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Original Research

Prevalence of Anxiety and Depression in Breast Cancer Patients and their Correlation with Socio-Demographic Factors

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Background and objective: Being diagnosed with breast cancer or undergoing surgery, radiation, or chemotherapy as a treatment modality is often experienced as a traumatic event for many women. This emotional distress can negatively impact their quality of life and compliance with treatment, ultimately increasing the risk of mortality, which is considered the sixth vital sign in cancer care. The aim of this study was to estimate the prevalence of depression and anxiety in breast cancer patients and examine their correlation with socio-demographic factors.

Materials and Methods: A cohort of 140 breast cancer patients registered in the Department of Radiation Oncology, SMS Medical College, Jaipur, between January 2022 and December 2022, was recruited. Participants were interviewed using a structured questionnaire that included socio-clinical and demographic factors, as well as the PHQ-2 and GAD-2 scales.

Results: The prevalence of depression among patients was 37.9% (53/140), and approximately one-third (33.6%, 47/140) of cases exhibited symptoms of anxiety. The majority of cases had stage III breast cancer (69.3%, 97/140), followed by stage II (16.4%, 23 cases) and stage IV (14.3%, 20 cases). Factors such as place of residence, educational status, employment status, accompanying person, and marital status emerged as significant predictors of depression risk. Additionally, age group, marital status, and financial status showed a statistically significant association with elevated anxiety symptoms.

Conclusion: This study highlights a high prevalence of anxiety and depression among breast cancer patients, with higher vulnerability observed in patients from rural areas, those who are single, have low monthly income, belong to a younger age group, and have a lower education level. Therefore, special care, support, and possible referral to the psychiatry department may be necessary for these patient groups.

Introduction

All over the world, Breast cancer is a major public health problem among women. According to GLOBOCON 2020, it is the most diagnosed cancer globally accounting for every 1 in 10 (11.7%) newly diagnosed cancer cases, for the first-time surpassing lung cancer (11.4%). Breast cancer is the most common cancer among women in India, which accounts for accounting for 26.3% of all cancers in women [1]. In 2021, 627 cases of Carcinoma breast cancer presented to the outpatient department of Radiation Oncology, Sawai Man Singh Medical College and Hospital. Being diagnosed with breast cancer or receiving treatment for it which mainly comprises of mastectomy

(surgery), radiotherapy or chemotherapy or in combination, is itself a traumatic experience to women and therefore, many breast cancer patients have intense fear toward their disease and the ongoing treatment process, and many of them even have psychiatric morbidities [2]. This emotional distress in patients is associated with a reduction in overall quality of life, and influences compliance levels with medical treatment negatively, and hence results in an elevated risk of mortality, this is why emotional distress is also called as the sixth vital sign in cancer care [3]. Breast cancer and its treatment can lead to many health issues such as lymphedema, pain, early menopause, and sexual problems [4], along with psychosocial ill effects like anxiety, depression, and self-image concerns [5-7]. Compared to general population, there have been increasing rates of depression in cancer patients. It is 25% rate overall and differs for different cancers-Oropharyngeal 22-57%;Pancreatic 33-50%; Breast 1.5-46%; Lung 11-44% [8].Treatment options include psychological interventions and yoga or classic pharmacotherapy, such as antidepressants, in cases of true depression [9].

Aims and Objectives

Purpose of our study is to estimate the prevalence of depression and anxiety in breast cancer patients in their first year of diagnosis and treatment and their correlation with socio-demographic factors such as age, sex, residence, education level, accompanying person at visit, financial and marital status at a tertiary care hospital. objectives were to assess the socio-demographic distribution of breast cancer patients visiting a tertiary care hospital and to assess the prevalence of anxiety and depression in the breast cancer patients and also to identify the correlation in between the socio-demographic factors and the presence of anxiety and depression among these patients.

Materials and Methods

A cohort of 140 randomly selected breast cancer patients who came for visit in the outpatient department registered in Department of Radiation, SMS medical College, Jaipur from January 2022 to December 2022 were recruited. All patients, except one, were women and were in their first year of treatment and diagnosis. The inclusion criteria were-18 or more years of age, histologically documented diagnosis of breast cancer, no history of prior mental disorder and dementia, no abuse of alcohol or drugs, adequate knowledge of the Hindi/English language and satisfactory level of communication, and consent to participate in the study. There were no restrictions with regard to histology of breast cancer, disease stage and demographic characteristics. The basic sociodemographic (age, place of residence, marital status, number of children, educational level), and clinical (surgical therapy, adjuvant therapy, stage of breast cancer) data were collected. The Patient Health Questionnaire-2 (PHQ-2) and the Generalized Anxiety Disorder-2 (GAD-2) questionnaire were used. In both questionnaires, each question requires respondents to rate on a four-point scale ranging from “0 = not at all” to “3 = nearly every day”. PHQ-2 and GAD-2 total scores are calculated by adding the two questions score, resulting in a range from 0 to 6 for each questionnaire, with higher score indicative of higher mental health disorder. According to receiver-operating characteristic curve analysis, the optimal cut point is ≥ 3 on both the PHQ-2 and GAD-2 scales [10-12].

