

RESEARCH COMMUNICATION

Evaluation of Depression in Newly Diagnosed Breast Cancer Cases in Hatay Province of Turkey in 2011

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Abstract

Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death in females in Turkey. The main problems experienced by women with breast cancer are physical losses, emotional distress and degradation in family, work and social roles. The purpose of this cross-sectional retrospective study was to investigate the socio-demographical characteristics and depressive symptoms of 125 newly diagnosed cases with breast cancer reported to cancer control department of Hatay provincial health directorate in 2011. To evaluate the depressive symptoms the Beck Depression Inventory (BDI) was used. All 125 cases who participated in the study were female. The mean age was 49.2 ± 11.9 . The mean BDI score of the cases was 17.5 ± 10.6 . The number of cases whose BDI scores were 17 and above was 65 (52.0%), and the number of cases whose BDI scores were under 17 was 60 (48.0%). The most striking finding in our study was that only 4 of the cases were receiving psychological help and support. The rate of depression was found high in our study and psychological support is a must for patients with a life threatening disease such as cancer.

Keywords: Breast cancer - women - depression - Hatay - Turkey

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Introduction

Carcinogenesis is a multi-step process involving many mutations, preferentially in genes regulating growth control, resulting in increased stimulation or removal of inhibition (tumour suppressor genes). Thus, carcinogenesis is a continuous process, affecting cellular growth control (Waldum et al., 1998). In other words; cancer, a leading cause of death globally, is an uncontrolled multiplication of cells (Ozturk et al., 2011). The World Health Organization estimates that 7.6 million people died of cancer in 2005 and 84 million people will die in the next 10 years if action is not taken. Having such a high mortality rate, cancer is a major public health problem (WHO, 2008).

Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer death in females (Jemal et al., 2011). According to GLOBOCAN 2008 study, with an estimated 1.38 million new cases worldwide (10.9% of the total) breast cancer was the second common cancer type after lung cancer (Ferlay et al., 2010). In Turkey, Department of Cancer Control statistics show that breast cancer was the fourth common cancer type of all cancer types with the incidence rate of 17.96/100.000 (Tuncer et al., 2009). Infiltrating or invasive ductal cancer is the most common breast cancer histologic type and comprises 70% to 80% of all cases (Edge et al., 2010).

Established and probable risk factors for breast cancer are old age, living in developed countries, menarche before age 11, menopause after age 54, having first child

in early 40s, family history (breast cancer in first degree relative when young), previous benign disease (atypical hyperplasia), high intake of saturated fat, body mass index >35, excessive intake of alcohol, abnormal exposure to ionising radiation in young females after age 10, taking exogenous hormones (hormone replacement therapy for 10 years, using diethylstilbestrol during pregnancy) (McPherson et al., 2000). In the presence of a growing global burden of breast cancer, early detection which allows increased treatment options, including surgical resection, with a corresponding better patient response, is increasingly regarded as representing a continuum, from the detection of occult breast cancer with mammography and other methods to earlier diagnosis of symptomatic breast cancer when mammography is not available (David et al., 2011; Smith, 2011). Especially for the low or middle income countries, breast self-examination (BSE) is an important screening measure for detecting breast cancer at an early stage (Shalini et al., 2011; WHO, 2012). There is evidence that women who correctly practice BSE monthly are more likely to detect a lump in the early stage of its development, and early diagnosis has been reported to influence early treatment, to yield a better survival rate (Ertem et al., 2009).

The main problems experienced by women with breast cancer are physical losses, emotional distress and degradation in family, work and social roles. In addition, the intense and long-term treatment of cancer and severe side effects of these treatments also negatively affects women's daily life functions and lead to a variety of

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psychosocial problems (Palsson et al., 1995).

Receiving a cancer diagnosis is perceived as a threat for the future. Breast cancer is considered to be a disease that threatens life and womanhood by women. In the literature, breast cancer diagnosis and treatment is reported to lead patients to psychological problems such as anxiety, depression, anger, uncertainty about the future, hopelessness, helplessness, fear of relapse, decreased self-esteem, body image distortion, fear of losing the feminine characteristics and fear of death (Schrover, 1994; Ferrell et al., 1998; Kilpatrick et al., 1998; Rustoen et al., 2000; Landmark et al., 2002; Weiss, 2004). Depression is an important psychiatric disorder which should be taken into account in cancer patients. It affects quality of life, self care, treatment compliance and response to therapy and the severity of the cancer over time (Andrykowski et al., 2006; Manne et al., 2006).

