

Influences of Cognitive Representations of Cancer on Emotional Responses in Breast Cancer Women

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ABSTRACT

Background: Breast cancer is a common cancer for women both in the United States and in India. Cancer is an important public health problem with 8 to 9 lakh cases occurring every year. At any point of time, it is estimated that there are nearly 25 lakh cases in the country. Every year about 4 lakh deaths occur due to cancer. Most common cancers in women are cancer of uterine, cervix, breast and oral cavity. A diagnosis of breast cancer regardless of the stage can be stressful, impacting on multiple spheres of life, disrupting physical status, emotional and spiritual well-being and personal relationships for the patient and family. For patients diagnosed in the early stages, they experience the stress of coming to terms with the diagnosis, the experience of complex and usually long treatments, and the side effects of the different treatment modalities. Aims- The main aim of the study is to gain an in-depth understanding of the cognitive representations of the disease stress and the coping mechanisms used by breast cancer women. Objective of the study:- 1 To examine the emotional responses of breast cancer among women suffering from breast cancer.2. To examine the factors associated with cognitive representations of illness, including age, education, marital status, and residential area, diagnosed with breast cancer.

Methods and Material: Research design: Descriptive study. Setting of the study: Setting is the Acharya Vinoba Bhave Rural Hospital (AVBRH) Sawangi Meghe, Wardha. Sample size: 250 Sampling technique: Convenient sampling

Results: Majority of samples It reveals that 167(66.8%) of the study participants lived in the urban area, 94(34.6%) were in the age group of 41-50 years, 77(30.8 %) had education up to secondary level, and 133(53.2%) were employed, 111(44.4%) had private job holders, the family income of 97 (38.8%) had more than Rs.30000/-. The age of menarche of 210(84%) study participants between 13 to 15 years, 197(78.8%) were married and 100 (40%) had their age of marriage more than 30 years. Among the study participants 78 (31.2%) had 2 children, 211(84.4%) gave history of regular breast feeding and 127(50.8%) lived in joint families. 228 (91.2%) of the study participants reported no health insurance. There is no history of breast cancer among 244 (97.6%) family members of the study participants. The diagnosis of Ca Breast was done for 185(74%) participants in less than one years, Currents stage of cancer of 188(75.2%) was stage II. Among them only chemotherapy was given to 128(51.2%). Association of positive emotional status with demographic variables of the study participants. It shows that positive emotional status is significantly associated with residence, age, education, employment status, occupation, monthly family income, age at menarche, marital status, age of marriage, number of children, type of family health insurance status, duration of cancer, current status of cancer and treatment given to the participant as p=0.05 for all of them. This indicates that positive emotional status is influenced by almost all demographic characteristics of the study participants. Association of negative emotional status with demographic variables of the study participants. It shows that negative emotional

status is significantly associated with age, education, occupation, marital status, age of marriage, number of children, and current status of cancer as $p=0.05$ for all of them.

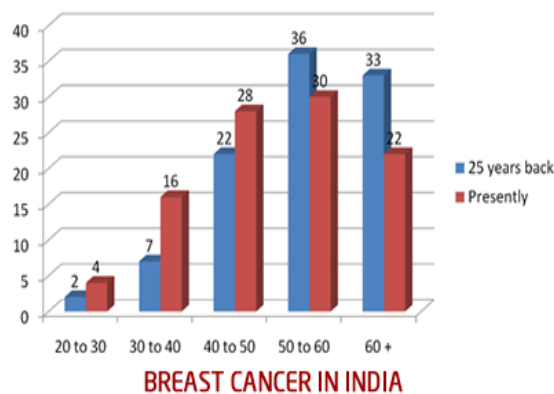
Keywords: Influences, cognitive representations, emotional response, breast cancer

INTRODUCTION

Cancer remains a life-threatening situation and often has profound emotional impact even years after treatment has started. Emotional distress is considered a normal response around the time of cancer diagnosis. It is also common across the cancer trajectory with many patients in treatment or long-term follow-up reporting clinically significant levels of distress, including anxiety and depression.¹