Statistical Analysis-Data were analyzed using SPSS version 16. For univariate analysis, descriptive analysis was used while for bivariate analysis, Chi-square test and Correlation test were used. Univariate binary logistic regression was done to calculate the odd’s ratio.

Results

Around two thirds (69.3%,97/140) cases had stage III breast cancer, followed by stage II in 23 (16.4%) cases and 20 (14.3%) cases had IV stage breast cancer. Majority of the patients were from rural background (75.7%), most commonly presenting in the age group of 40-50 years (57.1%), and with low education and financial levels (Table1) shows the various characteristics of the patients. Prevalence of depression among patients were 37.9% (53/140) and almost one third (33.6%, 47/140) of cases had anxiety.

Variables	Frequency		Percentage
Age Group (Years)	<40	32	22.9
	40-49	42	30
	50-59	38	27.1
	60-69	21	15
	≥70	7	5
Residence	Rural	106	75.7
	Urban	34	24.3
Marital status	Married	118	84.3
	Single	9	6.4
	Widow	13	9.3
No. of children	0	4	2.9
	02-Jan	92	65.7
	≥3	44	31.4
Educational status	Illiterate	84	60
	Primary	49	35
	Secondary	7	5
Employment status	Dependent	118	84.3
	Employed	22	15.7
Per month income	<10000	41	29.3
	10000-20000	81	57.9
	>20000	18	12.9
Accompanying person	Family	100	71.4
	Neighbour	17	12.1
	Own	23	16.4
Depression	Absent	87	62.1
	Present	53	37.9
Anxiety	Absent	93	66.4
	Present	47	33.6
Staging of Breast Cancer	II	23	16.4
	III	97	69.3
	IV	20	14.3
Total		140	100

Table 1. Distribution of Different Patient's Characteristics.

Association of presence of depression with residence, educational status and employment status was found to be statistically insignificant (p value>0.05). While age group, marital status, per month income and accompanying person was significantly associated with presence of depression. Lower age group was protective factor for presence of depression. Lesser per month income was a risk factor for presence of depression. Patients having Rs.10000 monthly income were at 10 times higher risk of developing depression compared to patients with Rs.20000 monthly income. Patients coming to hospital with family/ neighbour were at lower risk of having depression compared to patients coming own their own. Table 2 shows the association of depression with various variables.

Variables		Depression		p value	OR

		Absent (n=87)	Present (n=53)		
Age Group (Years)	<40	29 (33.3)	3 (5.7)	<0.001	0.017 (0.02-0.195)
	40-49	31 (35.6)	11 (20.8)		0.059 (0.006-0.548)
	50-59	16 (18.4)	22 (41.5)		0.229 (0.025-2.095)
	60-69	10 (11.5)	11 (20.8)		0.183 (0.019-1.799)
	≥70	1 (1.1)	6 (11.3)		1
Residence	Rural	63 (72.4)	43 (81.1)	0.335	1.638 (0.712-3.769)
	Urban	24 (27.6)	10 (18.9)		1
Marital status	Married	81 (93.1)	37 (69.8)	<0.001	0.083 (0.018-0.394)
	Single	4 (4.6)	5 (9.4)		0.227 (0.031-1.679)
	Widow	2 (2.3)	11 (20.8)		1
Educational status	Illiterate	49 (56.3)	35 (66)	0.304	4.286 (0.494-37.199)
	Primary	32 (36.8)	17 (32.1)		3.187 (0.354-28.687)
	Secondary	6 (6.9)	1 (1.9)		1
Employment status	Dependent	75 (86.2)	43 (81.1)	0.575	1.453 (0.580-3.644)
	Employed	12 (13.8)	10 (18.9)		1
Per month income	<10000	8 (9.2)	33 (62.3)	<0.001	10.725 (2.957-38.905)
	10000-20000	66 (75.9)	15 (28.3)		0.591 (0.183-1.911)
	>20000	13 (14.9)	5 (9.4)		1
Accompanying person	Family	72 (82.8)	28 (52.8)	<0.001	0.170 (0.063-0.458)
	Neighbour	8 (9.2)	9 (17)		0.492 (0.134-1.801)
	Own	7 (8)	16 (30.2)		1

Table 2. Association of Depression with Different Variables.

