

Depression Among
Postoperative Breast
Cancer Patients
Case Study Khartoum
Teaching Hospital

Batoul M. M. El hilo
Assistant Professor of
Psychology
King Saud university,
Faculty of Education
Department of Psychology

Abstract

The present study was an attempt to look into the prevalence of depression among postoperative breast cancer patients referred to Khartoum Teaching Hospital. Medical records of 545 patients referred with the diagnosis of cancer and underwent Mastectomy in the period of May-July 2002 to the Oncology and Radiotherapy Clinics in Khartoum Teaching Hospital were retrospectively reviewed. Eighty-nine (16.33%) postoperative breast cancer patients were identified, quoted, interviewed, and completed the Beck Depression Inventory (BDI), mean age 52.5 years (range, 19-85). High scores on BDI were 56.18%. Depression among rural subjects was significantly higher than among the subjects from urban areas. No significant differences between subjects regarding localization of cancer, occupation and marital status were confirmed. A clear association between subjects' score on BDI and geographical area was significantly negative at the 0.01 level (2-tailed), and with occupation was significantly positive at 0.05 level (2-tailed). Marital status and localization of breast cancer were clearly not associated with the subjects' scores on BDI.

الملخص

الدراسة الحالية هي محاولة للتعرف على مدى انتشار الإكتئاب لدى عينة من مريضات سرطان الثدي الآتي أجريت لهن عملية استئصال للثدي المصاب. استخدمت طريقة الكوتا لاختيار ٨٩ (١٦,٣٣%) حالة من بين ٥٤٥ حالة سرطان محولة الى قسمي الأورام والذرة بمستشفى الخرطوم التعليمي في الفترة من مايو-يونيو ٢٠٠٢م. استخدمت المقابلة لجمع المعلومات عن افراد العينة وقياس انتشار الاكتئاب بين افراد العينة استخدم مقياس بيك للاكتئاب (BDI) وكان متوسط اعمار العينة ٥٢,٥ سنة والمدى ١٩-٨٥ سنة.

اسفرت النتائج عن وجود الاكتئاب بين افراد العينة بنسبة (٥٦,١٨%). وأن هناك دلالة احصائية لارتفاع نسبة الاكتئاب لدى مريضات سرطان الثدي في المناطق الريفية ($p=0.027$) مقارنة بانتشاره لدى رصيفاتهن في المدن. ولم تثبت النتائج أي فروق بين افراد العينة بالنسبة لمتغير موضع السرطان في الثدي او العمل أو الحالة الاجتماعية. واثبتت النتائج بان هناك ارتباط سلبي واضح ذو دلالة احصائية عند مستوى (٠,٠١) بين درجات افراد العينة على مقياس بيك للاكتئاب وبين متغير المنطقة، كما وجد أيضاً بان هناك ارتباط موجب ذو دلالة احصائية في مستوى (٠,٠٥) ولم يوجد اي ارتباط بين متغيري الحالة الاجتماعية أو موضع السرطان ودرجات افراد العينة على مقياس بيك للاكتئاب.

Introduction

Breast cancer is a type of cancer. In women the number one cause of cancer deaths is lung cancer, and breast cancer is number two (International Cancer Information Center's World Wide Web server). It is the most frequent malignancy among women in Western countries, and the disease still continues to show a steady increase (Cancer Information Center's World Wide Web). Rates in most parts of Asia, South America, and Africa have been only about one fifth as high as that of the United States Lyon; (1987). Aragona and Mesiti (1997) suggested an involvement of depression in the natural history of breast cancer. Massie (1989), identified diagnostic criteria for an adjustment disorder among cancer patients, and concluded that "the adjustment disorders are the most commonly diagnosed mental disorder in the oncology setting". To date, there is no national registry of the breast cancer in Sudan. Cancer treatment are provided only in Khartoum Teaching Hospital, where the main specialized Oncology and Radiotherapy Clinics are located to which most of the cancer cases- if not all -are referred from all areas in Sudan.

People who face positively diagnosed cancer will experience different levels of stress and emotional upset (e.g. Fear of death, interruption of life plans, changes in body image and self-esteem, changes in the social role and lifestyle) (Cancer Information Center's World Wide Web).