Number of cancer patients is rising due to a higher incidence rate and increased survival rates resulting from multiple treatment options available. Depression, anxiety and adjustment disorder contribute to increased hospital stay, reduced adherence to medical care, and reduced quality of life, and increased mortality rates. About 38% cancer patients have emotional disorders. Many factors act as predictors of distress. These include coping strategies, cognitive appraisals, rumination, worry and poor social support. In particular, negative coping has been consistently found to predict poorer outcomes in terms of distress and quality of life.²

The International Agency for Research on Cancer - IARC, reports that malignant neoplasm of the breast is the leading cause of cancer in women, which corresponds to 25 % of all cases of cancer and the second leading cause of death by malignant tumors in the world (IARC, 2015; INCA, 2015).³



According to Indian Council for Medical Research reports

After the diagnosis of breast cancer, a woman's life and family is affected greatly from both the physical and the emotional aspects. The treatment may be complete removal of the breast (mastectomy). Chemotherapy and radiotherapy treatments have many side-effects. Moreover, cancer is closely related to the fear of death. In addition, cancer brings along concerns related to negative consequences of the diagnosis for the individual and for her family. The financial burden of the disease is also very high. Under the circumstances, full of fear and insecurity, the woman with cancer can have questions about herself, her life, the others and her future, including questions about the causes of her illness.⁴

Worldwide survivors of adult cancers form a large and growing group. The estimate is expected to double by 2030. Research indicates that a significant number of cancer patients experience ongoing physical and psychosocial difficulties. Problems such as fatigue, sexual dysfunction, emotional wellbeing, work and finances are very common among the cancer sufferers. Socio-demographic and clinical factors, such as age, socioeconomic status, stage of cancer at the time of diagnosis and type of treatment, may account for wellbeing outcomes. Further, these factors are mostly immutable or not therapeutically modifiable. However, patient's own personal beliefs about their illness and its

treatment, and their emotional responses towards it can be modified.⁵

MATERIAL AND METHOD

The study is a descriptive study to examine the cognitive representations of disease among women suffering from breast cancer. The cognitive representations are studied with psychological. The psychological component is the emotional responses.

Eligibility Criteria

Inclusion Criteria

- Women who have been diagnosed with breast cancer and are under primary treatment.
- Those women aged 18 years and above.
- Those who are able to communicate.
- Both married and unmarried women.

Exclusion criteria

- Those women with alteration of consciousness.
- Those women having cognitive impairment.

- Those women who have previous history of breast and other cancer (Metastatics)
- Part I: Demographic distribution of the study participants
- Part II: Level of Emotional Status experienced by the Participants

Part I: Demographic distribution of the study participants

This part describes the study participants by their demographic characteristics. Residence, age, education, occupation, employment status, monthly family income, marital status, age of menarche, history of breast feeding, family history of breast cancer, age of marriage, number of children, history of breast feeding, duration of diagnosis of cancer, treatment taken so far and stage of cancer at the time of diagnosis are the demographic variables used to describe the study participants.

Table 1: Distribution of Participants according to their Demographic Characteristics

S. N.	Demographic Characteristics	Categories	Freq.	%
1	Residence	Urban	167	66.8
		Rural	51	20.4
		Semi-urban	32	12.8
2	Age in Years	20 - 30	37	14.8
		31 - 40	48	19.2
		41 -50	94	37.6
		51 -60	70	28
		61 -70	01	0.4
		> 70	00	0
3	Education	Illiterate	49	19.6
		Primary	55	22
		Secondary	77	30.8
		Higher Secondary	44	17.6
		Graduation	23	9.2
		PG Or Other	2	0.8
4	Employment status	Employed	133	53.2
		Unemployed	117	46.8
5	Occupation	Farmer	52	20.8
		Homemaker	07	2.8
		Private Service	111	44.4
		Govt. Service	25	10
		Student	4	1.6
		Other	51	20.4
6	Monthly Family Income in Rupees	Less than 10000/-	32	12.8
		10000 – 20000/-	73	29.2
		20001 – 30000/-	48	19.2
		More than 30000/-	97	38.8
7	Age of Menarche	Less than 10 yrs	0	0
		10 – 12 yrs	1	0.4
		13 -15 yrs	210	84
		More than 15 yrs	39	15.6