The purpose of this study is to investigate the socio-demographical characteristics and depressive symptoms of newly diagnosed cases with breast cancer in the province of Hatay in 2011.

Materials and Methods

This cross-sectional retrospective study is performed on 125 newly diagnosed breast cancer cases reported to cancer control department of Hatay provincial health directorate between January 1 to December 31 of 2011. In our study we interviewed with all of the cases.

The population of Hatay province is 1,480,571, 55% living in urban areas. A team of a doctor and two nurses was established to visit cases at their homes. The aim to visit patients in their homes is that they may respond to questions much more comfortably at a non-hospital environment. A survey form was prepared by the investigator to investigate the socio-demographical characteristics and depressive symptoms of the cases. To evaluate the depressive symptoms The Beck Depression Inventory was used. After obtaining informed consent these survey forms are administered to cases by the doctor and nurses.

The Beck Depression Inventory

The BDI is a self-report questionnaire consisting of 21 questions used to assess levels of depression. It was developed by Beck and his colleagues and for our country, the validity and reliability study of this scale was made by Hisli (Mock et al., 1961; Hisli, 1989). It measures somatic, emotional, cognitive and motivational symptoms in depression. The scale aims to determine the degree of depressive symptoms objectively. There are 4 options in each of twenty-one question and each question is scored between 0-3, the depression score is determined by summing them up. The total score ranges from 0-63, the amount of the total score shows the severity of depression. In the Beck Depression Scale if the total value is less than 9 "no depression", if it is between 10-16 "mild", if it is between 17-23 "medium", and if it is more than 24 "severe depression" is considered. Similar studies using the BDI, the cut-off value of BDI score is taken as different values, in general, the cut-off value is taken as 17(Hisli, 1989;

Bostanci et al., 2005). In our study we also used 17 as cut-off value.

The statistical analysis was made by loading filled survey forms to SPSS 11.5 package program. Descriptive analysis and chi-square tests were used for statistical analysis and p value <0.05 is considered as statistically significant.

In order to carry out this study, all the necessary approvals have been obtained in the province of Hatay.

Results

When the distribution of breast cancer for the last five years in the province of Hatay was examined; 51 cases in 2007, 68 cases in 2008, 102 cases in 2009, 109 cases in 2010 and 125 new cases were identified in 2011.

All 125 cases who participated in the study were female. The mean age was 49.2 ± 11.9 (min: 25, max: 77). Age group distribution; 25-34 years (9 women 7.2%), 35-44 years (41 women 32.8%), 45-54 years (34 women 27.2%), 55-64 years (25 women, 20.0%), 65 years higher (16 women 12.8%).

95 of the cases (72.0%) were living in rural, 30 of the cases (28.0%) were living in urban areas. When the marital status was examined: 91 of the cases (72.8%) were married, 20 of the cases (16.0%) were widowed or divorced and 14 of the cases (11.2%) were single. When the status of education was examined: 32 of the cases (25.6%) have never gone to school, 47 of the cases (37.6%) were graduated from primary school, 30 of the cases (24.0%) were graduated from secondary school and 16 of the cases (12.8%) were graduated from tertiary school.

When the status of employment evaluated: 101 of the cases (80.8%) did not have any jobs, while 24 of the cases (19.2%) were working.

The number of cases having first-degree relatives with breast cancer was 23 (18.4%).

Patients were asked about whether they make breast self-examination on a regular basis; 69 of the cases (55.2%) said yes, 56 of the cases (44.8%) said no. When we investigated diagnosis of early stage breast cancer with breast self-examination, we couldn't find a significant relationship ($\chi^2 = 0.97$, $df = 1$, $p = 0.324$). Looking at the state of being educated about the breast-self examination; 109 of the cases (87.2%) said they did not receive such an education, 16 of the cases (12.8%) said they received education.

The mean BDI score of the cases was 17.5 ± 10.6 (min = 3, max: 54). The number of cases whose BDI scores were 17 and above was 65 (52.0%), and the number of cases whose BDI scores were under 17 was 60 (48.0%). Detailed BDI scores are shown in Table 1.

