PREVALENCE OF MAJOR DEPRESSION IN PATIENTS WITH BREAST CANCER

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Clinical application: To screen patients with breast cancer without previous depression diagnosis in a proper way, avoiding the classification of subsyndromal depressive symptoms or moderate depressive disorders such as major depression.

ABSTRACT:

Introduction: breast cancer is one of the main causes of death among women in Brazil and worldwide. The diagnosis of breast neoplasms usually represents an emotional burden, and it may lead to adjustment reactions and even be the trigger for affective disorders (mainly depression), anxiety or psychosis. The Beck Depression Inventory (BDI) is one of the most used mechanisms for the evaluation of depression in research and in clinics. Depression prevalence in patients with cancer varies from 3% to 55% among different studies. Methodological variation, different instruments to assess depression and different cut-off points for diagnosis contribute to the huge discrepancy in current findings. In general, the more specifically depression is defined and evaluated, the lower the rates of prevalence are reported. Many articles fail to demonstrate a statistical significance in the relationship between depression and cancer-specific factors. This suggests that risk factors for depression in those patients are more related to the patient – as contextual variables and premorbid factors of personality – and not to the cancer or its treatment. **Objective:** to determine the prevalence of major depression in women with breast cancer. **Methods:** a cross-sectional study was conducted in women with breast cancer. The sample consisted of 51 patients who answered the Beck Depression Inventory (BDI). The presence of depression was considered in cases where the scores were above 20. A questionnaire with additional data about the patients such as age, marital status, ethnicity, education, family income, family history of depression and breast cancer, and cancer-related variables including staging, months since diagnosis, treatment modality, type of surgery, alopecia occurring were used. Descriptive analysis and test of association (chi-square) were conducted. **Results:** the prevalence of major depression was 5.9%, similar to that observed in community samples. Subsyndromal depressive symptoms had a score of 21.6% (BDI scores from 16 to 20). Chi-square test was conducted and showed no statistically significant relationship between the classification of BDI and the variables tested (characteristics related to patient and cancer-specific). This indicates that the isolated context of the variables does not influence the event of depression. **Conclusion:** the prevalence of major depression in women with breast neoplasms was 5.9%.

Key words: breast cancer, breast neoplasms, prevalence, cross-sectional studies, major depression, mood disorders.

INTRODUCTION

Breast cancer is the second most common type of cancer in the world population and more common among women, being one of the leading causes of death among them worldwide.[1–3]. About 520,000 deaths from the disease has been estimated for the year 2012. In Brazil, in 2010, the number of deaths due to this cancer was 12,852 (12,705 females and 147 males)[2] and these mortality rates remain high in the country because the disease is still diagnosed in advanced stages.[3]

Cancer places specific demands on individuals, with substantial stressors both at diagnosis and during treatment.[4] Mammary neoplasms make demands on women's physical and psychological aspects,[5] and within the analysis of the patients' surgical and adjuvant treatment the impact on their mental health should be emphasized[6].

Cancer diagnosis is usually an emotional overload which can trigger reactions and emotional adjustment or even be the trigger for affective disorders (especially depression), anxiety or even

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psychosis.[7] However, it is important to highlight that not every change in mood can be considered as depression. Often the patient only has mild emotional lability or mood changes.

Of all the mood complications linked to cancer, depression has been the most widely investigated, but despite many years of research, the prevalence of depression in cancer patients is still a matter of much debate.[8]

The prevalence of depression in patients with cancer has varied widely in different studies. An extensive review study, conducted by Spiegel, reported variations in rates between 4.5% to 50.9%. Other studies have shown 'a variation of between 3% to 55% of cases of depression in breast cancer[10-12]. These studies generally encompass all depressive disorders and not just major depression.[5,13,14] A lack of standardization, especially with regards to methods of assessment, questionnaire scores to measure depression and diagnostic criteria contribute to the large discrepancy between the values. In general, the more specifically the term 'depression' is defined and evaluated, the lower the prevalence rates reported, including a meta-analysis published in 2011 in *The Lancet*, in which the authors identified an association between low prevalence of depression and high-quality studies published recently.[8]

Although much is talked of the association between breast cancer and depression, several studies have failed to show statistical significance between depression and cancer-related variables. Risk factors for depression appear to be more related to the patient rather than to the cancer itself or its treatment.[6,12,15–21] The hypothesis tested in this study is the prevalence of major depression in patients with breast cancer is similar to the community samples of around 5%.[7,22–24] A patient's psychosocial factors, particularly their social and premorbid characteristics and inherent personality, are most often associated with depression in breast cancer.