8	Marital Status	Single	8	3.2
		Married	197	78.8
		Widow/Separated/Divorced	45	18
9	Age of marriage	Not Applicable	8	3.2
		Less than 10 yrs	19	7.6
		10 – 20 yrs	45	18
		21 – 30 yrs	78	31.2
		More than 30 yrs	100	40
10	Number of children	NA	21	8.4
		Nil	7	2.8
		One	48	19.2
		Two	78	31.2
		Three	57	22.8
		More than 3	39	15.6
11	History of Breast Feeding	Not applicable	25	10
		No	1	0.4
		Regular	211	84.4
		Irregular	13	5.2
12	Type of Family	Joint	127	50.8
		Nuclear	123	49.2
		Extended	00	0
		Blended	00	0
13	Health Insurance status	Yes	22	8.8
		No	228	91.2
14	H/o. Breast Cancer in the family	Yes	6	2.4
		No	244	97.6
15	If yes, relationship with the patient	Not Applicable	244	97.6
		Maternal Aunt	1	0.4
		Paternal Aunt	2	0.8
		Granddaughter	2	0.8
		Niece	1	0.4
16	Duration of Diagnosis	Less than one year	185	74
		1 – 5 yrs	65	26
		6 – 10 yrs	0	0
		More than 10 years	0	0
17	Current stage of Cancer	Stage I	30	12
		Stage II	188	75.2
		Stage III	32	12.8
		Stage IV	00	0
18	Treatment	Just Diagnosed & no Treatment started	20	8
		Only Chemotherapy	128	51.2
		Only Surgery	65	26
		Chemo + Surgery	37	14.8

The above table describes the study participants according to their demographic variables. It reveals that 66.8% of the study participants lived in the urban area, 61.6% were in the age group of 20 to 50 years, 52.8% had education up to secondary level, and 53.2% were employed. The study participants had 20.8% farmers, 2.8% homemakers, 44.4% private job holders, 10% government job holders, 1.6% students and 20.4% have other types of jobs. The family income of 61.2% study participants was less than Rs.30000/- and 38.8% had it more than Rs.30000/-. The age of menarche of 84% study participants between 13 to 15 years, 78.8% were married and 71.2% had their age of marriage more than 20 years. Among the study participants 54% had 2 to

3 children, 84.4% gave history of regular breast feeding and 50.8% lived in joint families. 91.2% of the study participants reported no health insurance. There is history of breast cancer among 2.4% family members of the study participants. Among them 1 was maternal aunt, 2 were paternal aunts, 1 niece, and 2 granddaughters of the study participants. The diagnosis of Ca Breast was done for 74% participants in less than an years time and all were diagnosed in last five years. Currents stage of cancer of 75.2% was stage II and for 12.8% it was stage III. Among them only chemotherapy was given to 51.2%, only surgery was done for 26% and 14.8% got both the surgery and the Chemo therapy.

Table 2: Level of Emotional Status experienced by the Participants

Level of ES	Score Range	% Range	Interview 1		Interview 2		Interview 3	
			Freq	%	Freq	%	Freq	%
Negative Emotions								
Feeling Low	0 - 50	0 - 25	0	0	0	0	0	0
Mild Negative Emotions	51 -100	26 -50	128	51.2	156	62.4	157	62.8
Moderate	101 – 150	51 -75	122	48.8	94	37.6	93	37.2
Extreme	151 - 200	76 -100	0	0	0	0	0	0
Positive Emotions								
Feeling OK	0 -28	0 - 25	3	1.2	0	0	0	0
Feeling better	29 – 56	26 -50	111	44.4	116	46.4	121	48.4
Feeling Positive	57 – 84	51 -75	136	54.4	134	53.6	128	51.2
Highly positive	85- 112	76 -100	0	0	0	0	01	0.4

The above table shows the level of positive and negative emotions experienced by the study participants. It reveals that none of the participants had extreme negative feelings. However, 51.2% had mild negative feelings in the first interview which increased to 62.8% having mild negative feelings in the third interview. It also shows that the moderate negative feelings reduced from the first interview (48.2%) to third interview (37.2%). This indicates that the negative feelings reduced as the disease progressed. This may be due to the treatment they received.