Detailed relationship between socio-demographic factors and depressive symptom occurrence rates of cases are shown in Table 2. When we look at the pathological diagnosis of breast cancer, 94 of the cases (75.2%) were invasive ductal carcinoma, 10 of the cases (8.0%) were medullary carcinoma, 8 of the cases (6.4%) were malignant epithelial carcinoma and 13 of the cases (10.4%) were other types cancers.

Table 1. Distribution of Cases' BDI Scores (n=125)

| | Beck Score (pts.) | No. | %* |
|-----------------------------------|-------------------|-----|-------|
| Classification of Beck Scores: | | | |
| Minimal-Level Depressive Symptoms | 00-09 | 36 | 028.8 |
| Mild Depressive Symptoms | 10-16 | 24 | 019.2 |
| Middle-Level Depressive Symptoms | 17-29 | 46 | 036.8 |
| Severe Depressive Symptoms | 30-63 | 19 | 015.2 |
| Total | | 125 | 100.0 |

*Column percentage

Table 2. Relationship between Socio-Demographic Factors and Depressive Symptom Occurrence Rates of Cases (n=125)

| | BDI<17 | | BDI≥17 | | Total | |
|---|--------|------|--------|------|-------|------|
| | No. | %* | No. | %* | No. | %** |
| Age Groups: ($\chi^2=10.1$, $df=4$, $p=0.038$) | | | | | | |
| 25-34 | 04.0 | 44.4 | 05.0 | 55.6 | 09.0 | 07.2 |
| 35-44 | 27.0 | 65.8 | 14.0 | 34.2 | 41.0 | 32.8 |
| 45-54 | 16.0 | 47.0 | 18.0 | 53.0 | 34.0 | 27.2 |
| 55-64 | 09.0 | 36.0 | 16.0 | 64.0 | 25.0 | 20.0 |
| 65 üstü | 04.0 | 25.0 | 12.0 | 75.0 | 16.0 | 12.8 |
| Marital Status: ($\chi^2=2.67$, $df=2$, $p=0.263$) | | | | | | |
| Married | 47.0 | 51.6 | 44.0 | 48.4 | 91.0 | 72.8 |
| Single | 04.0 | 28.5 | 10.0 | 71.5 | 14.0 | 11.2 |
| Widowed | 09.0 | 45.0 | 11.0 | 55.0 | 20.0 | 16.0 |
| Education: ($\chi^2=8.996$, $df=3$, $p=0.029$) | | | | | | |
| None at all | 11.0 | 34.3 | 21.0 | 65.7 | 32.0 | 25.6 |
| Primary | 19.0 | 40.4 | 28.0 | 59.6 | 47.0 | 37.6 |
| Secondary | 20.0 | 66.6 | 10.0 | 33.4 | 30.0 | 24.0 |
| Tertiary | 10.0 | 62.5 | 06.0 | 37.5 | 16.0 | 12.8 |
| Employment Status: ($\chi^2=6.20$, $df=1$, $p=0.013$) | | | | | | |
| Working | 17.0 | 70.8 | 07.0 | 29.2 | 24.0 | 19.2 |
| Non-working | 43.0 | 42.5 | 58.0 | 57.5 | 101.0 | 80.8 |
| Employment Status of Spouse: ($\chi^2=1.90$, $df=1$, $p=0.168$) | | | | | | |
| Working | 48.0 | 51.6 | 45.0 | 48.4 | 93.0 | 74.4 |
| Non-working | 12.0 | 37.5 | 20.0 | 62.5 | 32.0 | 25.6 |
| Regular Income: ($\chi^2=30.6$, $df=1$, $p<0.0001$) | | | | | | |
| Present | 52.0 | 67.5 | 25.0 | 32.5 | 77.0 | 38.4 |
| Absent | 08.0 | 16.6 | 40.0 | 83.4 | 48.0 | 61.6 |

*Row percentage; **Column Percentage

When the stage of the disease was evaluated; in 5 of the cases (4.0%) there was in situ cancer, in 43 of the cases (34.4%) the cancer was localized to the breast, in 59 of the cases (47.2%) the cancer was showing regional spread and 18 of the cases (14.4%) had distant metastasis. We considered cancers localized to breast and in situ cancers as early stage cancers. The number of cases with early stage disease was 48 (38.4%). Considering the relationship between disease stage and presence of depression, depressive symptoms were significantly higher in patients with advanced stage disease ($\chi^2=8.58$, $df=1$, $p=0.003$). While 85 of the cases (68.0%) did not have any additional disease, 40 of the (32.0%) cases had an additional disease. The most common disease in cases with comorbidities was hypertension (22 cases, 55.0%). Only 4 of the cases (3.2%) was getting treatment for depression and psychological support related to cancer.