Association of presence of anxiety with residence, educational status and employment status was found to be statistically insignificant (p value>0.05) While age group, marital status per month income and accompanying person was significantly associated with presence of anxiety. Lower age group was protective factor for presence of anxiety. Lesser per monthly income was a risk factor for presence of anxiety. Patients having Rs. 10000 monthly income were at five times higher risk of developing anxiety compared to patients with Rs. 20000 monthly income.

Patients coming to hospital as accompanying person at lower risk of having anxiety compared to patients coming own their own. (Table 3) depicts the correlation of anxiety with various factors.

Variables		Anxiety		p value	OR
		Absent (n=93)	Present (n=47)		
Age Group (Years)	<40	29 (31.2)	3 (6.4)	<0.001	0.078 (0.011-0.525)
	40-49	33 (35.5)	9 (19.1)		0.205 (0.039-1.085)
	50-59	18 (19.4)	20 (42.6)		0.833 (0.164-4.239)
	60-69	10 (10.8)	11 (23.4)		0.825 (0.147-4.628)
	≥70	3 (3.2)	4 (8.5)		1
Residence	Rural	69 (74.2)	37 (78.7)	0.703	1.287 (0.556-2.978)
	Urban	24 (25.8)	10 (21.3)		1
Marital status	Married	85 (91.4)	33 (70.2)	0.004	0.173 (0.050-0.599)
	Single	4 (4.3)	5 (10.6)		0.556 (0.095-3.246)
	Widow	4 (4.3)	9 (19.1)		1
Educational status	Illiterate	54 (58.1)	30 (63.8)	0.507	3.333 (0.383-29.006)

	Primary	33 (35.5)	16 (34)		2.909 (0.322-26.244)
	Secondary	6 (6.5)	1 (2.1)		1
Employment status	Dependent	81 (87.1)	37 (78.7)	0.298	1.824 (0.723-4.600)
	Employed	12 (12.9)	10 (21.3)		1
Per month income	<10000	14 (15.1)	27 (57.4)	<0.001	5.014 (1.485-16.929)
	10000-20000	66 (71)	15 (31.9)		0.591 (0.183-1.911)
	>20000	13 (14)	5 (10.6)		1
Accompanying person	Family	74 (79.6)	26 (55.3)	0.009	0.270 (0.106-0.690)
	Neighbour	9 (9.7)	8 (17)		0.684 (0.194-2.410)
	Own	10 (10.8)	13 (27.7)		1

Table 3. Association of Anxiety with Different Variables.

Discussion

The purpose of this study was to assess the prevalence and associated factors of depression and anxiety in breast cancer patients, and to identify independent predictors of mental health disorders risk. According to our results, in 37.9% of the patients, depressive symptoms are present and the place of residence, educational status, employment status, accompanying person and marital status were found as significant predictors of depression risk. In addition of them 33.6% are experiencing anxiety symptoms and again, the place of residence, educational status, employment status and age emerged as significant predictors of elevated anxiety symptoms, with statistically significant association with age group, marital status and financial status.

In a study conducted by Hassan et al. it was found that the prevalence of anxiety and depression was 31.7% and 22.0% respectively [13]. Study by Hassan et al. [13] found age group, monthly income were associated with anxiety; whereas financial support and being single were the associated with depression. In our study, majority of patients had age group 41-60 years (57%) followed by age group 20-40 years (22.9%) women shows the highest prevalence of breast cancer. This finding is supported by the study conducted by Hassan et al. [13] which shows that the commonest age of breast cancer is between 40 to 49 years with mean age of 50 years. Another study conducted by Vahdaninia et al. [14] found that 38.4% of the patients experienced severe anxiety and 22.2% had severe depression. A study of breast cancer survivors from Germany with an average of 47 months follow-up demonstrated that 38% of the patients had moderate to high anxiety and 22% had moderate to high depression as measured with the HADS [15], which supports the findings in our study. They also found lower education level to be a predictor of psychological comorbidity in patients with breast cancer. This can be explained by the fact that patients with higher education levels have a greater opportunity to be aware about their disease and its related aspects. In our study also, majority of women were Illiterate or low education level and were found to be with the highest prevalence of breast cancer. For the impact of psychiatry morbidity due to education level, prevalence of anxiety and depression were more in women with Illiterate or low education level as compared with high education level (secondary or college/university).

In conclusion, there is a high prevalence of anxiety and depression among breast cancer patients. Being rural resident, older age group, single/widowed, having no accompanying person at visits, lower monthly income and being illiterate can be predicting factors associated with depression and anxiety in breast cancer patients. Early detection and proper referral can contribute in addressing those conditions and increase quality of life and survival in breast cancer patients as our study is consisting of majorly rural population which lacks proper communication of mental health issues faced by women.

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