The second part of the table reveals that very few participants had extreme positive emotions. The percentage of participants with feeling better increased from first interview (44.4%) to third interview (48.4%). However, the percentage of participants feeling positive reduced from first interview (54.4%) to third interview (51.2%). This indicates that the study participants had fluctuating emotions during the course of disease (one month). Also the emotional status of the participants was influenced by the course of disease and the treatment they received.

Table 3: Association of Positive emotional status with demographic variables

Demographic Characteristics	Categories	N	Mean	SD	“F’/”t”	p
Residence	Urban	167	58.22	9.10	12.79	0.003 S, p<0.05
	Rural	51	50.80	10.68		
	Semi-urban	32	56.19	6.57		
Age in Years	20 - 30	37	62.35	8.30	17.97	0.000 S, p<0.05
	31 - 40	49	59.80	7.76		
	41 -50	93	57.37	7.58		
	51 -60	70	49.66	10.13		
	61 -70	1	64.00	-		
> 70	0	-	-			
Education	Illiterate	48	50.02	10.78	11.67	0.005 S, p<0.05
	Primary	57	54.02	9.16		
	Secondary	77	57.62	7.73		
	Higher Secondary	43	60.65	8.19		
	Graduation	23	63.61	6.69		
PG Or Other	2	62.00	4.24			
Employment status	Employed	119	53.38	10.25	25.52	0.000 S, p<0.05
	Unemployed	131	59.24	8.03		
Occupation	Farmer	52	51.38	11.22	8.06	0.000 S, p<0.05
	Homemaker	7	56.14	9.75		
	Private Service	86	58.84	7.10		
	Govt. Service	24	63.42	8.02		
	Student	3	61.33	4.93		
	Other	78	54.88	9.45		
Monthly Family Income in Rupees	Less than 10000/-	32	51.28	12.26	11.827	0.000 S, p<0.05
	10000 – 20000/-	73	53.67	8.98		
	20001 – 30000/-	49	56.29	8.35		
	More than 30000/-	96	60.36	8.10		
Age of Menarche	Less than 10 yrs	0	-	-	3.441	0.034 S, p<0.05
	10 – 12 yrs	1	63.00	.		
	13 -15 yrs	215	57.03	9.22		
	More than 15 yrs	34	52.59	11.20		
Marital Status	Single	8	63.25	6.27	25.451	0.000 S, p<0.05
	Married	198	58.03	8.50		
	Widow/Separated/Divorced	44	48.11	10.23		

Table 3 to be continued...

Age of marriage	Not Applicable	8	63.25	6.27	17.141	0.000 S, p<0.05
	Less than 10 yrs	38	60.74	8.78		
	10 – 20 yrs	59	59.73	8.86		
	21 – 30 yrs	78	57.18	7.39		
	More than 30 yrs	67	49.46	9.57		
Number of children	NA	21	61.10	9.33	3.630	0.003 S, p<0.05
	Nil	7	49.14	16.11		
	One	48	57.85	10.49		
	Two	78	57.06	9.01		
	Three	57	56.37	8.73		
	More than 3	39	52.41	7.89		
History of Breast Feeding	Not applicable	25	60.48	8.88	1.863	0.136 NS, p>0.05
	No	1	62.00	.		
	Regular	211	55.90	9.69		
	Irregular	13	57.23	8.14		
Type of Family	Joint	126	57.44	8.19	7.088	0.000 S, p<0.05
	Nuclear	108	56.81	10.18		
	Single	3	45.33	5.03		
	Separated	13	46.38	11.50		
Health Insurance status	Yes	21	64.86	7.88	18.863	0.000 S, p<0.05
	No	229	55.68	9.38		
H/o. Breast Cancer in the family	Yes	6	50.17	15.90	2.651	0.105 NS, p>0.05
	No	244	56.60	9.39		
If yes, relationship with the patient	Not Applicable	244	56.60	9.39	3.701	0.006 S, p<0.05
	Maternal Aunt	1	69.00	.		
	Paternal Aunt	2	59.50	0.71		
	Granddaughter	2	41.00	14.14		
	Niece	1	31.00	.		
Duration of Diagnosis	Less than one year	185	57.64	8.99	11.501	0.001 S, p<0.05
	1 – 5 yrs	65	53.05	10.49		
	6 – 10 yrs	0	-	-		
	More than 10 years	0	-	-		
Current stage of Cancer	Stage I	30	62.77	5.41	16.519	.000 S, p<0.05
	Stage II	188	56.61	9.12		
	Stage III	32	49.59	11.13		
	Stage IV	0	-	-		
Treatment	Just Diagnosed & no Treatment started	24	58.17	6.59	3.081	0.028 S, p<0.05
	Only Chemotherapy	128	57.71	8.99		
	Only Surgery	63	55.25	10.71		
	Chemo + Surgery	35	52.80	10.48		

