Original Article

A Study of Anxiety and Depression in Benign Breast Disease

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ABSTRACT

Background: To compare the prevalence of anxiety and depression levels in patients with benign breast disease (BBD) and healthy individuals using Hospital Anxiety and Depression Scale (HADS) and Brief Patient Health Questionnaire (BPHQ). **Methods:** This study includes 100 patients who were clinically suspected of having BBDs and were matched against 100 healthy age-matched controls from June 2016 and July 2018. The diagnosis of BBD was established on the basis of ultrasonography, fine needle aspiration cytology, and/or histopathology. For the diagnosis of anxiety and depression, BPHQ was used and the level of anxiety and depression was measured using the HADS. The questionnaire at both prediagnosis and at follow-up assessment after 3 months was done. **Results:** On comparing anxiety and depression using BPHQ score among cases and controls, both were significantly associated with cases than controls ($P < 0.001$ and $P = 0.0016$, respectively). On comparing anxiety and depression using HADS score, there was a significant difference (median) in both anxiety and depression level between cases and controls ($P < 0.001$ and $P < 0.001$, respectively). After 3 months of follow-up, there was a significant improvement in anxiety and depression scores by both BPHQ ($P = 0.007$ and $P = 0.0016$) and HADS ($P < 0.001$ and $P < 0.001$). The 3-month follow-up data showed a significant improvement in BPHQ (depression) score in patients with breast lump and mastalgia ($P = 0.001$ and $P = 0.008$). The HADS (anxiety score) showed significant improvement in patients presenting with diseases/aberrations other than fibroadenoma while the HADS (depression) score showed a significant improvement in all except fibroadenosis present either alone or along with fibroadenoma. The HADS (depression) score showed a significant improvement in fibroadenoma, others group, breast lump, and mastalgia ($P = 0.040$, $P = 0.005$, $P < 0.001$, and $P = 0.025$, respectively). **Conclusion:** Indian female patients who present with BBDs are also affected by anxiety and depression.

KEYWORDS: *Fibroadenoma, Fibroadenosis, psychological stress*

INTRODUCTION

*B*reast is the pride and personality of a woman and an emotional emblem of individuality and motherhood. Therefore, any threat to the breast would possibly shake the very core of her mind and feminine identity.[1] This is also closely related to the self-image, self-esteem, femininity, and ability to reproduce and nurture as a woman. In women, the thought of developing breast cancer induces intense mental stress that leads to many emotional disorders such as anxiety, distress, depression, sadness, frustration, hopelessness, helplessness, and a high level of passiveness.[1,2] In a similar way, benign breast diseases (BBDs) are a cause of anxiety and depression for patients due to the anticipated risk of developing breast cancer or the stigma of getting examined or the potential physical disfigurement after surgery. Recognizing these psychological issues is,

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therefore, critical from the holistic treatment perspective in such patients.

Anxiety is one of the India's most common mental illnesses as compared to several other countries.[3,4] In countries with screening programs running, it has been stated as a traumatic experience for women, with benign breast lumps being called in for further examination after mammographic examination. Anxiety not only affects the quality of life (QOL) of women but also the activities related to life such as family care, relations, personal ambitions, and profession. Anxiety as a disorder may substantially compromise the QOL and psychosocial functioning of individuals. Even individuals with subthreshold types of anxiety disorders may experience severe disability. Depression is highly prevalent in modern society and has become a significant issue in mental health globally. Depression is expected to become the second most common cause of impairment after ischemic heart disease in 2020.[5]

Numerous questionnaires and scales are used to help general practitioners make accurate and decisive diagnosis and treatment and accurately assess the existence of psychiatric symptoms in mental illness studies. Standardized interviews are valuable means of validating the diagnostic approach in the fields of medicine, which have no clear signs of diagnosis, such as psychiatry. These tend to be especially helpful to primary care providers because their workload restricts their resources, and they may not know the correct questions for effective assessment of psychiatric disorders.[6,7]

Various scales for diagnosing mental illnesses have been established that are popular in primary care settings.[8,9] Of others, the Brief Patient Health Questionnaire (BPHQ) is a questionnaire that helps the clinician to evaluate the patient's response to major, mild depressive disorder, and panic syndrome. Similarly, the Hospital Anxiety and Depression Scale (HADS) is a commonly used self-reporting instrument developed as a brief method for measuring the distinct aspects of anxiety and depression in nonpsychiatric patients.[10,11]

The world literature also has very little to say about the treatment of anxiety and depression in reported benign breast lesions. Therefore, we have designed this research to determine the prevalence of rates of anxiety and depression in BBDs and healthy individuals using HADS and BPHQ in India.