The relationship between physical and psychological health is very difficult to confirm. However, the relationship between breast cancer and depression has received particular attention by Montazeri et al., (2000) Akechi et al., (2000) Wellisch et al., (1999) Bottomeiy (1998) Carroll et al., (1993) Maraste et al., (1992) and Holland (1987).

In Sudan, studies related to the psychological adjustment among cancer patients were inadequate.

Cancer and its treatment can affect a woman's body image in many ways. Surgery can cause changes in physical appearance and scarring. Other treatment can cause weight loss or weight gain, fatigue, nausea, hair loss and skin changes, which can change how a woman looks and feels. The implications of all this may vary from one woman to another based on the level of awareness and ability to cope with changes. Some women may lack the information that when a woman has her breast removed, she can have surgery to reconstruct the breast or wear prosthesis (artificial or fake breast) and if she is treated with chemotherapy and lost her hair, she can wear a wig that helps her look and feel better. Other can find it hard to be upbeat, or cope with the postoperative outcomes so they feel bad and depressed. As Richard et al., (1991) mention cancer is listed among nine medical causes of depression.

Depression is secondary to medical causes, and the prevalence of major depression goes up dramatically in patients with medical illness (Table, 1). Peter and Aliza (1997) state that the rate of depression is even higher in patients with selected chronic illness; they found that 42% of inpatients with cancer were having depression. In assessing depression rates in people with co-existing medical illness it was found that cancer patients scored "between" 14-19 (adapted from Goldberg RJ, 1993). Among the medical causes of depression in cancer patients are: the uncontrolled pain; abnormal levels of calcium, sodium, or potassium in the blood; anemia; Vitamin B12 or folate deficiency; fever, and abnormal levels of thyroid hormone or steroids in the blood (info@ipos-aspboa.org).

Because, the diagnosis of depression can be difficult to make in people with cancer due to the difficulty of separating the symptoms of depression from the side effects of treatment or the symptoms of cancer the present paper is an attempt to investigate degrees of depression among patients with breast cancer after the operation using "Beck's Depression Inventory (BDI)".

It is important to mention here that the prevalence of depression in the present study was defined as the patients' scores on Beck Depression Inventory (BDI)

Table (1) Prevalence of Depression in Selected Medical Disorders

1	Cushing's syndrome	67%
2	Epilepsy	55%
3	Cancer patients	42%
4	Parkinson's disease	40%
5	Diabetes mellitus	33%
6	Huntington's disease	32%-41%
7	Pain (chronic)	32%
8	Stroke	30-50%
9	End stage renal disease	30%
10	Dementia	27%-60%
11	Gynecologic	23%
12	Gastrointestinal	20%
13	Coronary artery disease	18%-26%

Adapted from Goldberg RL, (1995).

Objectives

The primary objective of the present study was set to look into the prevalence of depression among postoperative breast cancer patients with relation to their geographical areas, localization of cancer on the breast, occupation, and marital status.

Materials and Methods

The population from which subjects for the present study was selected comprises all refereed positively diagnosed cancer patients to the Oncology and Radiotherapy clinics in Khartoum Teaching Hospital in Sudan.

Using a quota sampling procedure (dimensional sampling), 89 postoperative breast cancer patients were selected from the 545 refereed cancer patients during May-July 2002 to the Oncology and Radiotherapy clinics in Khartoum Teaching Hospital. Subjects were quoted, because the quota sampling procedures always gives the opportunity to find subjects who fulfill quite precise specifications. All subjects were fully informed of the aim, the methods of the study, and consents were obtained.

Instruments:

(1) Structured interview:

It was developed for the purpose of the present study. The exact wording of each question was selected beforehand and each subject was asked the same question in the same order. Questions include: Demographic questions: to elicit description of patients such as their: age, geographical areas, localization of breast cancer, occupation, and marital status, and Question about physical and psychological problems: to elicit description of patients such as having symptoms of lack of sleep, hot flushes, loss of pleasure, hopelessness, loss of sexual interest, loss of appetite, worthlessness, sadness, wish of death, anxiety, and expectations of actual period of recovery.

