Journal of BUON **15:** 720-725, 2010

ORIGINAL ARTICLE

Anxiety and depression in Turkish breast cancer patients

N.S. Turhal, F. Dane, H. Sinav, N. Yalcin, Z. Khorshidi, Z. Zeynep-Yalcin

Marmara University, School of Medicine, Department of Medical Oncology, Istanbul, Turkey

Summary

Purpose: *We investigated the anxiety and depression rates in breast cancer patients (BCPs) and compared their rates with a group of unemployed women attending courses at a local government agency to increase their chances for employment.*

Methods: *A total 129 BCPs were included [60 were treated and followed up in Marmara University Hospital (PHG), 69 were from a private oncology clinic (POG)] and 101 healthy people (control group; CG) came from a course for the unemployed. All participants completed the Turkish-language version of the Hospital Anxiety and Depression Scale.*

Results: *The mean ages of the BCPs and CG were 52.7±13.1 and 38.9 ±11.9 years, respectively (p=0.001). Compared to the CG, the percentage of housewives was significantly higher in the BCP group (p=0.04). These 2 factors (age and profession) were not independent factors predicting anxiety or depression (p>0.05). The rates of anxiety and depression were 27.9 and 35.7% for BCP, 28.7 and 34.7% for CG, 33.3 and 51.7% for PHG, and 23.2 and 21.7% for POG, respectively. The difference of the rates of depression between the POG and the PHG was significant (p=0.0001).*

Conclusion: *The anxiety and depression rates were not higher in BCPs than in the CG who had a risk factor (such as unemployment) for psychosocial ill health. Being treated and/or followed up in a private office was related to lower depression rates.*

Key words: anxiety, cancer, depression, private office, public hospital, unemployment

Introduction

Breast cancer is the most common type of cancer among women worldwide [1]. Annually, approximately 182,460 American women are diagnosed with breast cancer, and 40,480 die from the disease. The lifetime probability of developing breast cancer is 1 in 8 for invasive disease [2]. Thus, for women, breast cancer remains a common and dreaded experience due to its high mortality rate [1,3-5]. Since women with breast cancer might develop psychological distress during diagnosis, treatment or after treatment, it is also the cancer most studied in terms of psychological and psychosocial aspects [6]. The diagnosis of breast cancer itself or its treatments such as surgery, radiation or systemic treatments are certainly a traumatic experience to women because of the impact on self-image, sexual relationships, and many other aspects of the patient's daily functioning [7]. As a result, most breast cancer patients have negative psychological reactions such as anger, denial, and intense fear about their disease and their treatments [5,8]. The frequency of psychiatric disorders has been found to remain stable in the first year after breast cancer surgery but generally, psychiatric disturbances tend to diminish in the course of time and subsequently only few patients develop psychiatric problems [9]. Among psychiatric disorders, anxiety and depression are the two most commonly encountered psychological morbidities in breast cancer patients [5,8,10,11]. The prevalence of depressive disorders in breast cancer patients can be as high as 46% and that of anxiety can be as high as 49%, depending on the time of evaluation with respect to the time of cancer diagnosis [12]. However, studies have demonstrated that age-matched women with breast cancer and benign breast diseases showed no difference in terms of psychological distress [13]. In addition, at least two recent studies showed that

Correspondence to: Faysal Dane, MD. Marmara University School of Medicine, Department of Internal Medicine, Division of Medical Oncology, Tophanelioglu cd. No:13/15, 346 62 Altunizade Uskudar, Istanbul, Turkey. Tel/Fax: +90 216 327 3373, E-mail: faysaldane2001@yahoo.com

Received 31-12-2009; Accepted 23-01-2010

newly diagnosed breast cancer patients were even less anxious and less depressed as compared to randomly selected women from the general population [14,15]. Thus, although the rate and the severity of anxiety and depression of breast cancer patients have been compared to those of patients with benign breast histologies and to those of a randomly selected normal population, there is no study comparing breast cancer patients' psychological morbidities to those of a population who have a significant social problem not connected with physical health that might cause anxiety and depression.

