

Anxiety, Depression and Anger in Breast Cancer Patients Compared with the General Population in Shiraz, Southern Iran

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Abstract

Background: Breast cancer and its treatment have specific challenges for women due to changes in sexuality, femininity, body image and maternal issues which might lead to associated psychological morbidity. In the present study, our aim was to measure depression, anxiety and anger in breast cancer patients.

Methods: Our study comprised 178 breast cancer patients, most of whom were diagnosed for 1 to 5 years, compared with 400 other women randomly selected from the general population referred to Shiraz medical clinics for non-therapeutic reasons. We used depression, anxiety and anger subscales of Symptom Checklist-90 Revised (SCL-90R) questionnaire.

Results: Depression and anxiety were not significantly different between the two groups and the mean scores of anger were significantly lower in breast cancer patients than those in the general population. Higher depression and anger mean scores were found among younger patients. Education and tumor size correlated significantly with anxiety.

Conclusion: Most of our patients had been diagnosed for more than 1 year and no patient had distant metastasis. Qualitative data showed stable family condition, religious tenets and social supports which are all among the reasons for our results.

Keywords: Anxiety; Depression; Anger; Breast cancer; SCL-90R; Iran

Introduction

For several serious reasons, breast cancer is especially important among women malignancies. The breast cancer pivotal aspects include having a high prevalence, being the second cause of cancer death among women,¹ being one of the most curable cancers and fifty or younger age of diagnosis in almost a quarter of women,² and even more than a quarter, about half of them, in Iran,³ increasing its incidence rate especially in originally low incidence countries.⁴

In southern Iran, breast cancer was at the top of 10 prevalent cancers in the area with a crude rate of 11.58 and age specific incidence rate of 18.06.⁵ It was demonstrated that the majority of patients were diagnosed with an advanced tumor size. Five-year overall survival was 58%. There was a significant correlation between survival of breast cancer patients and family income, smoking, metastases to bone and lung, tumor size and grade, lymph node ratio, and number of involved nodes.⁶

Breast cancer has specific challenges for women due to its impact as a life-threatening disease, its intensive surgical and medical treatments, and also changes in sexuality, femininity, body image and maternal issues after mastectomy, removal of an important cultural symbol of femininity and an intimate part of the patient's self-esteem. The afflicted

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women may face psychiatric co-morbidity with this new life situation.⁷

Over the past 20 years, with an increase in the number of survivors due to the advances in treatment and early detection, scientific attention has turned to considerations of the patients' quality of life and their psychological functioning during and after treatment, rather than solely to the issues of disease-free and overall survival.⁸

Depression, anxiety, anger and denial have been shown as the most important reactions.⁸ A high rate of post-mastectomy major depression and anxiety has been shown, too.⁹ However, there are several reports of their lower prevalence in comparison with the normal population.^{10,11} In some studies, no significant differences were found between the cancer survivors and non-cancer groups in terms of psychological distress and overall quality of life when comparing breast cancer survivors to either healthy groups or those with benign breast disease or low-risk screening groups.¹²⁻¹⁴

In Iran, one study showed severe symptoms of anxiety in 48% of breast cancer patients at both baseline and follow up, and depression in less than 40% at the same period, using Hospital Anxiety and Depression Scale (HADS).¹⁵

Demographic factors such as age,^{16,17} and marital status,¹⁸ and biological variables such as disease stage, type of treatment,¹⁹ and surgical removal,²⁰ of the breast may affect the patients' psychological symptoms. Mixed results have been achieved about the association of disease severity and its contribution to depression.^{9,21}

Due to the small number of studies in this field and some specific aspects of breast cancer in Iran such as patients' younger ages of about 10 years,³ and different cultural background, we conducted this study to investigate the frequency of depression, anxiety and anger in women with breast cancer as compared with a control group to evaluate the effect of breast cancer on presentation of these three psychological problems.