Questions about the type of medicines prescribed for them: to record the type of medicine prescribed for them after the operation, and type of treatment (chemotherapy/ radiotherapy)

(2) Beck depression Inventory (BDI):

It is used because it is useful to screen for depression and it is the most widely used self-rated scales. It is a useful tool for screening cancer patients with depressive symptoms (Kathol et al., 1990) It is a short, simple, self-report questionnaire that focuses, in part, on the cognitive distortions that underlie depression (Beck & Steer, 1989) It has been extensively validated against external criteria of depression (Bumberry et al., 1978; Reynolds & Gould, 1981). According to Stehouwer (1987) "The BDI is probably unbeatable as an index of the presence and degree of depression" It contains 21 groups of statements. The subject should pick out one statement in each group that best describes the way she has been feeling during the past week including the day of the interview. The respondent receives a score of 0 to 3 for each item; the total raw score is the sum of the endorsements for the 21 items. A score ≥ 17 indicated a serious depressive condition, which should be evaluated further. BDI internal consistency in Western countries ranged between 0,70 to 0,90, and in Arab countries between 0,68 to 0,90 (Gareeb, 1999).

It is worth-mentioning here that the BDI translated Arabic version by Gareeb (1999) was used. Various modifications were made to suit the objective of the present study. It was tested among a group of cancer patients to insure its validity and consistency. With internal validity using Alpha the value was $=.89$, ($N = 61$), and with the split half method the value was -0.90 .

Results

Demographics of postoperative breast cancer subjects

Table (2) represents overall postoperative breast cancer subjects' geographical areas, localization of breast

cancer, occupation and marital status. Mean age was 52.5 years (range, 19-85), average monthly income 260 Sudanese Denars (US\$100). Of the 89 subjects, 33.71% referred from Northern States, 23.60% from Western States, 6.74% from Eastern States, 25.84% from Khartoum State, and 10.11% from Southern States. All subjects were treated with chemotherapy, postoperative medicine (Tamoxifen), and 5.68% with prescribed antidepressant. Table (8) shows the problems that the subjects suffer from after the removal of the breast (mastectomy). Owing to the number of comparisons performed, alpha level for both ANOVA and t-test was set at 0.05, and for correlation **at 0.01, and * at 0.05.

Table (2) Characteristics of Subjects (N=89)

	N	%	BDI scores		Mean	SD.	Vain
			?16	? 17			
Urban	23	25.84	8.99%	16.85%	18.65	1.61	2.61
	66	74.15	20.22%	53.93%	15.61	3.72	13.84
Right Breast c	50	56.18	15.73%	28.09%	16.14	3.43	11.76
Left Breast c	39	43.82	20.25 %	35.96%	16.72	3.74	14.00
	0	00	000	000	0000	0000	
Professionals	5	5.62	3.37%	2.25%	16.40	3.3	10.80
Laborers	30	33.71	10.11%	23.60%	17.40	3.6	13.08
	54	60.67	22.47%	38.20%	15.83	3.5	12.18
Married	34	39.33	7.87%	31.46%	16	4.27	18.24
Divorced	16	16.86	2.25%	14.61%	16	2.53	6.40
	20	22.47	4.49%	17.98%	15.20	2.73	7.43
	19	21.34	1.12%	20.22%	17.37	3.35	11.25

Note: Percentages may not add to 100 owing to rounding

Overall the subjects in the present study, 56.18% were having depression (Mean 17, Range 13, SD. 2.68). They scored at least ? 17 on BDI. Demographic variables were evaluated for relationship to depression (Table 2). The association of their geographical areas with their scores on BDI was significantly negative at 0.01, their occupation classes with their scores on BDI was significantly positive at 0.05. Localization of breast cancer of the subjects and their marital status did not show any association with their scores on BDI.

Table (3) Correlation of Demographic Variables and Subjects' Scores on BDI

BDI	BDI	Geographical area	Localization of cancer.	Occupation	Marital status
Pearson BDI	1.000	-.426**	.123	.224*	.041
Correlation Geographical	-	1.000	.108	.371**	.092
Localization	.426*	.108	1.000	-.131	-.241*
Occupation	.123	.371**	-.131	1.000	.124
Marital status	-	.092	-.241*	.124	1.000
BDI	.	.000	.249	.035	.901
Geographical	.000	.	.316	.000	.394
Localization	.249	.316	.	.221	.023
Occupation	.035	.000	.221	.	.248
Marital status	.701	.394	.023	.248	.