Unemployment is considered to be one of the essential factors used to describe the economic and social status of a country. A study done by Korzeniewska et al. [16] emphasized that unemployment has considerable influence on health status and it can evoke apathy, fear or frustration and then may lead to more serious disorders such as anxiety and depression. Several other studies have also reported a relationship between unemployment and psychosocial ill health [17-19]. Thus, unemployment is a factor that may cause anxiety and depression in the general population.

In this study, we investigated the anxiety and depression rates in a group of women who were attending a municipal art and professional training course for the unemployed (CG) and compared these rates with those of BCPs who were being treated and followed up either in a public university hospital unit (PHG) or in a private office (POG).

Methods

Between October 2007 and May 2008, 230 subjects participated in our study. Of these, 129 were breast cancer patients from two institutions meeting all eligibility criteria; 60 were patients who were treated and followed up at Marmara University School of Medicine (PHG), and 69 were patients from a private oncology clinic (POG). Our control group comprised 101 people from Uskudar ISMEK course (Istanbul Metropolitan Municipality Art and Professional Training Courses) for the unemployed. Informed consent was obtained from all study participants. The study was approved by Marmara University School of Medicine Ethics Committee.

The study consisted of two questionnaires. All participants completed the Turkish-language version of the Hospital Anxiety and Depression Scale (HADS) (described below). The BCP subgroup completed a questionnaire covering social and demographic features and the delivered breast cancer treatment. The CG completed a second set of questions covering socio-demographic features.

Eligibility criteria for BCPs were the following: having a breast cancer diagnosis, either undergone or undergoing treatment for breast cancer, having no other cancer diagnosis, voluntarily agreeing to complete the study questionnaire, and having no diagnosis of any psychiatric disease. Eligibility criteria for the CG were the following: being unemployed, having no prior cancer diagnosis, having no diagnosis of any psychiatric disease, and voluntarily agreeing to complete the study questionnaire.

Independent variables which were presumed to affect the presence and severity of depression or anxiety status were social and demographical factors such as age, profession, education, marital status, and type of treatment received.

The Hospital Anxiety and Depression Scale (HADS)

The HADS is a self-assessment instrument designed to detect states of anxiety and depression in the setting of a hospital or medical outpatient clinic. The anxiety and depressive subscales also measure the severity of emotional disorders. The instrument comprises 14 questions and uses a 5-point Likert-type scale; the anxiety subscale comprises the 7 odd-numbered questions, and the depressive subscale comprises the even-number questions. Each question is graded individually; questions 1, 3, 5, 6, 8, 10, 11, and 13 demonstrate gradually decreasing severity and are graded as 3,2,1,0. Conversely, questions 2, 4, 7, 9, 12 and 14 are graded as 0, 1, 2 and 3. HADS was suggested formerly by Zigmont and Snaith in 1983 [20] and was proved to be a valid and reliable tool for the evaluation of the patients' anxiety and depression in a hospital setting. The Turkish HADS version has been formally tested for validity and reliability in our country by Aydemir et al. [21] and the cut-off values for the anxiety and depression subscales were found to be 10 and 7, respectively. Accordingly, the subjects having a value above these cut-offs were accepted as under risk.

Statistical analysis

Statistical analysis of the data was done using the SPSS software (Statistical Package for Social Sciences, version 13.0 for Windows, SPSS, Inc., Illinois, USA). Differences between categorical groups were analyzed using the chi-square test. Mean scores for anxiety and depression were compared with independent sample t-test and ANOVA analysis. P-values below 0.05 were accepted as statistically significant.

Results

The study questionnaire was completed by 129 BCPs and 101 controls. Of the 129 BCPs 69 were treated and followed up in a private office and 60 in a public health university hospital. The social and demographical features of the study groups are shown in Table 1. The mean age of the BCPs was 52.7±13.1 years (range 22-80) and of the CG 38.9±11.9 years (range 18-70). The mean age difference between the groups was significant (p=0.001). Similarly, compared to the CG, the percentage of housewives was significantly higher in BCPs (p= 0.04). The CG comprised 95 (94.1%) women and 6 men (5.9%); The BCPs included 123 (97.7%) women and 3 (2.3%) men (p>0.05). Most of the patients and the CG individuals were married at the time of evaluation (68.2% of BCPs vs. 70.3% of the CG). The educational status was not different in the two groups except that 4.7% of the BCPs had not graduated from any school but was literate, whereas all in the control group had graduated from at least primary school.

