

Depression and anxiety in women with breast cancer in Erbil city: a case-control study

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Abstract

Background and objectives: Breast cancer has specific challenges for women. This study was carried out to identify the frequency of depression and anxiety in women with breast cancer..

Methods: A hospital based case-control study was carried out in Erbil city from August, 15th to November, 1st 2010. The convenient sample included 100 cases of diagnosed breast cancer for the last three years attending Maternity and Nanakali hospitals and two hundred age-matched (± 5 years) non-cancer women attending the Maternity hospital for gynaecological conditions were taken as a control group.

Results: The mean \pm SD ages of cases and controls were $45.51 \pm 8.87.4$ and 44.57 ± 8.59 years, respectively ($P=0.378$). The proportion of depression among cases (69%) was higher than that among controls (17.5%) ($P<0.001$), and the proportion of anxiety among cases (56%) was higher than that among controls (16%) ($P<0.001$). Multiple logistic regression analysis of risk factors for depression revealed that breast cancer ($OR=10.531$), owned home ($OR=0.463$), and years of formal education ($OR=0.917$) have a statistically significant association with depression. While breast cancer ($OR=8.735$) and parity ($OR=1.167$) have a statistically significant association with anxiety and borderline anxiety.

Conclusion: Increased levels of depression and anxiety after a diagnosis of breast cancer highlight the need for dedicated psychiatric service provision.

Key words: Breast cancer, depression, anxiety.

Introduction

Breast cancer ranks as the fifth cause of death from cancer overall, although still the leading cause of cancer mortality in women (the 411,000 annual deaths represent 14% of female cancer deaths). It has been estimated that 1.5% of the United States female population are survivors of breast cancer.¹ 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 women may face psychiatric co-morbidity with this new life situation.² Reduced the assessment of quality of life especially in the areas of emotional, social, and sexual functioning, was found not only after the initial treatment of cancer therapy (1–2 years) but also after long post-treatment survival (>5 years). Hence needs for specific psycho-oncological interventions are derived, even for the long-term survivors of breast cancer (>5 years after initial treatment) still may have a special need for psycho-oncological support.³ Depression, anxiety, anger and

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denial have been shown as the most important reactions. ⁴ A high rate of post-mastectomy major depression and anxiety has been shown, too. ⁵ Unfortunately, no published data on depression and anxiety among breast cancer patients in Erbil city are available; therefore, this study was carried out to identify the frequency of depression and anxiety in women with breast cancer.

Methods

This hospital based case-control study was carried out on cases of breast cancer attending Maternity (centre of breast cancer screening) and Nanakali hospitals in Erbil city which is the center of Erbil governorate, located in Kurdistan region of Iraq. The study extended from August, 15th through November, 1st 2010. Cases of breast cancer diagnosed (for last three years) by the consultant surgeons were included in the study. Two hundred (200) age-matched (± 5 years) women attending Maternity hospital for gynaecological conditions, who do not have (and without previous history of) cancer, were taken as a control group. Patients not residing in Erbil city were excluded from the study. Verbal informed consent was obtained from all subjects (cases and controls). Data were obtained by a direct interview of both cases and controls using a questionnaire designed by authors. Data requested included: age, marital status, parity, home ownership, monthly income (<300,000, 300,000-600,000, 601,000-900,000, >900,000 Iraqi dinars⁶), years of formal education and occupation. Patient health questionnaire⁷ (PHQ-9) was used to determine depression. This questionnaire scores each of the 9 DSM-IV criteria as "0" (not at all), "1" several days, "2" more than half the days, and "3" nearly every day. Each woman was asked if she had bothered by any of the -9- problems over the last two weeks and then the severity of depression was calculated as follows: 0-4 no depression, 5-9 mild depression, 10-14

moderate depression, 15-19 moderately severe depression, 20 -27 severe depression. Hospital anxiety scale⁸ was used to determine anxiety among all 300 women. This had consisted of seven statements. Each of these statements are scored as "zero" no not at all, "1" no, not much, "2" yes some times, and "3" yes definitely except for item two this scoring is reversed. Anxiety grading can be done as follows: 0-7 non-case, 8-10 equal to borderline case and 11+ is regarded as a case. Statistical package for social sciences (SPSS, version 15.0) was used for data entry and analysis. Chi square test of association, student t-test and multiple logistic regressions were used. The level of significance of the statistical test was ≤ 0.05 .