Thus, the objective of this study was to determine the prevalence of major depression in women with breast cancer.

METHODS

A cross-sectional study of prevalence in Cariri Oncology Center, located in Barbalha – CE, in north-eastern Brazil was conducted.

The total sample consisted of 51 women. The calculation for determining the size of this sample considered the prevalence of major depressive disorders as 5% (prevalence in adult women in the general population[7.22–24]) absolute precision of 6% and a significance level of 5%.

Inclusion criteria were: patients had to be older than 18, diagnosed with breast cancer and were receiving anticancer treatment, and had signed an informed consent form.

Overall, 59 women were screened for the study, of whom 51 were enrolled in the study. Eight were excluded (3 because they were not undergoing treatment and 5 because they refused to participate in the research).

The occurrence of depression was detected through the Beck Depression Inventory (BDI). Statistical analysis was performed using the chi-square (c^2). A questionnaire was also used with the following additional data: age, demographic and socio and economic data (marital status, ethnicity, education, family income), family history of depression, family history of breast cancer, time since diagnosis (in months), tumour staging, treatment performed, type of surgery (mastectomy or conservative surgery) and the occurrence of alopecia.

The BDI is probably the most used measure of self-assessment for depression both in research and in clinics[25]. Several findings corroborate its validity in clinical and non-clinical populations. It has been translated into several languages , including into Portuguese.[26] It consists of a questionnaire containing 21 items, which include symptoms and attitudes, with an intensity ranging from 0 to 3 at a high gradation. A score of 0 represents the absence of symptoms or assessed attitude. A score of 3 equals the presence of symptoms or more serious attitudes.[27,28] The 21 items assessed refer to sadness, pessimism, sense of failure, lack of satisfaction, guilt, sense of punishment, self-deprecation, self-accusation, suicidal ideas, crying spells, irritability, social withdrawal, indecisiveness, distortion of body image, work inhibition, sleep disturbance, fatigue, loss of appetite, weight loss, somatic preoccupation and decreased libido.

There are several proposed cut-off points to distinguish levels of depression using the BDI. The Center of Cognitive Therapy recommends the following cut-off points for samples of patients with affective disorder: <10 = no or minimal depression; 10–18 = mild to moderate depression; 19–29 = moderate to severe depression; 30–63 = grave depression.[29] Different guidelines recommend, for samples not diagnosed, that scores above 15 detect 'dysphoria' (defined by the authors as a 'non-specific negative affectivity'). They concluded that, because it refers to more severe cases, the term 'depression' should only be used for individuals with scores above 20.[28,30] In updating these designations, dysphoria was classified in our study as subsyndromal depressive symptoms (SDS) and severe or grave depression were changed to major depression.

The standard cut-off points for this study were < 15 = no depression, 16–20 = subsyndromal depressive symptoms, > 20 = major depression.

RESULTS

Among the 51 women with breast cancer, the prevalence of major depression was 5.9% (Table 1). Only three patients had a BDI score of > 20. This prevalence rate was therefore similar to that found in the general female population.

Of the patients, 21.6% had subsyndromal depressive symptoms and 72.5% (Table 1) were classified, according to BDI, as having no change (score < 15).

Table 1: Distribution of 51 women with breast cancer, classified according to the Beck Depression Inventory. Barbalha-CE, Brazil, in 2014

BDI Score	N	%
No alteration	37	72,5
SDS	11	21,6
Depression	3	5,9
Total	51	100

Abbreviations: BDI, Beck's Depression Inventory; SDS, Subsyndromal Depressive Symptoms.

Table 2 shows general data related to the 51 patients studied. An average age of 58.5 ± 14.2 years old was verified, with values between 26 (minimum age) and 86 (maximum age), 70.6% of them were between the ages of 40 and 69 years. Of those surveyed, 58.8% were married and 64.7% were white (ethnic categorization followed the classification of the Brazilian Institute of Geography and Statistics, which considers skin colour). With regards to education, 82.4% had not completed high school and only 9.8% had a college degree. With respect to family income (based on the Brazilian minimum wage which corresponds to US\$ 289.58 per month), 86.3% had an income of up to US\$ 579.17 per month. A total of 9.8% patients had a family history of breast cancer and 13.7% had a family history of depression.