Comparison between POG and PHG showed no statistically significant difference. The socio-demographic and clinical characteristics that were compared in these 2 groups are shown in Table 2.

The rates of anxiety and depression were 27.9 and 35.7% for the BCPs, 28.7 and 34.7% for the CG, 33.3 and 51.7% for PHG, and 23.2 and 21.7% for POG (Figures 1 and 2). The difference in the rates of depression between the POG and the PHG was significant (p= 0.0001), whereas none of the other subgroup comparisons (POG vs. CG, PHG vs. CG) in terms of anxiety and depression rates were significant (p>0.05). The mean anxiety scores were 7.51±3.59 for the BCPs,

Table 1. Social and demographic features of the breast cancer patients and control subjects

Features	*Breast cancer patients (n=129)*	*Control subjects (n=101)*	*p-value*
Female, n (%)	126 (97.7)	95 (94.1)	> 0.05
Mean age (yrs)	52.7	38.9	< 0.001
Profession, n (%)			0.04
Housewife	83 (64.3)	51 (50.5)	
Retired	22 (17.1)	17 (16.8)	
Other	24 (18.6)	33 (32.7)	
Marital status, n (%)			> 0.05
Married	88 (68.2)	71 (70.3)	
Single/widow	41 (31.8)	30 (29.7)	
Educational status, n (%)			> 0.05
None but literate	6 (4.7)	–	
Primary	47 (36.4)	29 (28.7)	
Secondary	43 (33.3)	39 (38.6)	
University	33 (25.6)	33 (32.7)	

Table 2. Sociodemographic and clinical characteristics of breast cancer patients treated in a private office or a public hospital

Characteristics	*Private office (n=69)*	*Public hospital (n=60)*	*p-value*
Female (%)	97.1	98.3	> 0.05
Mean age (yrs)	54.3	51	> 0.05
Profession (%)			> 0.05
Housewife	60.9	68.3	
Retired	17.4	16.7	
Other	21.7	15	
Marital status (%)			> 0.05
Married	65.2	71.7	
Single/widow	34.8	28.3	
Educational status (%)			> 0.05
Primary	30.4	43.3	
Secondary	33.3	33.3	
University	31.9	18.3	
None	4.3	5	
Time since diagnosis, n (%)			> 0.05
< 1 year	21 (30.4)	24 (40)	
≥ 1 year	48 (69.6)	36 (60)	
Type of breast surgery, n (%)			> 0.05
Lumpectomy	19 (27.5)	13 (21.7)	
Mastectomy	45 (65.2)	40 (66.7)	
No surgery	5 (7.2)	7 (11.7)	
Chemotherapy, n (%)			> 0.05
Yes	53 (76.8)	49 (81.7)	
No	16 (23.2)	11 (18.3)	

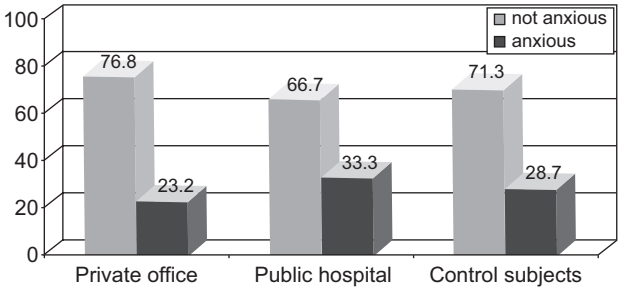

Figure 1. The rates of anxiety for control subjects and breast cancer patients treated in a private office or a public hospital (p>0.05 for POG vs. CG, POG vs. PHG and PHG vs. CG). For abbreviations see text.

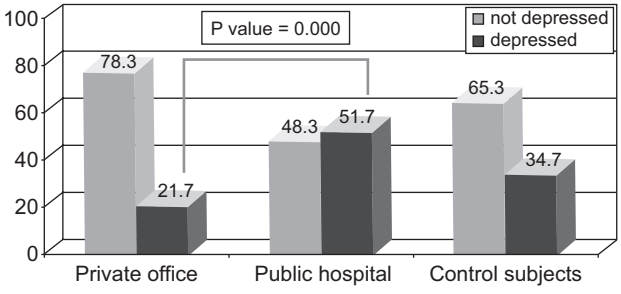

Figure 2. The rates of depression for control subjects and breast cancer patients treated in a private office or a public hospital (p=0.000 for POG vs. PHG, p>0.05 for POG vs. CG and for PHG vs. CG). For abbreviations see text.

