has been conducted on the efficacy of cognitive-behavioral group therapy (CBGT) on openness to experience and improvement of the quality of interpersonal relationships in Iran. Hence, it is a subject of great importance. The questions raised here are whether CBGT can have a significant effect on openness to experience and improvement of the quality of interpersonal relationships, and whether the cognitive correction of individuals' beliefs and drafts and familiarity with fundamental beliefs is effective or not.

Methods

This research was an experimental research. The statistical society consisted of all the people who referred to three psychological centers in Tehran, Iran. From among 450 individuals, 20 individuals were selected through simple random sampling and were randomly divided into two groups. After riddling, 12 individuals were selected from each group, and finally, the groups (CBGT and control group) consisted of 10 members. The CBGT group received 12 sessions of CBGT and the control group received no therapy program.

Research Tools

A) Quality of Relationships Inventory: In this research, the Quality of Relationships Inventory (QRI) designed by Pierce, Sarason, and Sarason (1991) was used to evaluate the efficacy of existential therapy and CBGT on people in order to study the support received in relationships with important persons in the individual's life.

The QRI consists of 29 questions with the 3 subscales of social support (7 items) importance and depth of relationships (6 items), and interpersonal difference (12 items), and the 4 remaining items are not scored. Pierce et al. (1991) reported the reliability of the QRI as 75% and 92% through retesting on 94 boy students and 116 girl students, respectively, within a 2-week interval (Ebrahimi, Bolhari & Zolfaghari, 2002.). Cronbach's alpha coefficients for the subscales of social support, relationships depth, and different relationships was 83%, 88%, and 86%, respectively. Ebrahimi (1990), in Iran, translated this questionnaire into Persian and calculated its reliability through Cronbach's alpha coefficient (73%).

B) The Revised NEO Personality Inventory: The Revised NEO Personality Inventory (NEO PI-R) was designed by Costa and McCrae for normal population. Costa and McCrae revised the original version of the inventory in 1992 to evaluate the five-factor personality model (neuroticism, extraversion, openness, agreeableness, and conscientiousness). The reported alpha coefficient for neuroticism, extraversion, openness, agreeableness and conscientiousness was 85%, 72%, 68%, 69%, and 79%, respectively. The long-term validity of NEO PI-R was also assessed. In a 6-year longitudinal study on the indicators of O, E, and N, the validity coefficients reported ranged from 68% to 83%. Validity coefficients of the indicators A and C were, respectively, 79% and 63% in 3 years. In a 7-year longitudinal study on individuals of the same age, the validity coefficients of 18 subaltern adjectives of O, E, and N were in the range of 51%-82% and 63%-81% for the 5 main factors of men and women. In Iran, Haghshenas (1999) approved the five-factor structure of this questionnaire and reported the inner Cronbach's alpha coefficients for the main factors of N, E, O, A, and C as 86%, 73%, 56%, 68%, and 87%, respectively (Garousi Frashi, 2001).

Behavioral-Cognitive Group Therapy Guideline

The first session consisted of familiarization with group members, thinking and feeling, visual guided peace and home assignments, enabling participants to receive primary superficial thought between event and excitation reaction.

The second session consisted of activating event belief consequences (ABC), thoughts and belief, excitation consequence, studying logical errors and self-concept, behavioral excitation consequence, and writing ABC in three separated columns as an assignment.

The third session involved finding core beliefs through the down arrow technique, evaluating home assignments, placing active events and self-concept with excitation consequences under the same column, determining logical errors as the foundation of beliefs and thoughts by participants, defining imagination by the mental revision of a space to express an image.

The fourth session consisted of reviewing previous assignments and types of beliefs, classifying beliefs, working on downward arrows and beliefs in interpersonal relationships, and creating a situation to talk about beauty, and aestheticism of thoughts and beliefs.

The participants were asked to classify 10 negative and popular drafts as their practice.

The fifth session consisted of reviewing assignments, creating cognitive plans and grading mental sorrow units, assignment on individuals' mental sorrow units and the openness to experience (which helps to correct the negative beliefs of the participants), determining the relation between negative beliefs, and listing negative beliefs and cognitive plans. Moreover, beliefs were graded on mental sorrow units based on the excitation severity related to them as assignment.

The sixth session consisted of changing beliefs, objective analysis and standard analysis of created beliefs, discussing opposite beliefs so that the participants can accept this idea.

Table 1. Frequency distribution of gender, educational degree, and marital status of participants in the two groups

Groups	Gender		Educational degree			Marital status		
	Female	Male	Pre-diploma and diploma	Diploma and advanced diploma	University degree	Single	Married	Divorced
Control	6	4	3	3	4	4	5	1
CBGT group	6	4	3	2	5	4	5	1
Total	12	8	6	5	9	8	10	2

CBGT: Cognitive-behavioral group therapy

The seventh session consisted of efficient analysis, corresponding analysis, discussing the effects of thoughts on feelings and excitation, studying the cognitive excitation model, presenting the assignment for the following week, and performing efficient analysis and corresponding analysis on all the main list beliefs.

