**Original Article**

# Comparison of cognitive behavioral group therapy and acceptance and commitment group therapy on quality of life of breast cancer women

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## *Abstract*

**Introduction:** Present study aimed at comparing the effectiveness of cognitive-behavioral group therapy and acceptance and commitment group therapy on quality of life of breast cancer women.

**Methods:** This is a quasi-experimental pre-test, post-test and follow-up design. Twenty women suffering from breast cancer randomly and equally assigned in to two interventions groups. The treatments consisted of eight weekly acceptance and commitment group therapy and also eight weekly cognitive-behavioral group therapy sessions and follow-up evaluations were carried out two months later. The QLQ-C30, QLQ-BR23 questionnaires were applied in this study.

**Results**: Comparing with cognitive-behavioral group therapy, significant enhancement was indicated in of QlQ-C30 and QlQ-BR23 scores in acceptance and commitment group therapy's post-test and the results were also preserved at follow-up test.

**Conclusions:** It is suggested by the findings of this research that acceptance and commitment program appears to be more efficate and feasible therapeutic intervention than cognitive-behavioral therapy for improving quality of life of women suffering from breast cancer.

**Declaration of Interest**: None.

**Key words**: Cognitive Behavioral Therapy, Acceptance and Commitment Therapy, Breast Neoplasms, Quality of Life.

## *Introduction*

*S*imilar to many developing countries, the frequency of breast cancer has increased in Iran and the economic burden of it, is estimated about US$ 947,374,468 [1]. On the other hand breast cancer is an inharmonious illness which many factors influence its prognosis and treatment. Many studies have indicated a link between various psychological factors and an intensification risk of cancer [2]. In addition to the impact of psychological issues in cancer formation, diagnosis and treatment of cancer has been associated with stress and anxiety which leads to more severe symptoms, slower recovery and poorer health outcomes. For example simultaneous psychological symptoms such as anxiety, depression, fear, insomnia or distress can be recognized in breast

cancer [3] and also they experience some problems with their helpmate and children and consequently they have a poorer quality of life (QoL) [4]. QoL is a broad, multidimensional concept reflecting patients' perceptions of both positive and negative aspects of their life. In recent years a branch of quality of life -in the name of QoL related to health- has attracted the attention of researchers and there is a growing consensus that it should be one of the main components of healing work and research [5]. Accordingly, psycho-therapy seems essential in treatment of cancer and one of the psychotherapy which considered as an effective therapy for breast cancer patients is cognitive-behavioral therapy (CBT) [6] and also its effectiveness on quality of life of patients who suffering from chronic illness has been proven [7-9]. On the other hand the efficiency of acceptance and commitment therapy (ACT) which is a newer form of CBT on the patient's QoL has supported by many studies [10-14]. As it mentioned cancer brings a great deal of psychological said-effects in the patient's life, therefore it seems essential to find the best and the most effective approach for psychotherapy of these patients. Therefore the aim of this study is compering CBT and ACT to find the best and the most effective approach for improving QoL of breast cancer patients.

### Methods

A quasi-experimental pre-test, post-test and follow-up (two months) design, was carried out from March to December 2016 and it took place at the Cancer Research Center of Shohadaye Tajrish hospital which is an academic and governmental hospital affiliated with Shahid Beheshti University of Medical Sciences in Tehran, Iran. Patients who came for follow-up to the oncology wards were potentially eligible to participate, unless they demonstrated unwillingness. Many expert psychologists declared that the number of group's members have to limited to 6-8 people because of paying attention to the needs of individual [15]. Therefore sample size considered as 20 patients, which randomly and equally assigned in to 2 groups. All participants were Iranian women treated for breast cancer and we used the following inclusion criteria: Histologically confirmed primary breast cancer (stages: 1 and 2) whom at least 3 months past from their chemical therapy, Aged 18 and above, Fluent in Persian language, No history for prior psychiatric problem, No cognitive deficits, Being cooperative with treatments, Completed the initial treatment at least 2 months prior the inclusion, Participants were excluded if they have serious overt physical problems that would preclude them from following the intervention, Absenteeism more than two sessions, Participating in concurrent psychological treatment, studies or rehabilitation, Finally, participants were excluded during the examination if they declined to participate or starting to use psychiatric drug. This study received ethics approval from the Committee on Cancer Research Center, Shohadaye Tajrish hospital and confidentiality of records and personal accounts were maintained. This study received ethics approval from the Committee on Cancer Research Center, Shohadaye Tajrish hospital and confidentiality of records and personal accounts were maintained.