When we examine the treatment modalities, 42 of the cases (33.6%) underwent only surgery, 56 of the cases (44.8%) received binary therapy, ie surgery plus chemotherapy (CT) or surgery plus radiotherapy (RT),

Table 3. The Relationship between Depressive Symptoms Occurrence Rate of Cases and Fertility and Breast Cancer Properties (n=125)

| | BDI<17 | | BDI≥17 | | Total | |
|---|--------|------|--------|------|-------|------|
| | No. | %* | No. | %* | No. | %** |
| Menstruation: ($\chi^2=3.75$, $df=1$, $p=0.059$) | | | | | | |
| Yes | 36 | 56.2 | 28 | 43.8 | 64 | 51.2 |
| No | 24 | 39.3 | 37 | 60.7 | 61 | 48.8 |
| To Have Children: ($\chi^2=0.99$, $df=1$, $p=0.319$) | | | | | | |
| No | 8 | 38.1 | 13 | 61.9 | 21 | 16.8 |
| Yes | 52 | 50.0 | 52 | 50.0 | 104 | 83.2 |
| Curretage in the past: ($\chi^2=0.17$, $df=1$, $p=0.675$) | | | | | | |
| No | 20 | 45.4 | 24 | 54.6 | 44 | 35.2 |
| Yes | 40 | 49.3 | 41 | 50.7 | 81 | 64.8 |
| Stage of Disease: ($\chi^2=8.58$, $df=1$, $p=0.003$) | | | | | | |
| Early | 31 | 64.5 | 17 | 35.5 | 48 | 38.4 |
| Advanced | 29 | 37.6 | 48 | 62.4 | 77 | 61.6 |
| Employment Status of Spouse: ($\chi^2=1.90$, $df=1$, $p=0.168$) | | | | | | |
| Working | 48 | 51.6 | 45 | 48.4 | 93 | 74.4 |
| Non-working | 12 | 37.5 | 20 | 62.5 | 32 | 25.6 |
| Treatment modality: ($\chi^2=21.1$, $df=2$, $p<0.001$) | | | | | | |
| Only Surgery | 32 | 76.2 | 10 | 23.8 | 42 | 33.6 |
| Surgery+CT | 21 | 37.5 | 35 | 62.5 | 56 | 44.8 |
| Surgery+CT+RT | 7 | 25.9 | 20 | 74.1 | 27 | 21.6 |

27 of the cases (21.6%) received triple therapy, ie surgery+chemotherapy+radiotherapy. The relationship between treatment modalities and depressive symptoms in the cases was examined; as the number of therapies increased, the incidence of depressive symptoms found in cases significantly increased ($\chi^2 = 21.1$, $df = 2$, $p < 0.001$). (Table 3)

Examining the status of smoking; 39 of the cases (31.2%) were smokers, while 86 of the cases (68.8%) were not. The relationship between cigarette consumption and depressive symptoms was not statistically significant ($\chi^2=2.06$, $df=1$, $p=0.151$).

Discussion

Breast cancer is the most common type of cancer among women in many of the developed and developing countries and is the leading cause of cancer deaths in women. According to the World Health Organization International Agency for Research on Cancer (IARC) report in 2002; within one year 1.152.000 new cases of breast cancer were evaluated to occur and it was estimated to be 411 000 deaths from breast cancer (Fidaner et al., 2001; Parkin et al., 2005). In 1999 the number of women with breast cancer in Turkey was 8879, in 2003 it rose to 12 772. In addition, in our country the most common cancer type among women is breast cancer. Approximately 19.9% of all cancer cases in women is breast cancer (Tuncer, 2008). In the last five years cases of breast cancer increased in the Hatay province. We think that the most important reasons for this increase are that tendency of cancer to show a general increase all over the world, more systematically kept records, easier access to health care institutions and educations made in the region.

In our study the mean age was found 49.2 and most cases were between 35-44 years of age. The most common type of breast cancer was invasive ductal carcinoma and

34.8% of cases were those who were diagnosed with early-stage disease. In Brazil, a study of 3204 cases with breast cancer was carried out; in the study 80.6% of the cases were found as invasive ductal carcinoma and 4.20% of cases were at in-situ stage. Our findings were similar with the literature (Haydaroglu et al., 2005; Ozkan et al., 2010; Nunes et al., 2011).