METHODS

This was a prospective study carried out on 100 patients in the Department of General Surgery, IMS, BHU, between June 2016 and July 2018, who were clinically suspected of having benign breast lesions and matched 100 normal age matched control subjects (patient attendants) in a single surgical unit. The goal was to interview all patients with breast symptoms, which were subsequently found to be benign breast lesions attending the surgical OPD (outpatient department). The symptoms considered were breast lump, mastalgia, discharge from the nipple, retraction of the nipple, breast abscess/infection, shape change, or breast dimpling. The research included women over 18 years old, pathologically confirmed BBD, and no prior history of breast cancer. The exclusion criteria were known psychiatric illness, family history of breast cancer, history of domestic violence, and patients with unexplained pain syndrome (chronic pelvic pain, fibromyalgia, and irritable bowel syndrome). The study was approved by the Institute Medical Ethical Committee. Women agreeing to participate in the study were subjected to set of questionnaires after obtaining an informed consent.

Patient's evaluation
A detailed history and clinical assessment according to the preset pro forma was conducted for all cases. Based on the bilateral breast ultrasonography, fine needle aspiration cytology, and/or histopathology examination report, the diagnosis of BBD was established in all patients. The patients were treated on the basis of the diagnosis medically or surgically and evaluated for 3 months following completion of treatment.

For the assessment of anxiety and depression, BPHQ was used and level of anxiety and depression was measured using the HADS. This is a commonly used, valid questionnaire for measuring psychological distress in both patients with malignancy and benign disorder.[12] These are validated tools for the Indian population and can also be used in Hindi translation.[13]

The prediagnosis and follow-up assessment questionnaire were administered in face-to-face interviews after 3 months of completion of the treatment, and in all cases, the questions were read out loud and the data were collected at these two points in time.

Measurement
Brief Patient Health Questionnaire
BPHQ is a two-page instrument that was modified from PHQ, and it consists of general questions concerning depressive mood, anxiety, psychosocial stresses, and obstetrical/gynecological states (such as menstruation and pregnancy). The BPHQ, which is the brief form of this instrument, is a questionnaire that allows the clinician to diagnose major depressive disorder, minor depressive disorder, and panic syndrome by reviewing the responses of the patient.

The first part of the BPHQ scale consists of nine questions concerning the diagnosis of depressive disorder. The answers are listed as a four-level ordinal scale: "not at all," "several days," "more than half the days," and "nearly every day." A diagnosis of major depressive disorder is made when at least one of the first two questions (a and b) and at least five of all questions (a/i) are answered "positively" (a response is considered positive when the items of "more than half the days" or "nearly every day" are chosen). A diagnosis of minor depressive disorder is made when at least one of the first two questions (a and b) and two to four of all the questions (a-i) are answered "positively."

The second part of the BPHQ form consists of five questions concerning the diagnosis of panic disorder. The responses are evaluated on a dichotomy scale as "Yes" or "No." In case of all questions (a-e) being answered as "Yes," a diagnosis of panic disorder is made.

Hospital Anxiety Depression Scale

This is a brief self-administered scale, which has been specifically designed for use in patients with comorbid physical illness. It consists of 14 items, seven each recording depression and anxiety. Each item has four possible choices scoring from "0" to "3." The depression subscale has been constructed in such a way as to largely exclude somatic symptoms. Scores of 11 or more on either subscale are considered to be a significant "case" of psychological morbidity, while scores of 8–10 represent "borderline" and 0–7 "normal." The scale has been validated in the Indian population in a study that used HADS to screen for depression and anxiety.

Demographic data were collected from the patients at first interview and included recording of age, level of education, marital status, number of children, employment status, monthly income, financial support, accompanying person, and visit per month.

Statistical analysis

The statistical analysis was done using IBM SPSS Statistics for Windows [Internet]. Armonk, NY: IBM Corp; 2016. For categorical data, Chi-square and Fisher's exact test was used. HADS score did not follow Gaussian distribution curve; hence, we opted for non-parametric tests such as Kruskal–Wallis tests, Mann–Whitney U-test, and Wilcoxon signed-rank test for the statistical analysis of the observations. The critical value of "*P*" indicating the probability of significant difference was taken as < 0.05 for comparison.

RESULTS

In the present study, the age of the patients ranged from 19 to 50 years with a mean age of 30.44 ± 10.37 years,

while in controls, the mean age was 30.21 ± 9.41 years with a range of 20–50. Majority of the patients (48.0%) and controls (51.0%) were in the 3rd and 4th decades of life. The sociodemographic characteristic of patients and controls is shown in Table 1. The clinical presentation and lump characteristics are shown in Table 2.