Materials and Methods

Our cross-sectional study was conducted at Motahari Outpatient Clinic affiliated to Shiraz University of Medical Sciences, Shiraz, southern Iran during 2005-2006. The patients (n=178) with breast cancer stage I-III with three to eighty months of follow up who were

on routine visits were randomly selected. The purpose and the contents of the study were explained to them and following their agreement, demographic information including age, age at onset of disease, marital status, education, number of children, and past medical history were collected through a face to face interview. Then, 29 questions of the Symptom Checklist-90 Revised (SCL-90R) questionnaire,²⁰ in Farsi used for evaluation of the 3 subscales of depression, anxiety, and anger were provided under supervision of a trained general physician. The patients were asked to answer the questions according to the previous week manifestations. The stage of disease, lymph node involvement status, histological grade, tumor size, and type of surgery (modified radical mastectomy vs. conservative surgery) as biological factors were derived from their charts. To eliminate any bias in selection, the patients with specific life events during the preceding year such as bereavement, those with any psychotic illness or substance abuse, age over 70 years at the time of study, another concurrent active chronic illness (e.g., irritable bowel syndrome, thyroid disease, hypertension, etc.) or cancer were excluded.

Non-cancer controls were composed of those (n=400) referred to Shiraz medical clinics for non-therapeutic reasons. Examples of non-therapeutic reasons include family planning, screening Pap smears and checking of blood pressure. They were selected randomly from different clinics located in the main parts of the city. They did not have any significant past history of chronic medical or psychological disease. The subjects' age and education were uniformly matched (Table 1).

In this study, the Persian adapted version of the Symptom Checklist-90 Revised SCL-90R questionnaire which was valid and reliable was used.²² This questionnaire is a multidimensional self report inventory consisting of 90 items covering 9 dimensions of psychological distress: depression (13 items), anxiety (10), anger/hostility (6), phobic anxiety (7), somatization (12), obsessive-compulsivity (10), paranoia (6), psychoticism (10), and interpersonal sensitivity (9).²³ We used the first three in this investigation. Each item describes a physical or psychological symptom rated on a five point scale ranging from 0 (not at all) to 4 (extremely). The score of each subscale is the mean of the corresponding subscale items.²¹ Internal consistency (α -coefficients) for the subscales was 0.75.

Statistical analysis of the 3 subscales of SCL-90R questionnaire was performed by student's t-test, two-tailed. For evaluation of the patients' mean scores'

Table 1: Breast cancer patients' and controls' demographic variables

| Demographic variables | Breast cancer patients | Normal controls |
|----------------------------|------------------------|-----------------|
| Age, Years (Mean± SD) | 48.6 (9.16) | 45.4 (7.12) |
| Educational level (No., %) | | |
| Illiterate | 48 (27.0) | 81 (20.2) |
| Primary to intermediate | 72 (40.4) | 179 (44.8) |
| High school | 24 (13.5) | 77 (19.2) |
| Higher than high school | 34 (19.1) | 63 (15.8) |
| Marital state (No., %) | | |
| Married | 162 (91.0) | 384 (96.0) |
| Single | 16 (9.0) | 16 (4.0) |

relation to demographic and clinical variables, one-way ANOVA and LSD post Hoc were performed. The level of significance was set at $p < 0.05$. All the statistical analyses were performed by means of the SPSS software package (version 11.5, Chicago, IL, USA).

Results

Breast cancer patients comprised 178 women. Their age at the time of study varied from 29 to 70 years with a mean of 48.6 years (± 9.16) while 88.7% of them ($n=158$) were diagnosed with breast cancer for 1 to 5 years, 4.5% ($n=8$) for less than 1 year, and the remaining 6.8% ($n=12$) for more than 5 years. Most of the patients (91%) were married. The vast majority of them ($n=120$, 67.4%) underwent modified radical mastectomy and the remaining 32.6% ($n=58$) underwent conservative surgery. The characteristics of all patients are displayed in Table 1 and 2. There were no significant differences between the patients and the population sample concerning age, education and marital status.

The SCL-90R depression, anxiety and anger mean scores of both breast cancer patients and control group are shown in Table 3. Depression and anxiety mean scores were not statistically different between the case and control groups ($p=0.9$ and $p=0.6$, respectively). However, anger subscale's mean score was significantly higher in the control group than that in the breast cancer cases (0.57 vs. 0.42, $p=0.002$).

Among breast cancer cases, higher depression and anger mean scores were related to age ($p=0.008$ & $p=0.020$). Younger ages were associated with higher mean scores in depression and anger subscales, especially in 18-30 years of age. This age group had anger mean score of 0.71 as compared to mean scores of 0.44 and 0.31 in the age groups of 45-58 and 59-70 years,

respectively and depression mean scores of 1.47 in contrast with 0.97 and 0.87 for the same age groups.