The eighth session consisted of logical analysis and assignment, logical analysis of beliefs supposed to be true on all the conditional and total drafts, expressing values as people's beliefs, and discussing the different values of participants.

The ninth session consisted of creating a hierarchy and practicing opposing and starting oppositions. After listing the cognitive distortions, the cognitive therapist opposes these cognitive distortions through different techniques or provides evidence to repudiate them.

As home assignment, the participants were asked to express evidences to repudiate the main list of beliefs.

The tenth session consisted of perceptive change and cortex voluntary prohibition.

As an exercise, the participants were asked to practice cortex voluntary prohibition.

As their assignment, they were asked to reported perceptive change in all beliefs,

practice cortex perceptive prohibition at least 2-3 times per day, perceptive change, and cortex voluntary prohibition.

The eleventh and twelfth sessions consisted of self-punishment and self-award, maintenance techniques and growth practice, extending a maintenance program, conclusion ceremony, and getting feedback from participants (Free, 2009).

Results

The 20 participants of this research were divided into two groups of CBGT and control (10 members in each group). The mean age of the participants in the control group and CBGT group was 28.60 years and 29.70 years, respectively (with the minimum age of 20 years and maximum age of 41 years). The demographic characteristics of the participants are presented in table 1.

Distribution of research variables in the pretest: Kolmogorov-Smirnov test was used to study the distribution of research variables in the two groups. The results are presented in table 2.

As table 2 shows, data are distributed normality at 0.05, and sig. > 0.05 is a meaningful level for research variables in the two groups in pretest.

Table 2. Kolmogorov-Smirnov test results of the normality of research variables in the two groups in pretest

Variables	levels	Control		CBGT	
		K-S	P-value	K-S	P-value
Social support	Spouse	0.491	0.697	0.504	0.661
	Friend	0.496	0.595	0.589	0.779
	Parent	0.630	0.661	0.599	0.666
Importance and depth of relationships	Spouse	0.486	0.519	0.572	0.799
	Friend	0.628	0.825	0.607	0.656
	Parent	0.557	0.716	0.705	0.603
Interpersonal conflicts	Spouse	0.443	0.474	0.849	0.467
	friend	0.632	0.819	0.565	0.607
	parent	0.599	0.766	0.504	0.762
Openness to experience		0.503	0.662	0.550	0.623

CBGT: Cognitive-behavioral group therapy; K-S: Kolmogorov-Smirnov

Table 3. Kolmogorov–Smirnov test results of the normality of the research variables in the two groups in posttest

Variables	Relationship levels	Control		CBGC	
		K-S	P-value	K-S	P-value
Social support	Spouse	0.739	0.646	0.666	0.767
	Friend	0.648	0.796	0.587	0.880
	Parent	0.489	0.870	0.680	0.744
Importance and depth of relationships	Spouse	0.539	0.834	0.897	0.396
	Friend	0.727	0.667	0.824	0.506
	Parent	0.677	0.749	0.754	0.620
Interpersonal conflicts	Spouse	0.546	0.827	0.714	0.687
	Friend	0.592	0.874	0.605	0.858
	Parent	0.567	0.704	0.746	0.634
Openness to experience		0.513	0.755	0.598	0.867

CBGT: Cognitive-behavioral group therapy; K-S: Kolmogorov–Smirnov

Therefore, mean and standard deviations were used to describe the above variables and parametric tests were used to assess the research hypotheses.

Distribution of research variables in posttest: Kolmogorov–Smirnov test was used to study the distribution of the research variables in the two groups in posttest. The results are presented in table 3.

As shown in table 3, data are distributed normality at 0.05, and $P > 0.05$ is a meaningful level for research variables in the two groups in posttest. Analysis of covariance (ANCOVA) or meaningful effect on posttest and homogeneity of regression line gradient in the two groups are presented in table 4 in order to evaluate the two hypotheses of ANCOVA.

The results presented in table 4 show that the effect of pretest on posttest is meaningful, since its meaningful level is less than 0.05. Therefore, the control of this effect with covariance is logical. Therefore, regression line gradient of the two groups is equal. The equal gradients show that there is no relationship between pretest and CBT. Equal variances are for responding to pre-hypotheses of scores normality and the effect

of pretest on posttest is meaningful, while the relationship of interference and pretest is meaningless and ANCOVA can be used. The results of ANCOVA are presented in table 5.

Based on the results presented in table 5, there is a meaningful difference between the control group and experimental group in terms of interpersonal relationships quality score ($f = 21.314$, $P < 0.05$). In fact, after adjustment the posttest scores, CBT has a meaningful effect on the interpersonal relationships quality of the CBGT group. Hence, the research hypothesis is confirmed. In other words, CBT improved the quality of interpersonal relationships of clients in psychological centers. The last column of this table shows the coefficient or Eta-squared. It is clear that 55.6% of variance in the quality of interpersonal relationships is depicted by the independent variable or CBT. Based on the collected data, it can be concluded that CBT has a meaningful effect on the quality of clients' interpersonal relationships. The meaningful effect of pretest on posttest and homogeneity of regression line gradient in the two groups to study the two main hypotheses of ANCOVA are illustrated in table 6.