Results

The sample included 300 subjects (100 cases and 200 controls); the age of patients ranged from 18 to 72 years for cases and 20 to 70 years for controls. The mean \pm SD ages of cases and controls were $45.51 \pm 8.87.4$ and 44.57 ± 8.59 years, respectively. There was no statistically significant difference between the means of age of cases and controls ($P = 0.378$). Table 1 shows that there was statistically significant association between breast cancer with depression ($P < 0.0001$), anxiety ($P < 0.0001$), home ownership ($P = 0.023$) and monthly income ($P = 0.015$). There was statistically significant difference between the means of parity of cases and controls ($P = 0.001$), but there was no statistically significant difference between the means of years of education of cases and controls ($P = 0.922$). The mean \pm SD ages of patients with depression and of those without depression were 44.63 ± 9.67 and 45.02 ± 8.14 years, respectively ($P = 0.708$), while the mean \pm SD ages of patients with anxiety and borderline anxiety and of those without anxiety were 45.09 ± 9.18 and 45.80 ± 8.49 years, respectively ($P = 0.790$).

Multiple logistic regression analysis of risk factors for depression revealed that breast cancer (OR=10.531), owned home (OR=0.463), and years of formal education (OR=0.917) have a statistically significant

association with depression. While breast cancer (OR=8.735) and parity (OR=1.167) have a statistically significant association with anxiety and borderline anxiety. These findings are shown in Tables 2 and 3.

Table 1: Description of the sample.

| Characteristics | Cases (n=100) No. (%) | Controls (n=200) No. (%) | P-value |
|----------------------------|--------------------------|-----------------------------|----------|
| Marital status | | | |
| Married | 95 (95.0) | 197 (98.5) | 0.122 |
| Unmarried | 5 (5.0) | 3 (1.5) | |
| Parity | | | |
| | (n=95) | (n=197) | |
| mean \pm SD | 3.84 \pm 2.56 | 4.81 \pm 2.25 | 0.001 |
| Home ownership | | | |
| Owned | 59 (59.0) | 144 (72.0) | 0.023 |
| Rented | 41 (41.0) | 56 (28.0) | |
| Monthly income (ID) | | | |
| < 300,000 | 8 (8.0) | 10 (5.0) | 0.015 |
| 300,000- 600,000 | 51 (51.0) | 70 (35.0) | |
| 601,000- 900,000 | 19 (19.0) | 66 (33.0) | |
| > 900,000 | 22 (22.0) | 54 (27.0) | |
| Occupation | | | |
| Unemployed | 67 (67.0) | 131 (65.5) | 0.796 |
| Employed | 33 (33.3) | 69 (34.5) | |
| Level of Education | | | |
| mean \pm SD | 6.26 \pm 5.81 | 6.19 \pm 5.22 | 0.922 |
| Depression | | | |
| Depression | 69 (69.0) | 35 (17.5) | < 0.0001 |
| No depression | 31 (31.0) | 165 (82.5) | |
| Anxiety | | | |
| Anxiety | 56 (56.0) | 32 (16.0) | < 0.0001 |
| No anxiety | 44 (44.0) | 168 (84.0) | |