Quality of life questionnaire – core 30 and Quality of life questionnaire Breast Cancer Module: QLQ (C-30, BR23) with written explanations from the European Organization for Research and Treatment of Cancer (EORTC) were applied in this research. The QLQ-BR23 is a breast cancer-specific questionnaire and it should always be complemented by the QLQ-C30. The QLQ-C30 include five functional scales, three symptom scales, a global health status / QoL scale, and six single items.QLQ-BR23 assessing disease symptoms, side effects of treatment (surgery, chemotherapy, radiotherapy and hormonal treatment), body image, sexual functioning and future

perspective. According to the guidelines provided by the EORTC all scales ranged from 0 to 100. In the function scales higher scores represent a better level of functioning while in the case of symptom scales/items higher scores mark a higher level of symptomatology or problems [16]. It is declared by Montazeri and et al that the reliability of the Iranian version of (QLQ-C30) is ranged from 0.48 to 0.95 and 0.63 to 0.95 in (QLQ-BR23) and also item discriminant validity was successful in all analyses [17].

Intervention Program is divided into four stages:

1. Collecting samples and carrying out pre-tests.

2. Intervention process: Each tervention groups received eight sessions of two hours (one day in a week) of ACT and CBT interventions. CBT's protocol has been extracted from 2th edition of Oxford Guide to CBT for People with Cancer's book [18] and protocol of ACT has been extracted from "Association for Contextual Behavior Science" site [19]. Both protocols were approved by the psychological cancer research of Shohadaye Tajrish hospital and department of psychology of Islamic Azad University, central Tehran branch. Each participant was informed to become subjected of the study and was interviewed by an expert psychologist who was trained as a CBT and therefore ACT therapist. The aim of the study was explained and participants were guided to complete the questionnaires. And also participants were notified of their rights to withdraw from the trial at any time without any interruption in their health care benefits. All the sessions was conducted with an expert psychologist

who has complete proficiency on both approaches.

3. Carrying out the post-test.

4. Carrying out the follow-up test after two months and data collection.

In this section the results of data analysis, has been reported in the form of descriptive (i.e., absolute and relative frequency, mean and standard deviation) and inferential (i.e. Mauchly's Test of Sphericity and Anova) statistics. Since this is a quasi-experimental, pretest-posttest and follow-up group design the statistical method of Anova with repeated measure is used. After data collection, the normality of the variables was checked by using the Kolmogorov-Smirnov-test and based on their normal distribution, parametric tests were used. SPSS software version 16 was used for data analyses. Significant level was considered less than 0.05 (P≤0.05). As well as comparing the therapeutic effects of the two methods of CBT and ACT, Covariance-test also was used (regardless of the follow-up test).

## *Results*

1. Acceptance and commitment group therapy and cognitive-behavioral group therapy are effective on the quality of life of women with breast cancer.

In Mauchly's-Test of Sphericity, the obtained chi-squared in ACT group is significant at P≤0.05 in each scale of QLQ-C30 test. Therefore, the Greenhouse-Geisser correction has been used in the present study. Furthermore, In Mauchly's Test of Sphericity, the obtained chi-squared is not significant at P≤0.05 in each QLQ-Br23 test. Therefore, the Sphericity test has been used in the present study.

Table 1. Anova with repeated measurement (effectiveness of ACT on QoL)

| questioners | Statistical Indicators | Sum of squares | df | Mean of Square | F | p-value | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| | tests | 1046.88 | 1.47 | 712.24 | 9.32 | 0.003 | 0.40 |
| **QLQ-C30** | Groups | 1013 | 1 | 1013.38 | 8.66 | 0.01 | 0.38 |
| | Group*test | 1727.08 | 1.47 | 1157.69 | 15.39 | 0.01 | 0.38 |
| | tests | 1920.46 | 2 | 960.23 | 38.65 | 0.0001 | 0.86 |
| **QLQ-Br23** | Groups | 3407.25 | 1 | 3407.25 | 93.13 | 0.0001 | 0.86 |
| | Group*test | 2006.70 | 2 | 1003.35 | 40.39 | 0.0001 | 0.74 |

According to the obtained "F" value it is indicate that QoL's score increased significantly in ACT group and also the difference between post-test and follow up-test was not significant (P ≤ 0.01) so it could be concluded that acceptance and commitment group therapy was an effective intervention on QoL women suffering from breast cancer and the result preserved over time. (table 1).

In Mauchly's-Test of Sphericity, the obtained chi-squared in CBT group is not significant at P≤0.05 in each QLQ-C30 and QLQ-BR23 tests for. Therefore, the Sphericity test has been used.