Table 3. Impact of analyzed variables on the presence of anxiety and depression in the study population

Variables	*Anxiety*		*Depression*	
	Present (%)	*p-value*	*Present (%)*	*p-value*
Age stratification, yrs				
n (% within strata)		>0.05		>0.05
18-24	6 (33.3)		5 (27.8)	
25-34	13 (38.2)		14 (41.2)	
35-44	12 (23.5)		16 (31.4)	
45-54	20 (32.3)		25 (40.3)	
55-64	7 (20)		11 (31.4)	
65+	7 (23.3)		10 (33.3)	
Profession, n (%)		>0.05		>0.05
Housewife	40 (29.9)		52 (38.8)	
Others	25 (26)		29 (30.2)	
Marital status, n (%)		>0.05		>0.05
Married	41 (25.9)		59 (37.3)	
Single/widow	24 (33.3)		22 (30.6)	
Educational status, n (%)		>0.05		>0.05
Literate/Primary	22 (26.8)		34 (41.5)	
Secondary	26 (31.7)		27 (32.9)	
University	17 (25.8)		20 (30.3)	
Breast cancer status, n (%)		>0.05		>0.05
Cancer (+)	36 (27.9)		46 (35.7)	
Control group	29 (28.7)		35 (34.7)	
Patients treated at, n (%)		>0.05		0.000
Private office	16 (23.2)		15 (21.7)	
Public hospital	20 (33.3)		31 (51.7)	
Time since diagnosis, n (%)		>0.05		>0.05
< 1 year	12 (26.7)		20 (44.4)	
≥ 1 year	24 (28.6)		26 (31)	
Type of breast surgery, n (%)		>0.05		>0.05
Lumpectomy	11 (34.4)		11 (34.4)	
Mastectomy	21 (24.7)		30 (35.3)	
Chemotherapy, n (%)		>0.05		>0.05
Yes	26 (28.3)		35 (38)	
No	10 (27)		11 (29.7)	

7.88±3.10 for the CG, 7.98± 3.67 for the PHG, and 7.10±3.50 for the POG. No statistically significant difference was found between the groups in terms of the mean anxiety scores (p>0.05). The mean depression scores were 5.22±4.20 for the BCG, 5.41±3.38 for the CG, 6.53± 4.76 for the PHG, and 4.08±3.28 for the POG. The mean depression scores were not different between the patient and the control group (p>0.05). Although, the POG had a significantly lower mean depression score than the PHG (p= 0.000), comparison of the POG and the CG for the same parameter showed only a statistical trend with POG having a lower mean score (p=0.07).

The chi-square test was used to compare anxiety and depression with regard to the demographic and clinical characteristics of the study subjects. We could not find any correlation between anxiety and age, profession, marital status, education level, time since diagnosis (<1 year vs. ≥1 year), type of breast surgery (lumpectomy vs. mastectomy), and presence or absence of chemotherapy. The only statistically significant factor that was related to a low depression rate was to have been treated and followed up in the private office (p= 0.000). The results are shown in Table 3.

Discussion

A review of the literature shows several studies looking at psychological distress (anxiety and depression) in breast cancer patients [22]. A recent study done in Greek cancer patients indicated that a significant proportion of cancer patients experience remarkable anxiety and depression prior to chemotherapy, and confirmed the adverse impact of psychological morbidity on patients' quality of life [23]. Among psychiatric morbidities, anxiety and depressive disorders are the two psychological disturbances commonly observed in breast cancer patients [10,11]. The anxiety and depression rates in our BCG were 27.9% and 35.7%, respectively. The prevalence of anxiety in breast cancer patients ranged from 1 to 49% [10], while that of depression ranged from 1.5 to 46% [10,11]. Recently, 2 studies, using scales different than HADS, demonstrated that in Turkish breast cancer patients the anxiety and depression rates were not different from the literature [24,25]. Demographic factors predicting anxiety or depression in breast cancer patients included advanced age, the post-menopausal period, and a previous history of anxiety or depression [10]. In a study done by Taylor et al. [26], some clinical factors such as tumor size, number of metastatic lymph nodes, and histology were found not to predict psychiatric morbidities. In another study, treatments and prognostic factors, comprising number of involved axillary lymph nodes, tumor size, histology, or type of adjuvant treatment were not associated with depression and anxiety [27]. Since our primary aim was to compare the anxiety and depression levels of breast cancer patients and individuals attending the art and professional course, we did not study the impact of pathological prognostic factors on the emotional changes. Nevertheless, this might be a weak point of our study.