Association of positive emotional status with demographic variables of the study participants. It shows that positive emotional status is significantly associated with residence, age, education, employment status, occupation, monthly family income, age at menarche, marital status, age of marriage, number of children, type of family health insurance status, duration of cancer, current status of cancer and treatment given to the participant as p=0.05 for all of them.

Table 4: Association of Negative emotional status with demographic variables

Demographic Characteristics	Categories	N	Mean	SD	“F”/“t”	p
Residence	Urban	167	99.47	12.67	0.377	0.686 NS, p>0.05
	Rural	51	97.63	18.56		
	Semi-urban	32	98.34	11.05		
Age in Years	20 - 30	37	104.35	10.47	14.170	0.000 S, p<0.05
	31 - 40	49	105.69	13.15		
	41 -50	93	99.23	12.29		
	51 -60	70	90.60	13.55		
	61 -70	1	127.00	.		
	> 70	0	104.35	10.47		
Education	Illiterate	48	91.71	16.47	5.619	0.000 S, p<0.05
	Primary	57	96.46	13.38		
	Secondary	77	101.90	11.59		
	Higher Secondary	43	102.16	13.00		
	Graduation	23	105.00	11.13		
	PG Or Other	2	91.50	7.78		
Employment status	Employed	119	97.33	15.74	3.132	0.078 NS, p>0.05
	Unemployed	131	100.42	11.76		

Table 4 to be continued...						
Occupation	Farmer	52	97.06	15.36	2.422	0.036 S, p<0.05
	Homemaker	7	83.57	20.90		
	Private Service	86	100.22	11.77		
	Govt. Service	24	99.29	10.85		
	Student	3	107.67	12.50		
	Other	78	99.74	14.46		
Monthly Family Income in Rupees	Less than 10000/-	32	95.25	19.38	0.900	0.442 NS, p>0.05
	10000 – 20000/-	73	99.75	13.87		
	20001 – 30000/-	49	99.71	13.23		
	More than 30000/-	96	99.18	11.88		
Age at Menarche	Less than 10 yrs	0	0.00	0.00	2.493	0.085 NS, p>0.05
	10 – 12 yrs	1	102.00	--		
	13 -15 yrs	215	99.71	13.40		
	More than 15 yrs	34	94.06	15.97		
Marital Status	Single	8	108.38	11.98	6.226	0.002 S, p<0.05
	Married	198	99.83	12.64		
	Widow/Separated/Divorced	44	93.25	17.41		
Age of marriage	Not Applicable	8	108.38	11.98	8.734	0.000 S, p<0.05
	Less than 10 yrs	38	102.24	12.20		
	10 – 20 yrs	59	102.66	15.22		
	21 – 30 yrs	78	100.14	11.91		
	More than 30 yrs	67	91.30	12.89		
Number of children	NA	21	103.62	13.40	2.805	0.017 S, p<0.05
	Nil	7	98.71	10.58		
	One	48	102.60	12.87		
	Two	78	100.12	14.48		
	Three	57	95.54	13.53		
	More than 3	39	94.62	13.34		
History of Breast Feeding	Not applicable	25	103.40	12.31	2.285	0.079 NS, p>0.05
	No	1	112.00	--		
	Regular	211	98.00	13.86		
	Irregular	13	104.77	14.57		
Type of Family	Joint	126	99.13	12.34	1.531	0.207 NS, p>0.05
	Nuclear	108	98.91	14.73		
	Single	3	113.00	8.19		
	Separated	13	94.31	19.50		
Health Insurance status	Yes	21	97.67	9.90	0.195	0.659 NS, p>0.05
	No	229	99.07	14.17		
H/o. Breast Cancer in the family	Yes	6	84.83	11.84	6.520	0.011 S, p<0.05
	No	244	99.30	13.74		
If yes, relationship with the patient	Not Applicable	244	99.30	13.74	2.539	0.041 S, p<0.05
	Maternal Aunt	1	103.00	--		
	Paternal Aunt	2	87.50	2.12		
	Granddaughter	2	72.00	4.24		
	Niece	1	87.00	--		
Duration of Diagnosis	Less than one year	185	99.84	12.99	2.957	0.087 NS, p>0.05
	1 – 5 yrs	65	96.42	15.90		
	6 – 10 yrs	0	0.00	0.00		
	More than 10 years	0	0.00	0.00		
Current stage of Cancer	Stage I	30	105.23	10.24	8.236	0.000 S, p<0.05
	Stage II	188	99.22	13.34		
	Stage III	32	91.47	16.55		
	Stage IV	0	0.00	0.00		
Treatment	Just Diagnosed & no Treatment started	24	99.46	13.53	2.129	0.097 NS, p>0.05
	Only Chemo	128	100.86	12.29		
	Only Surgery	63	95.73	13.18		
	Chemo + Surgery	35	97.40	19.12		