Table 2. Anova with repeated measurement (effectiveness of CBT on QoL)

| questioners | Statistical Indicators | Sum of squares | df | Mean of Square | F | p-value | Partial Eta Squared |
|---|---|---|---|---|---|---|---|
| **QLQ-C30** | tests | 283.63 | 2 | 141.81 | 3.34 | 0.01 | 0.75 |
| | Groups | 130.27 | 1 | 130.27 | 3.21 | 0.04 | 0.71 |
| | Group*test | 381.22 | 2 | 190.61 | 3.11 | 0.05 | 0.69 |
| **QLQ-Br23** | tests | 894.30 | 2 | 424.65 | 32.59 | 0.0001 | 0.71 |
| | Groups | 2107.44 | 1 | 2107.44 | 74.53 | 0.0001 | 0.85 |
| | Group*test | 960.96 | 1 | 480.48 | 36.88 | 0.0001 | 0.73 |

According to the obtained "F" value it is indicated that QoL score increased significantly during the trial in CBT group and also the difference between post-test and follow up-test was not significant (P ≤ 0.01). Therefore it could be concluded that intervention was effective and the result preserved over time.

2. There is a difference between the effectiveness of acceptance and commitment group therapy and cognitive-behavioral group therapy on the quality of life of women with breast cancer.

Comparison of two therapeutic methods was performed by one-variable covariance-test and Independent-Groups t-test was conducted. Initially, in order to study the assumptions of covariance analyses, we study the homogeneity of regression slopes.

Table 3. Regression slope homogeneity analysis –Analysis the Effect of group * Test on QoL

| Statistical Indicators<br>Source of Variation | Sum of squares | df | Mean of Square | F | p-value |
|---|---|---|---|---|---|
| **Group*treatment QLQ-C30** | 309.76 | 1 | 309.76 | 2.93 | 0.09 |
| **Group*treatment QLQ-BR23** | 177.50 | 1 | 177.50 | 7.95 | 0.09 |

According to the result which was presented in Table 3 the homogeneity of the Regression slopes is confirmed in QLQ-C30 questionnaire (P≤0.05). But it is not confirmed in QLQ-BR23 (P≤0.01). Therefore Independent-Groups t-test should be conducted. To use this test, the difference between the pre-test and post-test scores is calculated in both groups and the t-test is performed to compare the result of the difference in scores.

Table 4. Analysis of Covariance (effect of group psychotherapy (CBT and ACT) on QoL)

| Statistical Indicators<br>Source of Variation | Sum of squares | df | Mean of Square | F | p-value |
|---|---|---|---|---|---|
| **groups** | 485.79 | 1 | 485.79 | 3.52 | 0.02 |

The obtained F in table 4 is 3.52 which is significant at P≤0.05. According to the

increscent of QLQ-C30's score in ACT (204.7) and CBT (11.83) it could be concluded that acceptance and commitments group therapy is more effective intervention than CBT for improving QoL.

Table 5: Independent-Groups t-test, Difference between pre-test and post-test scores of groups

| groups | m | SD | df | t | p-value |
|--------|-------|-------|----|------|--------|
| CBT | 21.53 | 10.05 | 13 | 3.10 | **0.008** |
| ACT | 31.28 | | | | |

The difference between pre-test and post-test of QLQ-br23 scores which is presented in table 5 in the CBT is 21.53 and in the ACT is 31.28. In both groups, score's increscent in post-test has occurred. The t obtained is meaningful (t=3.10, P≤0.01). Therefore, the mean's difference between the two groups is significant and considering that more increscent in ACT is observed, it could be concluded that this method is more effective on QoL.

## Conclusion

Coming to conclusion this study was conducted for representing clinical trial comparing ACT and CBT in QoL of breast cancer patients. It is shown that ACT resulted in higher QoL and the differences remained constants after two months. The efficacy of ACT in improving QoL has been proven by many studies, but few studies have compared the impact of ACT and CBT in the QoL. Findings of this research is in line with the study of Páez and et al [20], Rost and et al [21], Thorsell and et al [22], Arch and et al [23], Forman and et al . To sum up it is distinguished that all aspects of breast cancer patients' life are significantly penetrated by the traumatic psychological experience of breasts' losing which are the features of womanliness [24]. Also Irvin Yalom declared that they are suffering from pessimistic thoughts, hopelessness, despair, loneliness and fear of death because of suppressing their feelings about their illness [25]. On the other hand principles of ACT as well as observing thoughts without fighting with them, living mindfully, and being eager for experiencing now, and learn to consider thought just as a thought not a reality, emotions, perceptions, and memories as mere diaries with the goal of improving QoL. Moreover it has been detected that psychological flexibility is able to anticipate strliess level, QoL, and mood status [26]. Findings of this research provided preparatory support of using of ACT for breast cancer patients. But generalization of result should be done cautiously, because of small number of participants. In addition of using a greater deal of samples, designing the same interventions for other type of cancer is suggested and also it is recommended to design a study for patient's family. Moreover conducting more follow-up tests is strongly proposed.

At the end it is worth to note that there is some limitation in this study. For example participants were uncongenial witch may make the generalization of finding difficult. On the other hand it is suggested to examine more variables which indicate General mental health status of cancer patients.

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