Table 2: Multiple logistic regression of factors for depression

| Factor | β | S.E. | P-value | OR | 95% CI for OR | |
|---------------------------|---------|-------|---------|--------|---------------|--------|
| | | | | | Lower | Upper |
| Age | 0.001 | 0.021 | 0.946 | 1.001 | 0.961 | 1.043 |
| Breast cancer | 2.354 | 0.322 | 0.000 | 10.531 | 5.608 | 19.777 |
| Occupation (employed) | 0.307 | 0.429 | 0.474 | 1.359 | 0.586 | 3.151 |
| Home ownership (owned) | -0.771 | 0.355 | 0.030 | 0.463 | 0.231 | 0.928 |
| Income (<300,000) | -0.819 | 0.803 | 0.308 | 0.441 | 0.091 | 2.128 |
| Income (300,000- 600,000) | 0.077 | 0.467 | 0.870 | 1.080 | 0.432 | 2.698 |
| Income (601,000- 900,000) | 0.556 | 0.457 | 0.224 | 1.743 | 0.712 | 4.267 |
| Parity | -0.139 | 0.077 | 0.074 | 0.871 | 0.748 | 1.013 |
| Years of formal education | -0.087 | 0.042 | 0.041 | 0.917 | 0.844 | 0.996 |
| Constant | -0.253 | 1.011 | 0.802 | 0.777 | | |

β : Regression coefficient SE: Standard error OR: Odds ratio CI: Confidence interval

Table 3: Multiple logistic regression of factors for anxiety and borderline anxiety

| Factor | β | S.E. | P-value | OR | 95% CI for OR | |
|---------------------------|---------|-------|---------|-------|---------------|--------|
| | | | | | Lower | Lower |
| Age | -0.027 | 0.021 | 0.199 | 0.974 | 0.935 | 1.014 |
| Breast cancer | 2.167 | 0.331 | 0.000 | 8.735 | 4.566 | 16.711 |
| Occupation (employed) | -0.869 | 0.468 | 0.063 | 0.420 | 0.168 | 1.050 |
| Home ownership (owned) | 0.156 | 0.356 | 0.662 | 1.169 | 0.581 | 2.350 |
| Income (<300,000) | 0.286 | 0.704 | 0.685 | 1.330 | 0.335 | 5.290 |
| Income (300,000- 600,000) | -0.726 | 0.453 | 0.109 | 0.484 | 0.199 | 1.176 |
| Income (601,000- 900,000) | -0.573 | 0.439 | 0.193 | 0.564 | 0.238 | 1.335 |
| Parity | 0.155 | 0.077 | 0.044 | 1.167 | 1.004 | 1.357 |
| Years of formal education | 0.013 | 0.041 | 0.760 | 1.013 | 0.934 | 1.097 |
| Constant | -0.750 | 0.970 | 0.440 | 0.473 | | |

Discussion

Breast cancer is the cancer most studied in terms of psychosocial effects, and not surprisingly, many studies of the prevalence of depression in cancer are studies of women with breast cancer 46%.⁹ Bukberg *et al*¹⁰ reported that roughly 25% of cancer patients report severe depressive symptoms, with the prevalence increasing in those with advanced illness to 77%, where a helpless attitude towards the disease is related to a poor prognosis¹¹, and this agrees with the current study that showed the proportion of depression among breast cancers was 69%. Pinder *et al*¹² found an increased level of depression in those with lowest socioeconomic status in breast cancer patients. Numerous studies have found psychiatric morbidity such as depression and anxiety in breast cancer patients^{4,5} and in an Iranian study on breast cancer patients; it is found that severe symptom of anxiety was the most frequent symptom¹³, and this is consistent with our results that showed high proportion of anxiety among breast cancer patients than controls, and also there is high proportion of depression among breast cancer patients than controls. Ellman *et al* reported significantly fewer symptoms of anxiety and depression among the long term survivors of breast cancer patients than controls.¹⁴ Logistic regression analysis of this study revealed that the association between breast cancers with depression was higher than the association between breast cancer with anxiety and borderline anxiety. The result of this study revealed that there is negative relationship between anxiety and age, and this is consistent with a study done in Shiraz, Iran.¹⁵ 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^{5,18} and anxiety^{19,20}. Burgess *et al* revealed that psychological interventions that take account of the broader social context in which cancer occurs, including interventions to improve social support may limit chronic depression and/or anxiety.²¹ The non-significant association between years of formal education with anxiety could be attributed to the fact that nearly two-thirds of patients were housewife and not employed.

In conclusion, increased levels of depression and anxiety after a diagnosis of breast cancer highlight the need for dedicated psychiatric service provision. Psychological interventions for women with breast cancer should take account of the broader social context in which the cancer occurs, with a focus on improving social support.

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