Table 2: Characteristics related to 51 women with breast cancer, distributed according to the classification of the Beck Depression Inventory (BDI), then c^2 test. Barbalha-CE, Brazil, in 2014

Variables	Total (%)	No alteration N	%	SDS N	%	Depression N	%	χ^2 χ^2	P
Age (in years)									
< 40	5 (9,8)	3	8,1	1	9,1	1	33,3	*2,918*	*0,232*
40 to 59	18 (35,3)	17	46,0	1	9,1	0	-		
60 to 69	18 (35,3)	12	32,4	4	36,4	2	66,7		
> 70	10 (19,6)	5	13,5	5	45,4	0	-		
Total	51 (100)	37	100	11	100	3	100		
Marital Status									
Married	30 (58,8)	22	59,5	5	45,4	3	100	*3,399*	*0,493*
Widow	11 (21,6)	7	18,9	4	36,4	0	-		
Single	8 (15,7)	6	16,2	2	18,2	0	-		
Divorced	2 (3,9)	2	5,4	0	-	0	-		
Total									
Ethnicity	51 (100)	37	100	11	100	3	100		
White	33 (64,7)	26	70,3	5	45,4	2	66,7	*4,363*	*0,628*
Brown	11 (21,6)	7	18,9	3	27,3	1	33,3		
Black	7 (13,7)	4	10,8	3	27,3	0	-		
Total	51 (100)	37	100	11	100	3	100		
Education									
< High School	42 (82,4%)	30	81,1	10	90,9	2	66,7	*2,098*	*0,350*
Completed High School	4 (7,8%)	3	8,1	0	-	1	33,3		
College Graduate	5 (9,8%)	4	10,8	1	9,1	0	-		
Total	51 (100%)	37	100	11	100	3	100		
Family Monthly Income (US$)									
< 289,58	23 (45,1%)	18	48,7	5	45,5	0	-	*2,098*	*0,911*
> 289,58 and < 579,17	21 (41,2%)	13	35,1	5	45,5	3	100		
> 579,17	7 (13,7%)	6	16,2	1	9	0	-		
Total	51 (100%)	37	100	11	100	3	100		
Family History of depression									
No	44	31	83,8	11	100	2	66,7	*12,159*	*0,059*
Yes	7	6	16,2	0	-	1	33,3		
Total	51	37	100	11	100	3	100		
Family History of Breast Cancer									
No	46	32	86,5	11	100	3	100	*11,593*	*0,313*
Yes	5	5	13,5	0	-	0	-		
Total	51	37	100	11	100	3	100		

Abbreviations: SDS, Subsyndromal Depressive Symptoms; US$, American Dollars.

Table 3: Characteristics related to breast cancer and its treatment in 51 women, distributed according to the classification of the Beck Depression Inventory (BDI), then χ^2 test. Barbalha-CE, Brazil, in 2014

		No alteration		SDS		Depression		χ^2	
Variables	Total (%)	N	%	N	%	N	%	χ^2	P
Time of diagnosis (in months)									
< 12	20 (39,2)	16	43,2	2	18,2	2	66,7	0,788	0,674
From 12 to 36	16 (31,4)	10	27,1	5	45,4	1	33,3		
> 36	15 (29,4)	11	29,7	4	36,4	0	-		
Total	51 (100)	37	100	11	100	3	100		
Staging									
IIA	21 (41,2)	15	40,5	5	45,4	1	33,3	7,622	0,471
IIB	8 (15,7)	7	19,0	1	9,1	0	-		
IIIA	7 (13,7)	4	10,8	2	18,2	1	33,3		
IIIB	14 (27,4)	11	29,7	2	18,2	1	33,3		
IV	1 (2,0)	0	-	1	9,1	0	-		
Total	51 (100)	37	100	11	100	3	100*		
Type of treatment									
CIR+ QT	19 (37,3)	11	29,7	6	54,5	2	66,7	6,436	0,598
CIR+ QT+ RT	18 (35,3)	14	37,9	4	36,4	0	-		
CIR+QT+RT+HT	6 (11,8)	5	13,5	0	-	1	33,3		
CIR+QT+QT	4 (7,8)	4	10,8	0	-	0	-		
QT only	4 (7,8)	3	8,1	1	9,1	0	-		
Total	51 (100)	37	100	11	100	3	100		
Type of surgery									
Mastectomy	30	22	59,5	6	54,5	2	66,7	0,368	0,985
Quadrantectomy	17	12	32,4	4	36,4	1	33,3		
No surgery	4	3	8,1	1	9,1	0	-		
Total	51	37	100	11	100	3	100		
Occurrence of alopecia									
Yes	38	28	75,7	7	63,6	3	100	3,116	0,211
No	13	9	24,3	4	36,4	0	-		
Total	51	37	100	11	100	3	100		

Abbreviations: SDS, Subsyndromal Depressive Symptoms; CIR, Surgery; QT, Chemotherapy; RT, Radiotherapy; HT, Hormonetherapy. * The total was approximately 100.