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table (4) shows the difference of mean scores on BDI of subjects from rural and urban areas, t-test was used. A significant difference was found between the two groups (p=.027).

Table (4) T-test of Subjects' Scores on BDI Regarding Geographical Areas

	N	%	df	Means	Mean Diff.	t	Sig. (2-tailed)	Std. error Difference	95 confidence interval of the Mean		Levine's Test For Equality Of Variance	
									Lower	Upper	F	Sig.
Urban	23	25.84	87	18.65	3.05	3.	.000	.80	1.45	4.45	5.059	.027
Rural	66	74.157		15.61								

Table (5) shows the difference of means' scores on BDI of subjects with cancer in the right breast and their counterparts with cancer in the left breast. t-test was used.

No significant difference was found between the two groups ($p=.753$).

Table (5) T-test of Subjects' Scores on BDI Regarding Localization of Cancer in the Breast

	N	%	df	Means	Mean Diff	t	Sig. (2-tailed)	Std. Error for Difference	5 confidence interval of the Mean		Levine's Test For Equality Of Variance	
									Lower	Upper	F	Sig.
Right	39	28.09	87	16.14	-.58	-	.450	.76	-2.09	.94	.100	.753
Left	50	35.96		16.72								

Table (6) shows the means scores on BDI of the housewives, laborers, and the professionals. Means were compared utilizing one-way analysis of variance (ANOVA). Result shows no significant differences between the three groups ($p=.155$).

Table (6) ANOVA of Subjects' Scores on BDI Regarding Occupation

	Some of Squares	df	Mean of squares Difference	F	Sig.
Between Groups	47.336	2	23.668	1.906	.155
Within Groups	1067.900	86	12.417		
Total	1115.236	88			

Table (7) shows the means scores on BDI of the married, divorced, widowed, and single subjects. Groups were compared using one-way analysis of variance

(ANOVA). Result shows no significant differences between the four groups ($p = .199$)

Table (7). ANOVA of Subjects' Scores on BDI Regarding Marital Status

	Some of Squares	DF	Mean of squares	F	Sig.
			Difference		
Between Groups	73.677	3	24.559	2.004	.119
Within Groups	1041.559	85	12.254		
Total	1115.236	88			

Table (8) shows the frequencies of the problems that the subjects suffer from after the mastectomy.

Table (8) Psychological Problems by Postoperative Breast Cancer Patients, N=89

Problems	Frequ.	%	Problems	Frequ.	%	Problems	Frequ.	%
Lack of sleep	43	48.33	Loss of appetite	32	35.95	Hoplessness	40	44.99
Hot flushes	37	41.57	Worthlessness	32	35.95	Anxiety	38	42.69
Loss of pleas	40	44.94	Loss of concentration	8	8.98	Sadness	40	44.94
Wish of death	38	42.69	Sadness	40	44.94			

Discussion

In many parts of Sudan other than Khartoum, health facilities are very meager. People resort to traditional healers and superstitious practices. In the case of breast cancer, many women might have low level of awareness about cancer of the breast and its implication. Accordingly, they might carry it for a long time until it starts to be painful.

In the present study we mean to look into the prevalence of depression among postoperative breast cancer patients in Sudan. Prevalance of depression among the

subjects was confirmed by two results: First by their responses during the interview, Table (8) shows the frequencies of the problems that the subjects suffered from after the removal of their breasts (mastectomy). By (DSM)-IV these are symptoms of depression. Accordingly, subjects could be classified as depressive subjects. Second: by their high scores (? 17) on BDI. Results showed that 56.18% of the subjects were having high scores on BDI. This prevalence is similar to the findings, by Ramirez et al., (1995) that 55% of the patients were full or borderline cases of depression and/ or anxiety, and by Valente et al., (1994) who found that 40%-60% of cancer patients were having depression, and by Anthony et al., (2002) who found that 36.6% met the criteria for depressive disorder. Nevertheless, the present result is far higher than the findings by Bottomely (1998) who estimated that 20-25% of cancer patients suffered often from depression, and Farragher (1998) who found 21.21% of cancer patients suffered from a depressive disorder at the postoperative interview, and Berard (1998) who found a prevalence of depression – 14% in a population of out-patient oncology setting.