In our study the percentage of cases having a first-degree relative with breast cancer was found to be 18.4%. Recent studies have shown that the role of heredity is about 5-10% in breast cancer. Our finding was consistent with the literature (Weber et al., 1996; Ries et al., 2001).

We found that the number of cases who received education about BSE was very low (16 cases-12.8%) and the number of cases who practiced BSE on a regular basis was 69 (55.2%). Thus in our study the relationship between early diagnosis and practicing BSE on a regular basis was not statistically significant. This finding made us think that some of the cases could not practice BSE correctly because in the literature there is evidence that women who correctly practice BSE are more likely to receive early diagnosis (Ertem et al., 2009).

Diagnosis of breast cancer which is a life-threatening disease, has adverse effects on psychological status and well-being of patients from the period of diagnosis. The frequency of depression in cancer patients have been reported as varying rates in a very wide range; such as 4.5% -58.0% (Elbi, 2001).

In our study, we found the mean BDI score as 17.5 ± 10.6 . The presence of depression, ie cases with BDI score of 17 and above were 52% (65 cases) of all cases. 15.2% (19 cases) of our cases were showing severe depressive symptoms. In a study using BDI, Kutlu and colleagues found the frequency of depressive symptoms as 31.4% and the frequency of severe depressive symptoms as 12.7% in cancer patients (Kutlu et al., 2011).

The frequency of depression in cancer patients was found 20.7% by Wilson et al., 20-25% by Valente et al. and 36.0% by Guren et al. (Valente et al., 1997; Guren et al., 2005; Wilson et al., 2007). In their studies, Karakoyun et al. found the frequency of depression in patients with breast cancer as 19% and Vahdanini et al. found 38.4% (Karakoyun et al., 2010; Vahdaninia et al., 2010). Different results may occur in studies about depression such as shown above. In our study, we found slightly higher rates of depressive symptoms compared to other studies. The most important reason for this is that all of our cases are newly diagnosed cancer patients. We also think that the prejudices and fears of society about cancer plays a role.

There was no significant relationship between the person's marital status and depression. In the literature, some studies found a significant relationship between marital status and depression while some others as well as our study did not (Karakoyun et al., 2010; Vahdaninia et al., 2010; Odanye et al., 2011).

In our study there was a significant relationship between age and depression, this finding was consistent with literature (Vahdaninia et al., 2010). In our study, the rate of depression was decreasing with higher education level, Odanye et al. found similar results in their study (Odanye et al., 2011).

We found significantly higher rates of depression in cases who were not working in any job. In their study Ogce et al. similarly found that in cases who do not have any jobs depression was found to be high (Ogce et al., 2007).

In our study depression was found to be significantly lower in individuals who have a regular income. Assessing the status of income, we questioned whether the income is regular or not, instead of the amount of money earned because the amount of income shows differences between regions and countries and that would be difficult to make comparisons. In their study Ogce et al. similarly found lower rates of depression in cases who have better income (Ogce et al., 2007).

When we evaluated the relationship between stage of disease and depression, we found a higher rate of depression in patients with advanced-stage disease. In the literature, similar to our findings, there were studies indicating that there is a higher rate of depression in patients if the stage of disease is advanced (Ogce et al., 2007; Odanye et al., 2011).

If the stage of disease was advanced more radical treatments were determined. Significantly higher rate of depression was seen as the applied treatment procedure increased. The difficulties and physical changes caused by the applied treatment created a tendency to depression in patients. Our finding was consistent with literature (Ogce et al., 2007; Odanye et al., 2011).

The most striking finding in our study was that only 4 of the cases were receiving a psychological help and support. This number is very inadequate for cancer patients in whom very high rates of depression is seen.

The limitation of our study is that we had a small sample size because we wanted all our cases to be newly diagnosed.

In conclusion, in breast cancer which is a major public health problem, early diagnosis prevents radical treatment modalities and provides a better prognosis.

In addition this study has also confirmed that high rates of depressive symptoms are seen in breast cancer patients. Breast cancer patients remain under severe psychological pressure due to treatment procedures and stress caused by the disease. The rate of depression was found high in our study, but the number of cases receiving psychological support was very low. Psychological support is a must for patients with a life threatening disease as cancer.

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