Table 2: Breast cancer patients' clinical variables

| Clinical Variables | Frequency (%) |
|---------------------|---------------|
| Stage | |
| I | 40 (22.5) |
| II | 125 (70.2) |
| III | 8 (4.5) |
| Missing | 5 (2.8) |
| Type of operation | |
| MRM ¹ | 121 (68.0) |
| CS ² | 57 (32.0) |
| Histological grade | |
| I | 74 (41.6) |
| II | 50 (28.1) |
| III | 10 (5.6) |
| Missing | 44 (24.7) |
| Involved lymph node | |
| Negative | 70 (39.3) |
| Positive | 108 (60.7) |
| Tumor size | |
| ≤2 cm | 71 (39.9) |
| >2 cm | 107 (60.1) |

¹MRM= Modified radical mastectomy

²CS=Conservative surgery

The patients' education was classified into four categories (Table 1). We found that patients with degrees above high school diploma had greater anxiety scores compared to those with degrees below high school level (1.36 vs. 0.70; $p=0.030$). We also found more anxiety mean scores in tumor sizes greater than 2 cm against less than 2 cm (1.1 vs. 0.75; $p=0.030$). There was no association between other demographic and clinical variables with anxiety, depression and anger scores.

Table 3: SCL-90R depression, anxiety and anger mean scores of cases and controls

| SCL-90R measures | Cases (Mean±SD) | Controls (Mean±SD) | P value |
|------------------|-----------------|--------------------|---------|
| Depression | 1.03±0.78 | 1.03±0.68 | 0.970 |
| Anxiety | 0.88±0.80 | 0.84±0.75 | 0.600 |
| Anger | 0.42±0.48 | 0.57±0.53 | 0.002 |

Discussion

The main finding of this study is that the three subscales of SCL-90R questionnaire did not show any evidence of depression, anxiety and anger in the breast cancer patients as compared to the normal population. In addition, the anger's mean score in the control group was significantly higher than that in the breast cancer cases. The two other scores were statistically similar.

Although numerous studies have found psychiatric morbidity such as depression and anxiety in breast cancer patients,^{8,9} and in Iranian breast cancer patients severe symptom of anxiety as the most frequent symptom,¹⁵ there are some reverse results in the specific groups of patients.^{10,11} Ellman et al. reported significantly fewer symptoms of anxiety and depression among the long term survivors of breast cancer patients than controls.²⁴ Also, Groenvold et al. indicated less anxiety and depression in patients at low risk of recurrence compared with the general population.²⁵

In our study, a few cases were diagnosed for less than 1 year, that is, only a small portion was newly diagnosed. There was no patient with distant metastasis (stage IV) in the present study, either. These two important factors may have affected the results, as people can successfully adapt to new situations like increased risk of death or losing a breast. Burgess et al. showed increased levels of depression and anxiety in the first year after diagnosis of early breast cancer.²⁶ Another study implied more adaptation in breast cancer patients than in those with benign breast disease 2 years after the diagnosis.¹³

Most of our cases were married and analysis of qualitative data indicated that most of them had stable families, religious tenets and were faithful people. These elements may have improved their psychological profile which led to inconsiderably different depression and anxiety mean scores. In a qualitative study, Taleghani et al. showed that the majority of strategies used by Iranian women to cope with breast cancer were positive, religious faith playing a major role in this adaptation.²⁷

Lower anger mean scores in the patients group

show that affected women have suppressed their anger and did not express it. Lilja et al. believe that patients with a better prognosis seem to have defenses against aggressive impulses while those with poorer prognosis do not.²⁸ A total denial of aggressive impulses have been typical of women with breast cancer as reported by Smith. et al.²⁹ Nevertheless, precise effects of the noted possibilities should be investigated in separate studies.

On the other hand, some methodological issues may have inevitably affected the results of our study. For example, some cancer patients may actively exclude supposedly irrelevant complaints and report only cancer-related symptoms while general population do not exclude symptoms and report more complete information. This may bias comparison of the patients.

