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# Life skill training effectiveness on non metastatic breast cancer mental health: a clinical trial

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## ABSTRACT

***Background:*** Patients with breast cancer are predisposed to some psychiatric symptoms and mental disorders due to their life styles or disease conditions. These problems cause patients to deal with daily stress, feeling guilty, anxiety, dysphoric mood and impaired social relations. Such problems will lead to serious mental disorders. Therefore, life skills training may help the patients to cope better with them and improve their mental health.

***Methods:*** In an experimental study, 50 breast cancer patients were selected randomly and assigned to 2 experimental and control groups. The experimental group attended life skills training classes for 10 weeks continuously (The duration of each class was 2 hours). Participants in both experimental and control groups completed a GHQ-28 questionnaire form before the commencement of classes and after 2 weeks to 2 month of the course completion, the form was completed again. Statistical method used in this study was T-test.

***Results:*** In life skills training group, depressive and anxiety symptoms, somatization disorders, sleep disorders and disorders of social functioning significantly decreased ($p<0.0001$). This change was not observed in the control group.

***Conclusion:*** The results showed that life skills training is an effective method in reducing symptoms of depression, anxiety, sleep and somatic disorders. Also, it will be useful in reducing problems of social dysfunction.

***Keywords:*** ***Breast cancer, life skills training, GHQ-28, Quality of life.***



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## Introduction

Breast cancer as the most common type of cancer among women worldwide[1-3] and accounts for approximately one-fifth of all deaths in women aged 40–50 years.[4]

In Iran, incidence of new case of breast cancer was estimated 20 per 105 women and one out of every 10 women will develop breast cancer during her life.[5, 7]

Treatment options include surgery, radiotherapy and chemotherapy increase disease- free survival, better tumor response and overall survival improving.

On the other hand, cancer and therapies complications have confronted patients with terrifying psychological experiences and morbidities like anxiety, depression and poor quality of life…

Previous reviews of the literature have indicated that psychological therapies and life skill training may help cancer patients by increasing their knowledge about their disease and treatment, by improving their emotional adjustment, by improving their satisfaction, by improving their physical and reducing treatment and disease-related symptoms.[8-12]

Therefore, besides improving conditional therapies for breast cancer patients, tendency to use new psychological intervention are growing. One of these psychological packages is life skill training program defined by WHO as ability for adaptive and positive behavior that enables individuals to deal effectively with the demands and challenges of everyday life and it consist of 10 abilities.[13]

We designed a clinical trial to examine the effects of life skill training on psychologic distress and coping among Iranian women with primary breast carcinoma.

## Methods and method

### Subject:

The 50 subjects with diagnosed breast carcinoma in department and clinic of oncology in Vali-e-Asr hospital were selected. The study protocol was reviewed and approved by Department of Internal medicine and the Ethics Committee of Zanjan University of Medical Science, Iran.

Eligibility criteria for the current study population were: 1) age younger than 65 years; 2) Diagnosed breast carcinoma in stages I, II or III who completed standard therapy included mastectomy, chemotherapy and radiotherapy and were been undergoing hormone therapy during clinical trial. Subjects' exclusion criteria from participation were mental disorders, dementia, psychosis or acute psychological disorder like major depression or if they had cancer at another site. None of subjects had received psychological consult before study participation

Eligible subjects were informed for this psychosocial group intervention and life skill training study. They were described that all cancer patients experienced psychologic distress and this life skill training is useful for improving the quality of life of patients with breast carcinoma according to the same researched performed in other countries. All patients provided written informed consent before assessment.

### Intervention protocol:

Patients who wished to participate in the intervention and met the eligibility criteria were randomly categorized to either a 25 in number for experimental group and 25 as wait-list control group by using their birth certificate number.

Demographic information of patients included age, education, number of children, occupation, and income and how long engaged with breast cancer were recorded in a questionnaire.