Association of negative emotional status with demographic variables of the study participants. It shows that negative emotional status is significantly associated with age, education, occupation, marital status, age of marriage, number of children, and current status of cancer as p=0.05 for all of them.

DISCUSSION

The study aimed at in-depth understanding of the cognitive representations of the disease stress and the coping mechanisms used by breast cancer women. The cognitive representations were studied with emotional status, coping strategies and comfort levels experienced by

the women suffering from breast cancer as their self reports on structured questionnaire. The findings of the study include demographic distribution of the study participants, levels of emotional status of the study participants.

The demographic distribution shows that 66.8% of the study participants lived in the urban area, 61.6% was in the age group of 20 to 50 years, 52.8% had education up to secondary level, and 53.2% were employed. The study participants had 20.8% farmers, 44.4% private job holders, and 10% government job holders. The family income of 61.2% study participants was less than Rs.30000/-. The age of menarche of 84% study participants between 13 to 15 years, 78.8% were married and 71.2% had their age of marriage more than 20 years. Among the study participants 54% had 2 to 3 children, 84.4% gave history of regular breast feeding and 50.8% lived in joint families. 91.2% of the study participants reported no health insurance. There is history of breast cancer among 2.4% family members of the study participants. Among them 1 was maternal aunt, 2 were paternal aunts, 1 niece, and 2 granddaughters of the study participants. The diagnosis of Ca Breast was done for 74% participants in less than one year's time and all were diagnosed in last five years. Currents stage of cancer of 75.2% was stage II and for 12.8% it was stage III. Among them only chemotherapy was given to 51.2%, only surgery was done for 26% and 14.8% got both the surgery and the chemotherapy.

The level of positive and negative emotions experienced by the study participants reveals that none of the participants had extreme negative feelings. However, 51.2% had mild negative feelings in the first interview which increased to 62.8% having mild negative feelings in the third interview. Moderate negative feelings reduced from the first interview (48.2%) to third interview (37.2%). This indicates that the negative feelings reduced as the disease progressed.

Very few participants had extreme positive emotions. The percentage of participants with feeling better increased from first interview (44.4%) to third interview (48.4%). However, the percentage of participants feeling positive reduced from first interview (54.4%) to third interview (51.2%).

There is no significant change in the positive emotional status of study participants from first interview to third interview. There is significant difference in negative emotions from first and second interview and first and third interview as $p = 0.000$.

The positive emotional status is significantly associated with residence, age, education, employment status, occupation, monthly family income, age at menarche, marital status, age of marriage, number of children, type of family health insurance status, duration of cancer, current status of cancer and treatment given to the participant as $p=0.05$ for all of them.

The negative emotional status is significantly associated with age, education, occupation, marital status, age of marriage, number of children, and current status of cancer as $p=0.05$ for all of them.

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