Like our study, negative relationship between depression and age has been indicated previously. Younger women with breast cancer are more likely to experience unhappiness and depression due to their roles as mothers, wives, and job holders.^{16,17}

Theoretically, women diagnosed on a more advanced stage of the disease would experience a greater threat to their survival, with a corresponding increase in their level of depression and anxiety. Studies conducted with cancer patients indicated mixed results as to the association between the severity of the disease and its contribution to depression,^{9,21} and anxiety.^{30,31} The patients diagnosed with an advanced stage cancer were not necessarily the ones experiencing depression and anxiety symptoms. However, a significant relationship was found between tumor size and anxiety in this study.

The literature indicates that the majority of breast cancer survivors adjusted well after their first two years since diagnosis. On the other hand, there are subsets of survivors reporting psychological distress, including depression and anxiety. However, the need for and effect of various kinds of psychosocial support and intervention for the patients should not be questioned easily. The exact psychological functioning of breast cancer patients remains to be determined in the future studies.

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References

- Parkin DM. International variation. *Oncogene* 2004;**23**:6329-40. [1532 2508] [doi:10.1038/sj.onc.1207726]
- Hulka BS, Moorman PG. Breast cancer: hormones and other risk factors. *Maturitas* 2008;**61**:203-13. [19434892] [doi:10.1016/j.maturitas.2008.11.016]
- Harirchi I, Karbakhsh M, Kashefi A, Momtahan AJ. Breast cancer in Iran: results of a multi-center study. *Asian Pac J Cancer Prev* 2004;**5**:24-7. [15075000]
- Choi Y, Kim YJ, Shin HR, Noh DY, Yoo KY. Long-term prediction of female breast cancer mortality in Korea. *Asian Pac J Cancer Prev* 2005;**6**:16-21. [15780025]
- D Mehrabani, Sz Tabei, St Heydari, Sj Shamsina, N Shokrpour, M Amini, Sj Masoumi, H Julaei, M Farahmand, A Manafi. Cancer occurrence in Fars Province, southern Iran. *Iranian Red Crescent Med J* 2008;**10**(3):314-322.
- Rezaianzadeh A, Peacock J, Reidpath D, Talei A, Hosseini Sv, Mehrabani D. Survival analysis of 1148 women diagnosed with breast cancer in southern Iran. *BMC J Can* 2009;**9**(1):168-70. [19497131] [doi:10.1186/1471-2407-9-168]
- Glanz K, Lerman C. Psychosocial impact of breast cancer: a critical review. *Ann Behavioral Med* 1992;**14**:204-12.
- Oktay JS. Psychosocial aspects of breast cancer. *Lippincotts Prim Care Pract* 1998;**2**:149-59. [9727111]
- Hopwood P, Howell A, Maguire P. Psychiatric morbidity in patients with advanced cancer of the breast: prevalence measured by two self-rating questionnaires. *Br J Cancer* 1991;**64**:349-52. [1892762]
- Sneeuw KCA, Aaronson NK, van Wouwe MCC. Prevalence and screening of psychiatric disorder in patients with early stage breast cancer. *Quality Life Research* 1993;**2**:50-51.
- Maraste R, Brandt L, Olsson H, Ryde-Brandt B. Anxiety and depression in breast cancer patients at start of adjuvant radiotherapy. Relations to age and type of surgery. *Acta Oncol* 1992;**31**:641-3. [146 6892] [doi:10.3109/028418692090 83846]
- Cordova MJ, Cunningham LL, Carlson CR, Andrykowski MA. Posttraumatic growth following breast cancer: A controlled comparison study. *Health Psychol* 2001;**20**:176-85. [11403215] [doi:10.1037/0278-6133.20.3.176]
- Andrykowski MA, Curran SL, Studts JL, Cunningham L, Carpenter JS, McGrath PC, Sloan DA, Kenady DE. Psychosocial adjustment and quality of life in women with breast cancer and benign breast problems: a controlled comparison. *J Clin Epidemiol* 1996;**49**:827-34. [8699200] [doi:10.1016/0895-4356(96)00028-5]