Data related to breast cancer showed that 39.2% of patients had been diagnosed within the last 12 months, 70.6% were in a period of 36 months since their cancer diagnosis; 41.2% were at tumour stage IIA. Regarding the type of treatment, 92.1% had surgery, with 58.8% having undergone mastectomy; 37.3% of patients were treated with surgery and chemotherapy, and 35.3% had surgery combined with chemotherapy and radiotherapy. had Alopecia, resulting from the use of chemotherapy, affected 74.5%

From the application of the chi-square test, there were no statistically significant differences (p < 0.05) in the classification of the BDI due to the variables tested, as shown in tables 2 and 3. This occurred both in characteristics related to the patients themselves (age, marital status, ethnicity, education, family income, family history of depression, family history of breast cancer) and those related to breast cancer and its treatment (time since diagnosis, tumour stage, type of treatment, type of surgery and alopecia), indicating that the isolated context of the variables does not influence the event of depression. The only variable that showed a trend towards statistical significance (p = 0.059) was a family history of depression.

DISCUSSION

The prevalence of major depression among women with breast cancer found in this study was similar to rates reported in studies of women in the general population geral.[7,22–24]

Most of the patients studied showed no significant changes in mood, according to the classification from the scores of the Beck Depression Inventory (BDI). Although the diagnosis of breast cancer impacts on several areas of the patient's life, triggering mood swings, it was noticed that some women expressed subsyndromal depressive symptoms, but the vast majority did not have major depression (clinically significant depressive symptoms).

The diagnosis of cancer is an emotional overload; however, the onset of depression appears to be more related to the inherent characteristics of the patient (patient's personality and comorbidities pre-cancer) than to the characteristics related to cancer and its treatment.[6,12,15,16]

The variables studied in this article were selected from what the literature refers to as factors related to breast cancer and major depression. The results found support for the initial hypothesis,

which admitted that the prevalence of major depression among women with breast cancer is similar to point prevalence found in community samples.

As in other studies, there was no statistically significant association of cancer-specific variables with depression,[12,15–19,21] indicating that these variables alone did not have an influence on depression. The only variable with a trend toward statistical significance was a family history of depression (p = 0.059) and it is known that major depressive disorder is 1.5 to 3 times more common among first-degree biological relatives of people with this disorder than among the general population.[7]

Breast cancer is an unpleasant event that can bring traumatic experiences to the patient, such as fear of death, altered self-image, uncertainty as to treatment and prognosis. After receiving the diagnosis, many women face personal conflicts, some have difficulty in accepting the disease, seem afraid of suffering social discrimination or even discrimination within the family, in addition to facing feelings of mutilation resulting from complete or partial removal of the breast, the part of the body directly connected to the representation of her femininity. All these changes from the occurrence of cancer can be reflected as disturbances in mood, self-esteem and sexuality .

It is important to note, however, that all these changes caused by breast cancer in the context of the biopsychosocial woman do not necessarily lead to the onset of major depression – the patient may manifest milder affective disorders, adjustment reactions or subsyndromal depressive symptoms. It is assumed that functional, everyday stress and other disorders unrelated to cancer cause major influence on the patient's psychological function, due to factors inherent in the premorbid personality.[16] Contextual variables, rather than risk factors directly related to cancer, appear to be predictive factors for the onset of depression in breast cancer patients[12,15–17], among which stand out the structure of personality and problem-coping ability.[6]

The majority of our sample consisted of women older than 49 years old, white, married, of low education, low income, no family history of breast cancer and / or depression. With respect to breast cancer, most of them were within 36 months of diagnosis, had advanced staging, had surgery associated with other treatment modalities (chemotherapy, radiotherapy and / or hormone therapy), underwent total removal of the breast (mastectomy) and also had alopecia due to chemotherapy.