Because previous studies have shown that individual intervention requires too much time and cost in comparison to group intervention,[14-18] and group intervention to be as effective in solidarity and interaction between group and emotional draining,[15, 19 and20] we chose a group model in this study.

We aligned 10 sessions, for2 hours and lasting, totally, in 10 weeks. In these workshop 10 life skills and techniques (decision making, problem solving, creatively thinking, critically thinking, communication skill, interpersonal relationship, self confidence, feeling empathy, emotion handling, tension handling recommended by WHO)[18] and skill application in patients lives were taught by trained and qualified trainers during these workshops and observed by psychologists.

At the end of each session, subjects were assessed about skill of that session and their problems were dis-

solved by trainers.

### Measurement:

The General Health Questionnaire-28 (GHQ) was designed by Goldberg DP [29] and its reliability and validity were assessed [15, 21] and it has been standardized for screening in Persian language, in Iran. It has four subscales: 1) somatization symptoms 2) anxiety and sleeping disorders 3) social functioning 4) depression (D). Each subscale contains 7 'here and now' questions. Scoring system of GHQ questions based on psychological discomfort (lowest score=1) up to psychological health (highest score=4). The total score of each question varies from 7 to 28 and the total range for score of General Health Questionnaire is estimated from 28 up to 112.

In this Questionnaire, psychiatric symptoms and abnormal behaviors of patients were elicited.

Subjects completed a GHQ-28 just before training workshop, at the end of 2 weeks education period and 2months after completion of training courses.

The lower score indicated the more impaired psychologic condition.

### Statistical analysis:

Statistical analysis was carried out using the Statistical Package for Social Science (SPSS version 16). Mean values (±SEM), median, ranges are shown. Descriptive statistical methods were used where appropriate. Demographic and clinical characteristics and baseline psychologic scores were tested by the Student t test. Preliminary analyses included descriptive and bivariate analyses (ie, analyses of variance and _2) to examine comparability between groups on socio demographic, medical, and baseline QOL characteristics.

## Results

This study was conducted among 50 breast cancer patients in different stages of carcinoma I, II, III who had completed their standard therapy before psychological intervention and also they are divided into 2 experimental and control group randomly.

Mean age of 46.7±9.3 years old in the intervened patients compared with mean age of 45.7±8.9 in control subjects had no significant difference with each other (P_value=0.714).

Demographic and social characteristics of 2 groups were summarized in **Table 1**. It was shown a similar condition in both group for their occupation, education level, number of children and month income. The mean time of illness awareness for experimental group was 2.64±1.22 years old and for control group was 2.68±1.94 (P_value =0.897).

GHQ-28 scores of 4 subtitles include somatization symptoms; anxiety and sleep disorders, social function disorder and depression disorder (**Table 2**).

Data analysis indicated that somatization symptoms score increased 2 weeks after intervention significantly (P_value <0.001) and this increment persisted after 2 months too (P_value <0.00001).this differences was not observed in control group.

Anxiety and sleep disorders assessment of experimental group revealed a considerable increase in the score before skill training(13.2±2) compared with 2 weeks after training(19.5±2)(P_value <0.00001). Changes in anxiety and sleep disorders remained after 2 months (P_value

**Table 1: Demographic and psychologic characteristics of breast cancer patients**

| | Experimental group n=25 | Control group n=25 | P_Value |
|---|---|---|---|
| **Occupation:** | | | |
| House wife | 23 | 21 | |
| employed | 2 | 4 | 0.384 |
| **Education:** | | | |
| Illiteracy | 2 | 2 | |
| Elementary school | 15 | 14 | 0.972 |
| High school | 6 | 6 | |
| University | 2 | 3 | |
| **Number of children:** | | | |
| 2 | 4 | 4 | 0.57 |
| 3 | 7 | 9 | |
| 4 | 8 | 7 | |
| 5 | 4 | 4 | |
| 6 | 2 | 1 | |
| **Month income:** | | | |
| Under 200$ | 8 | 9 | 0.765 |
| Over 200$ | 17 | 16 | |
| Illness awareness(year): | (n=25) 2.64±1.22 | (n=25) 2.68±0.94 | 0.897 |