- Dorval M, Maunsell E, Deschenes L, Brisson J, Masse B. Long-term quality of life after breast cancer: comparison of 8-year survivors with population controls. *J Clin Oncol* 1998;**16**:487-94. [9469332]
- Montazeri A, Harirchi I, Vahdani M, Khaleghi F, Jarvandi S, Ebrahimi M, Haji-Mahmoodi M. Anxiety and depression in Iranian breast cancer patients before and after diagnosis. *Eur J Cancer Care (Engl)* 2000;**9**:151-7. [11881724] [doi:10.1046/j.1365-2354.2000.00219.x]
- Bloom JR, Stewart SL, Johnston M, Banks P. Intrusiveness of illness and quality of life in young women with breast cancer. *Psychooncology* 1998;**7**:89-100. [9589507] [doi:10.1002/(SICI)1099-1611(199803/04)7:2<89::AID-PON293>3.0.CO;2-E]
- Bloom JR, Stewart SL, Johnston M, Banks P, Fobair P. Sources of support and the physical and mental well-being of young women with breast cancer. *Soc Sci Med* 2001;**53**:1513-24. [11710426] [doi:10.1016/S0277-9536(00)00440-8]
- Rodrigue JR, Park TL. General and illness-specific adjustment to cancer: relationship to marital status and marital quality. *J Psychosom Res* 1996;**40**:29-36. [8730642] [doi:10.1016/0022-3999(95)00540-4]
- Coates A, Glasziou P, McNeil D. On the receiving end--III. Measurement of quality of life during cancer chemotherapy. *Ann Oncol* 1990;**1**:213-7. [2261367]
- Omne-Ponten M, Holmberg L, Burns T, Adami HO, Bergstrom R. Determinants of the psycho-social outcome after operation for breast cancer. Results of a prospective comparative interview study following mastectomy and breast conservation. *Eur J Cancer* 1992;**28A**:1062-7. [1627376] [doi:10.1016/0959-8049(92)90457-D]
- Aragona M, Muscatello MR, Mesiti M. Depressive mood disorders in patients with operable breast cancer. *J Exp Clin Cancer Res* 1997;**16**:111-8. [9148871]
- Mirzai R. Standardizing and Validating of SCL-90-R in Iran MSc Thesis. Tehran University of Medical Sciences, 1979.
- Derogatis LR. SCL-90. Administration, scoring and procedures manual-I for the Revised version. Baltimore, John Hopkins University School of Medicine, Clinical Psychometrics Research Unit, 1977.
- Ellman R, Thomas BA. Is psychological wellbeing impaired in long-term survivors of breast cancer? *J Med Screen* 1995;**2**:5-9. [7497147]
- Groenvold M, Fayes PM, Sprangers MA, Bjorner JB, Klee MC, Aaronson NK, Bech P, Mouridsen HT. Anxiety and depression in breast cancer patients at low risk of recurrence compared with the general population: a valid comparison? *J Clin Epidemiol* 1999;**52**:523-30. [10408991] [doi:10.1016/S0895-4356(99)00022-0]
- Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: five year observational cohort study. *BMJ* 2005;**330**:702. [15695497] [doi:10.1136/bmj.38343.670868.D3]
- Taleghani F, Yekta ZP, Nasrabadi AN. Coping with breast cancer in newly diagnosed Iranian women. *J Adv Nurs* 2006;**54**:265-72. [166299 10] [doi:10.1111/j.1365-2648.2006.03808.1.x]
- Lilja A, Smith G, Malmstrom P, Salford LG. Attitude towards aggression and creative functioning in patients with breast cancer. *Percept Mot Skills* 1998;**87**:291-303. [97 60660]
- Smith GJ, Lilja A. Aggression: destructive and constructive aspects. *Percept Mot Skills* 2000;**90**:609-23. [10833762] [doi:10.2466/PMS.90.2.609-623]
- Kissane DW, Grabsch B, Love A,

Clarke DM, Bloch S, Smith GC. Psychiatric disorder in women with early stage and advanced breast cancer: a comparative analysis. *Aust N Z J Psychiatry* 2004;**38**:320-

6. [15144508] [doi:10.1111/j.1440-1614.2004.01358.x]
31 Lilja A, Smith G, Malmstrom P, Salford LG, Idvall I, Horstman V. Psychological profile in patients with

Stages I and II breast cancer: associations of psychological profile with tumor biological prognosticators. *Psychol Rep* 2003;**92**:1187-98. [12 931938]