After applying the chi-square test, it was found that age, marital status, and socio-economic status of patients (education and income) were not related to the depression event, nor to family history of breast cancer and depression.

It has been found that a shorter time since the diagnosis of cancer, the severity of the disease (late stages), the type of treatment (surgery, chemotherapy, radiation therapy and / or hormone therapy), as well as the type of surgery (removal or preservation of the breast) showed no correlation with major depression. This was also the case with respect to alopecia.

There is no consensus in the literature regarding the findings of association of variables related to cancer with depressive disorders. Some data suggest that the onset of mood disorders may vary according to the stage of cancer treatment,[20,31] staging[32] or type of treatment[33,34] while others found no cancer-specific influence.[12,15,16]

Breast cancer and depression are public health problems. When a community or population has a problem. the first step is to ask the question, what is the problem then to decide what works and decide on an intervention or a program[35]. Prevalence studies help in this first step it is important for public health decisions.

As can be seen in Table 1, it was considered that women with high scores (above 20) in BDI have major depression (clinically significant depressive symptoms). However, because it is a cross-sectional study, data regarding causality could not be determined.

The literature presents studies with very disparate prevalence rates of depression among breast cancer patients.[5,8–10,13,14] However, these studies refer not only to depression, but include all types of depressive disorders. Major depression should not be confused with a simple sense of sadness, with transient changes in mood or mild depressive symptoms – to do so risks overestimating its prevalence; it is critical to assess patients carefully for the presence of depressive symptoms.

Thus, the more specifically the term depression is defined and evaluated, the lower the prevalence rates found in the literature, including the association between depression and 'the low prevalence of currently published high-quality scientific studies[8].

In summary, the prevalence of major depression in women with breast cancer was 5.9%.

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RESUMO:

Introdução: o câncer de mama é uma das principais causas de morte entre as mulheres no Brasil e no mundo. O diagnóstico de neoplasia mamária geralmente representa uma sobrecarga emocional, podendo desencadear reações de ajustamento ou mesmo ser gatilho de quadros afetivos (principalmente depressão), ansiedade ou até mesmo psicoses. O Inventário de Depressão de Beck (IDB) é um dos instrumentos mais usados para avaliação de depressão, tanto em pesquisa quanto em clínica. A prevalência de depressão em pacientes com câncer tem variado bastante em diferentes trabalhos, de 3 a 55%. A falta de padronização, especialmente no que diz respeito aos métodos de avaliação, escore/ponto de corte, tipo de entrevista e critérios para diagnóstico contribuem para a grande discrepância nos achados desses estudos. No geral, quanto mais especificamente o termo depressão é definido e avaliado, menores índices de prevalência são reportados. Vários trabalhos falharam em mostrar significância estatística entre depressão e variáveis relacionadas ao câncer, sugerindo que os fatores de risco para depressão parecem estar mais relacionados à própria paciente, como variáveis contextuais e fatores pré-mórbidos inerentes à sua personalidade, do que ao câncer em si ou ao seu tratamento. **Objetivo**: determinar a prevalência de depressão maior em mulheres com câncer de mama. **Método**: foi realizado um estudo transversal de prevalência em mulheres com câncer de mama. A amostra foi constituída por 51 pacientes que responderam o Inventário de Depressão de Beck (IDB). Considerou-se como presença de depressão os escores maiores do que 20. Foi aplicado também um questionário contendo dados complementares referentes às pacientes (idade, estado civil, etnia, escolaridade, renda familiar mensal, história familiar de depressão e de câncer de mama) e ao câncer (tempo de diagnóstico, estadiamento, tipo de tratamento, ocorrência de alopécia). Foi realizada análise descritiva e teste de associação (qui-quadrado). **Resultados**: a prevalência de depressão maior encontrada foi de 5,9%, semelhante à observada na população feminina não portadora de câncer de mama. 21,6% apresentaram sintomas depressivos subsindrômicos (escores do IDB de 16 a 20). A partir do teste de qui-quadrado, não foram observadas diferenças estatisticamente significativas ($p < 0,05$) na classificação do IDB em função das variáveis testadas (características referentes às pacientes e ao câncer em si), indicando que o contexto isolado das variáveis não exerce influência sobre o evento depressão. **Conclusão:** mulheres com câncer de mama apresentaram prevalência de depressão maior de 5,9%.

Palavras-chave: câncer de mama, neoplasia de mama, prevalência, estudos transversais, depressão maior, transtorno de humor.