In a study carried out by Groenvold et al. [14], breast cancer patients were evaluated for anxiety and depression by using the HADS; the patient group demonstrated less anxiety and depression than the control group. Similar results were reported in another study, done in 2004 [15]. In our study, similar levels of anxiety and depression were documented for breast cancer patients and the control group (p>0.05). However, contrary to the two previous studies comparing breast can-

cer patients' anxiety and depression to that of a normal population, our control group was not selected randomly from a normal population but instead was selected from individuals in a municipal art and professional training course who might be considered to be at a relatively high risk of anxiety and depression due to their current unemployment.

In a research carried out by Pinder et al. [28] the prevalence of psychiatric disorders and associated factors was examined in 139 women with advanced breast cancer. Clinical anxiety was unrelated to any sociodemographic or disease related factors. Clinical depression was significantly more prevalent amongst patients in the lower socioeconomic classes ($p= 0.01$) and those with a poor performance status ($p= 0.007$). In our study, although the mean age of the patients and the percentage of housewives in the BCP group were statistically significantly higher than in the CG, neither the age nor the profession was demonstrated as a risk factor for anxiety and depression. Furthermore, since the main question of the study is whether the anxiety level of cancer patients is any higher in comparison with a group of unemployed women, we believe the age difference alone would not be a significant predictor to explain the presence or absence of anxiety or depression. Therefore, in our study, we could not show any association between sociodemographic factors and anxiety or depression. In a study done in Turkish breast cancer patients, Karakoyun-Celik et al. also could not show significant relation between demographic characteristics and depression or anxiety levels [25].

Our cross-sectional anxiety and depression scores were independent of time since diagnosis of cancer. The majority of studies [14,15,29] evaluating anxiety and depression in breast cancer patients are cross-sectional in design. This is problematic in that it confounds evaluation of the changes in anxiety and depression states before and after the treatment. To get clinically valid results, a longitudinal study design, in which study groups are evaluated at different time points, is ideal. Although such studies are demanding in terms of time and resources, they alone will reveal definite information on the natural course of anxiety and depression occurring as a result of breast cancer and its treatment, thereby allowing the development of efficient protection and intervention programs. There are some longitudinal studies indicating considerably decreasing rates of anxiety and depression over time to even normal population level [25,30-32]. The cross-sectional design of our study does not allow thorough longitudinal investigation of whether anxiety and depression show fluctuations during the months after diagnosis but we could not find evidence of differences in the rates of anxiety and depression scores among women diagnosed with cancer less than a year or more ($p>0.05$).

Our study is unique in that we compared the prevalence of anxiety and depression in breast cancer patients to that of a control group which also should be considered at risk for anxiety and depression. It is also original in that we divided our breast cancer patients into public hospital group and private office group and compared both subgroups to each other and to the control group. We could not find any factor predictive of high anxiety, but we clearly showed that being treated in a private office is the only parameter that is related to low rate of depression.

In conclusion, although the anxiety and depression rates of our breast cancer patients are remarkably high, these rates are not different from that of a normal population who has another stressor (such as unemployment) for developing anxiety and/or depression. Because of the lower depression rates of patients treated in private office, we conclude comfortable conditions and desirable caregiver-patient communication of private office should be provided in public hospitals to decrease psychological morbidities.

Acknowledgement

The authors would like to acknowledge and extend their heartfelt gratitude to Professor Emeritus, Dr. Ray W. Guillery, for his superb comments in terms of linguistic, grammatical, spelling or stylistic points.

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