Demographic variables were evaluated for relationship to the subjects' scores on BDI (Table 2). Distribution of subjects' geographical areas shows a significant negative association with their scores on BDI at the 0.01 level (2-tailed). Rural subjects mean scores on BDI was 18.65 (SD. 1.61) compared to 15.61 (SD.3.72) of the urban subjects. To differentiate between rural and urban subjects' mean scores on BDI t-test was used. Results shows a significant difference between the rural subjects' mean scores on BDI and the urban subjects' scores on BDI.

Accordingly, it could be stated here that the prevalence of depression among rural subjects was higher

than among urban subjects. A justification for this may be that rural subjects do not reveal incidences of carrying cancer simply based on preconceived ideas of fearing abandonment, seclusion and rejection from community. The refrain from disclosing the symptoms and bear the results sometimes end up by depression. Consequently, the late exposure of breast cancer to medical investigation contributes not only to its severity and removal of breast but also leads to an early worsening of the psychological state of the patient causing high levels of depression at many stages of the disease. Prevalence of high depression (? 17) among subjects with breast cancer in the left was 35.96% (SD.3.74) and in the right was 28.09% (SD.3.43). The mean scores on BDI of the subjects with left breast cancer were higher than the mean scores of the subjects with right breast cancer (table 2). Using t-test no significant difference between the mean scores of the two groups was confirmed. In addition, localization of cancer in the breast of the rural/urban subjects was clearly not associated with their scores on BDI (Table 3). The significant prevalence of depression among the subjects with left breast cancer could recommend further studies to look into this relation.

Analyzing the subjects' scores on BDI regarding their occupations, Table (2) shows high scores (? 17) among 38.20% (SD.3.5) of the housewives, 23.60% (SD. 3.6) of the laborers and 2.25 (SD.3.3) of the professionals. To determine whether the three groups differ significantly among themselves ANOVA test was used. Result shows no significant difference between the three groups' mean scores on BDI. Although, Table (3) shows a significant positive association between subjects' occupation and their BDI scores at the 0.01 level. (2- tailed) ANOVA test failed to differentiate between the three groups. The insignificant

association between the subjects' scores on BDI with regard to their occupation is consistent with the findings by Murphy (1989) who found an insignificant association between occupational class and depression.

The percentage of married subjects with high scores on BDI was 31.46% (SD. 4.27) of the divorced was 14.61% (SD.2.53) of the widowed was 17.98% (SD.2.73), and of the singles was 20.22% (SD. 3.35). High scores by subjects with relation to their marital status could be related to their limited gender roles exemplified by their presence at home and rigid division of labor, lack of access to public resources, to participation and control mechanisms and to their rights on sharing governance. Moreover women lack skills to negotiate their rights in addition to the overload on housewives from domestic labor and house management roles. Any additional stressful situation and physical constraint will create grounds for more depression. However, ANOVA test shows no significant differences between the four groups.

Conclusion

It was concluded that serious high scores (? 17) on BDI was found among the postoperative breast cancer patients in the present study. Since it was found that loss of breast affects woman not only physically but also psychologically, counseling programs, standardized inventories, effective medical care as well as preventive measures, such as counseling, and community rehabilitation programs, physical fitness and routine physical exam to detect further psychological disturbances could be helpful in minimizing these vulnerability. Although, the present study was a meager effort to look into the prevalence of depression

among the postoperative breast cancer patients, still evidence for why depression was found postoperatively of breast cancer was unknown in Sudan. Biological, chemical and psychological processes, causing depression and organic and the cognitive components that seem to be very interrelated in the issue of depression among postoperative breast cancer patients in Sudan should be investigated. It is also important to mention here that in Sudan, Mammogram (machine for detection of the early breast cancer) is not available, and high rate of females do not even know how to do test their breasts by themselves. Ideally, an urgent budget for self breast test orientation, and mammograms should be put into consideration.

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