**Table 2: scores for 4 GHQ-28 subtitles of experimental and control group before and after life skill training.**

| Subtitle | (experimental group n=25) | | | (control group n=25) | | |
|---|---|---|---|---|---|---|
| | Before | 2 weeks after | 2 months after | Before | 2 weeks after | 2 months after |
| **Psychosomatic symptoms** | 19 | 21.68 | 20.6 | 19.52 | 19 | 19.64 |
| **Anxiety and sleep disorders** | 13.28 | 19.52 | 19.36 | 19.28 | 19.65 | 22.28 |
| **Social function disorder** | 19.64 | 23.12 | 22.28 | 19.04 | 19.24 | 19.64 |
| **Depression disorder** | 13.76 | 16.28 | 16.20 | 12.64 | 12.76 | 12.2 |
| **Total score** | 65.68 | 80.6 | 78.4 | 70.48 | 70.46 | 73.76 |

<0.001).

After 2 weeks life skill training workshop, social function disorder scale improved and reached to 23.1±1 (P_value <0.0001) and after 2 months, this increase was statistically significant compared with score before intervention (P_value <0.001).

Mean score of depression disorder phase before experiment was 13.7±4, 2 weeks after experiment, it increased to 16.2±4 and 2 months later, it remained 16.2±2. This score for control group at baseline was calculated 12.6±1 which had no differences after 2weeks and 2 months reassessment.

The total score of questionnaire in experimental group was estimated 65.68 before intervention but it increased up to 80.6 after 2weeks workshop which was statistically significant and it was persistent even after 2 months. These changes were not observed in control group (**Table 2**).

Also, means of changes were compared in three categories between 2 groups. First; before and after 2 weeks intervention, the second; before and 2 months after and the third, comparison of changes between result of after 2 weeks and after 2 month. Results demonstrated that differences between the means of changes were considerable in experimental group (**Table 3**). These Mean score of 4 subtitles before and 2weeks and 2 months after life skill training workshop were illustrated in **figures 1-5**.

## Discussion

Breast cancer is the most common type of cancer among women worldwide .For women, breast cancer is a terrifying disease due to a high mortality rate and body imaging distortion.[1-3] Most of the breast cancer patients have psychological reactions such as denial, anger, or fear toward their disease and treatment process. Many patients have psychiatric morbidities, especially anxiety and depressive disorders.[22-24]

Among psychiatric morbidities, anxiety and depressive disorders are two disorders commonly found in breast cancer patients. The range of anxiety disorder prevalence in breast cancer varies from 1 to 49 %, [25] while depressive disorder ranged from 1.5 to 46 %. [25, 26]

In recent years, there has been increasing interests in various aspects of mental health. Also, it is considered that psychosocial intervention could reduce the morbidity of breast carcinoma patients, improve the quality of life of cancer patients and its effects have been evaluated over the past 2 decades.[27-34]

Health promotion is defined; as 'any deliberate intervention which seeks to promote health and prevent disease disability'.[35-38] WHO then defined a developed training program, with the aim of mental health promotion, named 'life skills. It means ability for adaptive and positive behavior that enables individuals to deal effectively with the demands and challenges of everyday life.[13] The main purpose of life skills training is to promote healthy lifestyles through skill education.

These following life skills (recommended by WHO)[18] are:

1-The ability to make decisions helps people assess their options and carefully consider the different consequences that can result from their choices.