Table 4. Analysis of covariance hypotheses

Change sources	Square total	Liberty	Square mean	F	Meaningful level
Pretest effect	128.130	1	128.130	9.94	0.001
Pretest vs. CBGT	31.049	1	31.049	2.408	0.154
Error	206.292	16	12.89		

CBGT: Cognitive-behavioral group therapy

Table 5. Results of analysis of covariance of a variable on pretest and posttest scores of the control and experimental groups

Variant source	Square total	Liberty	Square mean	F	Meaningful level	Eta-squared
Pretest effect	168.481	1	168.481	41.252	0.001	0.708
CBGT effect	87.050	1	87.050	21.314	0.001	0.556
Error	69.431	17	4.084			

CBGT: Cognitive-behavioral group therapy

The results given in table 6 indicate that the effect of pretest on posttest is meaningful, since its meaningful level is less than 0.05. It is logical to control this effect by ANCOVA. Therefore, the slope of the regression line is the same. Equal dips indicate that pretest and cognitive-behavioral intervention did not have an interactive impact. Therefore, in order to confirm the above hypothesis, as the assumptions for the distribution of normality of scores, equality of variances was established. The effect of the test was significant after the test, and the interaction between the intervention and the pretest was not significant. ANCOVA could be used in this regard. The results of ANCOVA for the effect of CBT on openness to experience are illustrated in table 7.

Based on the results presented in table 7, there is a significant difference between the experimental group and the control group in terms of the scores of openness to experience ($f = 26.888$; $P < 0.05$). After adjusting posttest scores, CBT caused a greater difference in openness to experience in the experimental group. Therefore, the research hypothesis is confirmed. The last column of the table (Eta-squared) shows that 52.9% of variance in openness to experience is defined by the independent variable, CBT. It can be concluded that CBT has a meaningful effect on openness to experience.

Discussion

The results obtained from the study were

consistent with the results of the studies by Horowitz, Rosenberg, and Bartholomew (1993), Horowitz, Weckler, Saxon, Livaudais, Boutacoff (1991), Schmidt et al., (2000), Siev and Chambless (2007), Lopes, Salovey, and Straus (2003), and Newman, Castonguay, Borkovec, Fisher, and Nordberg (2008). It is believed that social support helps stressful situations in three ways. First, family members, friends, and others can directly provide financial resources for a person (Seidler & Wagner, 2006). Second, members of social networks can provide informational support by giving suggestions and these various efforts can solve the stressful problems. Such suggestions help the individual see the problem from a new perspective. Therefore, he should solve it or minimized the resulting damages. Third, members of the social network can provide emotional support by reassuring a person that he/she is valuable, interesting, and honorable and increase his/her self-esteem and self-concept (Beigifard, 1999). The main purpose of CBGT and individual CBT is to eliminate errors, cognitive constructs, and policies in thoughts so that people can act more efficiently (Carmeli, Brueller, & Dutton, 2009). Information processing method puts to rest abhorrent behaviors and feelings, and the cognitive errors of a person or all members of the group are challenged and discussed, and thus, positive thoughts and feelings replace the negative ones (Huppert & Alley, 2004).

Table 6. Analysis of covariance hypotheses

Variant source	Square total	Liberty	Square mean	F	Meaningful level
Pretest effect	4502.473	1	4502.473	1341.215	0.001
Pretest vs. CBGT	0.258	1	0.258	0.077	0.785
Error	53.712	16	3.357		

CBGT: Cognitive-behavioral group therapy

Table 7. Results of analysis of covariance a variable on pretest and posttest scores of control and experimental groups

Variant source	Square total	Liberty	Square mean	F	Meaningful level	Eta-squared
Pretest effect	4933.030	1	4933.030	1553.864	0.001	0.989
CBT effect	85.379	1	85.379	26.888	0.001	0.529
Error	53.970	17	3.175			

CBGT: Cognitive-behavioral group therapy

As a minor purpose, the cognitive therapist focuses on prioritizing special purposes and cooperative tasks with clients. These purposes can be designed in behavioral, thought, and emotional contexts (Moras & Strupp, 1982). The more clearly the purpose is defined, the easier the selection of ways for defining belief systems, feelings, and behaviors will be (Navabinejad, 2013). Accordingly, members of the CBT group are familiarized with cognitive distortions, beliefs correction and drafts, exact and true concepts of aestheticism, imaginations, feelings, different viewpoints of values correction, false and distorted beliefs, and independent judgment.

Conflict of Interests

Authors have no conflict of interests.

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