2-The ability to solve problems helps people find con-

**Table3: comparison of mean of changes in 4 subtitle score prior, 2 weeks and 2 months later to life skill training program.**

| Time | Group(n=25) | Mean of changes | | | | | |
|---|---|---|---|---|---|---|---|
| | | Before and after 2 weeks | P value | Before and after 2 weeks | P value | 2 weeks and 2 month after | P value |
| -Psychosomatic symptom | Experimental Group | 2.68 | <0.00001 | 1.6 | <0.00001 | 1.08 | 0.002 |
| | Control group | 0.62 | | 0.12 | | 0.64 | |
| -Anxiety & sleep Disorder | Experimental Group | 6.24 | <0.00001 | 6.08 | 0.001 | -0.16 | <0.00001 |
| | Control group | 0.36 | | 3 | | 2.64 | |
| -Social function Disorder | Experimental Group | 3.48 | <0.00001 | 2.64 | 0.001 | -0.84 | 0.02 |
| | Control group | 0.2 | | 0.6 | | 0.4 | |
| -Depression disorder | Experimental Group | 2.52 | <0.0001 | 2.44 | 0.0001 | -0.08 | 0.28 |
| | Control group | 0.12 | | .044 | | 0.56 | |
| Total score | Experimental Group | 14.94 | <0.0001 | 12.76 | <0.0001 | -2.16 | <0.0001 |
| | Control group | 0.16 | | 3.28 | | 3.12 | |

structive solutions to their problems. This skill can significantly reduce anxiety.

3-The capacity to think creatively helps people make decision and solve problem and look beyond their personal experience.

4-The capacity to think critically helps people analyze information along with their own experiences.

5-The ability to communicate effectively helps people express their feelings, needs, and ideas to others.

6-The ability to establish and maintain interpersonal relations helps people interact positively with people whom they encounter daily, especially family members.

7-Knowledge of self is the capacity of people to know who they are, what they want and do not want, and what does and does not please them which helps people recognize stressful situations.

8-The capacity to feel empathy is the ability to imagine what life is like for another person in a very different situation. It helps people to understand and accept diversity, and it also improves interpersonal relations between diverse individuals.

9-The ability to handle emotions enables subjects to recognize their emotions and how they influence their behaviors.

10-The ability to handle tension and stress[34, 39]

Efficacy of life skill training and psychological intervention depends on many variables such as[40] patients' clinical and demographic characteristics like cancer stage and course of the disease, medical treatment, age, and gender, and educational level, income, occupation…[41] type and duration of psychosocial interventions; for example result of a meta analysis indicated that the most important moderating variable was duration of psychosocial intervention and durations over 12 weeks would be more effective significantly rather than shorter duration;[42] the methodological quality of intervention studies; choosing a control groups, randomization status of treatment conditions, or documentation of experimental and statistical designs and procedures can lead to higher mental health level.

Studies on the effectiveness of life skills training either on the normal population quality of life or subjects with other bodily problems confirmed efficacy of these educations. For example; working women predisposed to many psychiatric symptoms or disorders were attended1-2 sessions of life skills training weekly for 10 weeks.

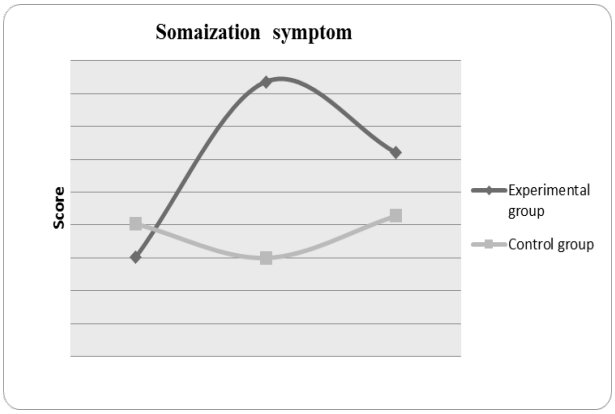


**Figure 1: Comparison of mean score changes in psychological symptoms (GHQ-28) before and after life skill training in experimental and control groups**

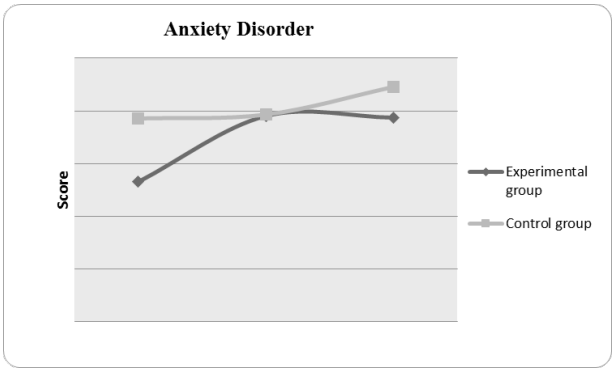


**Figure 2: Comparison of mean score changes in Anxiety symptoms (GHQ-28) before and after life skill training in experimental and control groups**

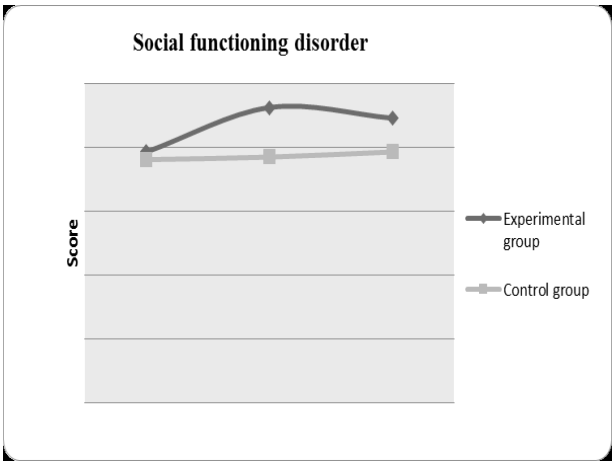


**Figure 3: Comparison of mean score changes in Social functioning disorder (GHQ-28) before and after life skill training in experimental and control groups**

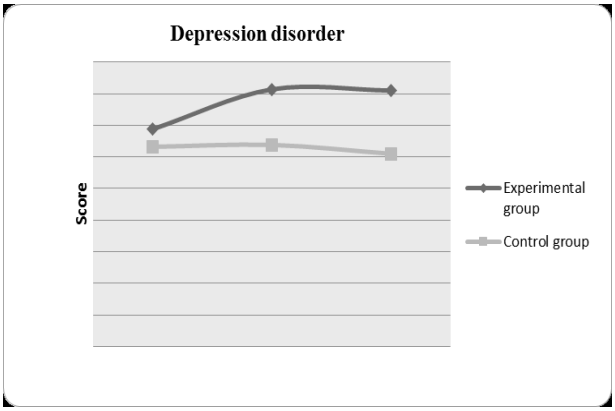


**Figure 4: Comparison of mean score changes in Depression disorder (GHQ-28) before and after life skill training in experimental and control groups**

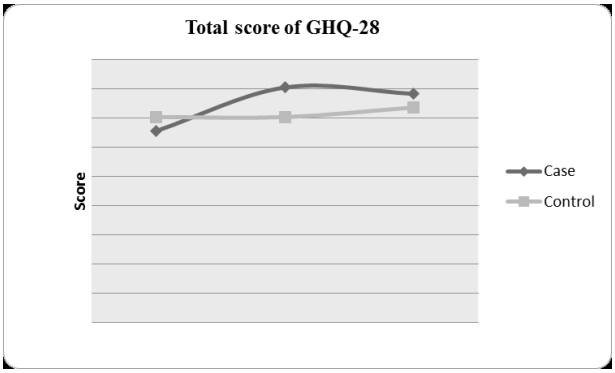


**Figure 5: Comparison of mean score changes in Total score of GHQ-28 questionnaire before and after life skill training in experimental and control groups**

The result of this study showed that life skills training can be an effective method in reducing anxiety, sleep and somatic symptoms of subjects.[43]

Or result of quality of life evaluation in 40 coronary heart patients aged 35-65 years, having bypass for the first time after life skill training program showed that group life skills training is effective in decreasing anxiety and depression in coronary patients after coronary bypass surgery. [44]

In recent study, we evaluated efficacy and psychological power of life skill training program on improvement of non metastatic breast cancer quality of life.

As described in material and method part, GHQ=28 questionnaire was designed in a way as lower scores indicates poor mental and physical condition and a higher score expresses a better, healthy mental status.

In this study, in spite of training the ways of increasing self-esteem and controlling feelings in training sessions, but we did not measure their effects on quality of life. As indicated in this study, there were not significant differences in 4 GHQ-28 items included 1) somatization symptoms 2) anxiety and sleeping disorders 3) social functioning disorder and 4) depression between experimental and control group before life skill training intervention. After 2 weeks psychologic intervention, we found a remarkable reduction in somatization symptoms, anxiety and sleeping disorders, social functioning disorder and depression symptoms in experimental group compared with control and before intervened condition. Also, stability of life skill training effectiveness on quality of life and anxiety and depression reduction has been lasting after 2 month reassessment.

The result of Meta analysis summarized the results of 37 published, controlled studies that investigated the effectiveness of psychosocial interventions on quality of life (QoL) in adult cancer patients and findings supported the usefulness of psychosocial interventions for improving quality of life in adult cancer patients.[45]

Three hundred female breast cancer patients, aged above 18 years old from the

Surgical Outpatient Department, King Chulalongkorn Memorial Hospital evaluated into the study from December 2006 to May 2007 and showed that anxiety and depressive disorders are two common psychiatric disorders in breast cancer. Improving patients' social support and raising patient's coping skills reduced the patients' psychological stress and psychiatric morbidities.[39]

Japanese scientists conducted a 6-week, psychosocial group intervention on breast cancer patients with selection criteria; age younger than 65 years, lymph node metastasis positive and/or histologic or nuclear Grade 2–3, and surgery undergone within the previous 4–18 months as of the start of the study.

The intervention consisted of health education, coping skills training, stress management, and psychologic support. Patients were evaluated for psychologic distress by administering the Profile of Mood States (POMS), Mental Adjustment to Cancer (MAC) scale and Hospital Anxiety and Depression (HADS) scale. They inferred that short term psychosocial intervention produces significant long term enhancing of quality of life in Japanese patients with primary breast cancer. [46]

36 patients with non-metastatic breast cancer were assessed in study of G. Marchioro and his colleagues. Patients received either psychological intervention (weekly cognitive individual psychotherapy and bimonthly family counseling) or standard follow-up. Personality (16-PF and IIQ), quality of life (FLIC), and depression (BDI) scores were the endpoints for this study, and evaluated in the patients at diagnosis, and up to 9 months after diagnosis. This study indicated that cognitive psychotherapy and family counseling improved both depression and quality of life indexes compared with the control group.[47]

## Conclusion

Therefore, by citing to the findings of previous researches and this study; psychological consultation therapies recommended for cancer patients because they expect these therapies to cure their cancer or to improve their recovery and both patients and oncologists will be moderately to very satisfied with the results of psychological therapies. Also, result of research have concluded that psychological therapies may help cancer patients in various ways, ranging from reducing the side effects of cancer treatments to improving patients' immune function and longevity.

## Conflict of Interest/authors disclosure

This study was approved in ethical committee of Zanjan University of Medical Science and department of hematology and oncology and radiation oncology. This research was supported financially as a research project by Zanjan University of Medical Sciences, but there was no other financial relationship with the organization that sponsored the research, authorship, etc

In addition to all authors performed research their duties during the investigation process, on all phases of the project likely to include primary data collection, analysis and documentation of the collection and compilation of papers have supervised and all co-authors have seen and agree with the contents of the manuscript and there is no financial interest to report and no disclosure. Also, all these primary data can be reviewed if requested.

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