Fibroadenosis and fibroadenomas were the most common BBD (30% and 28%) and both were simultaneously present in 7% of all cases. Chronic breast abscess, nipple discharge, duct ectasia, and mastalgia were present in

Table 1: Sociodemographic characteristics

Variables	Number of cases (%)		*P*
	Case (*n*=100)	Control (*n*=100)	
Age (years)			
18-30	10 (10.0)	13 (13.0)	0.656
31-40	48 (48.0)	51 (51.0)	
41-50	36 (36.0)	33 (33.0)	
>50	6 (6.0)	3 (3.0)	
Mean±SD	30.44±10.37	30.21±9.41	
Socioeconomic status			
Upper	1 (1.0)	3 (3.0)	0.508
Middle	49 (49.0)	52 (52.0)	
Lower	50 (50.0)	45 (45.0)	
Marital status			
Married	85 (85.0)	89 (89.0)	0.400
Unmarried	15 (15.0)	11 (11.0)	
Religion			
Hindu	93 (93.0)	97 (97.0)	0.194
Muslim	7 (7.0)	3 (3.0)	
Education			
Illiterate	34 (34.0)	30 (30.0)	0.323
Primary	10 (10.0)	13 (13.0)	
Higher school	19 (19.0)	17 (17.0)	
Intermediate	11 (11.0)	13 (13.0)	
Graduate	21 (21.0)	23 (23.0)	
Profession	4 (4.0)	3 (3.0)	
Others	1 (1.0)	1 (1.0)	
Occupation			
House wife	75 (75.0)	72 (72.0)	0.887
Service	6 (6.0)	8 (8.0)	
Student	12 (12.0)	11 (11.0)	
Others	7 (7.0)	9 (9.0)	
Monthly income (Rs)			
5000	82 (82.0)	74 (74.0)	0.170
5000−10,000	3 (3.0)	9 (9.0)	
>10,000	15 (15.0)	17 (17.0)	
Type family			
Joint	72 (72.0)	69 (69.0)	0.641
Nuclear	28 (28.0)	31 (31.0)	
Total member family			
1-3	24 (24.0)	27 (27.0)	0.800
4-5	33 (33.0)	29 (29.0)	
>5	43 (43.0)	44 (44.0)	

SD: Standard deviation

Table 2: Clinical presentation of patients

Variables	Number of cases (%)
Duration (months)	
<6	35 (35.0)
6- 12	26 (26.0)
>12	39 (39.0)
Mastalgia	
Noncyclical	15 (15.3)
Cyclical	55 (56.1)
Absent	30 (30.0)
Breast lump	
Present	55 (55.0)
Absent	45 (45.0)
Side	
Right	27 (45.8)
Left	18 (30.5)
Both	14 (23.7)
Nipple discharge	
Present	9 (9.0)
Absent	91 (91.0)
Axillary swelling	
Present	2 (2.0)
Absent	98 (98.0)
Lump quadrant	
Upper outer	30 (54.55)
Upper inner	12 (21.82)
Lower outer	10 (18.18)
Lower inner	3 (5.45)
Lump size (cm)	
<2	10 (18.2)
2- 5	39 (70.9)
>5	6 (10.9)
Laterality	
Unilateral	45 (81.82)
Bilateral	10 (18.18)
Number of lumps	
Single	46 (83.64)
Multiple	9 (16.36)
Opposite breast	
Normal	51 (51.5)
Abnormal	48 (48.5)

26%, 4%, 4%, and 1% of cases, respectively. Out of 100 cases of BBD, surgical treatment was done in 32 (32%), medical treatment in 57 (57%), and both medical and surgical in 11 (11%) of cases.

Using BPHQ score, we found that depression among cases varied from major depression in 27%, minor depression in 58%, and no depression in 15% of patients, while in the control group, no subject of major depression was present, 4% had minor depression, and no depression was seen in 96% of subjects, respectively. The BPHQ score also suggested anxiety to be present in 27% of individuals in the case group. In the control group, anxiety was present in 2% of subjects and

98% were normal. On statistical analysis, it was clear that depression and anxiety both were significantly associated among BBD cases than in controls ($P < 0.001$ and $P < 0.001$, respectively). The level of depression among cases using HADS score showed that depression was present in 17% of cases (score 11–21), while 26% of cases were borderline (score 8–10) and 57% were normal (score 0–7). In the control group, depression was present in 2% of subjects, and 5% were on borderline and 93% were normal. The median depression score in cases was 7.0 (5.0–9.0) and in control group was 5.0 (3.0–6.75). Similarly, assessment by HADS showed that anxiety was present in 38% of cases (score 11–21), while 22% of cases were on borderline (score 8–10) and 40% of cases were normal (score 0–7), while in the control group, anxiety was present in 3% of subjects, 7% borderline, and 90% were normal. The median anxiety score in cases was 9.0 (5.0–13.0) and in control group was 4.0 (2.0–10.0). There was a statistically significant difference (median) in both anxiety and depression levels between cases and controls ($P < 0.001$ and $P < 0.001$, respectively). After 3 months of follow-up, a significant improvement in anxiety and depression level in both BPHQ ($P = 0.007$ and $P = 0.0016$) and HADS ($P < 0.001$ and $P < 0.001$) score was seen in BBD patients [Table 3].

We further compared the BPHQ and HADS score disease/symptom wise temporally. In the BPHQ assessment, none of the presentations of BBD showed a significant change temporally at 3 months of follow-up, while patients presenting with lump or only mastalgia showed a significant improvement in depression score ($P = 0.001$ and $P = 0.008$, respectively) as shown in Tables 4 and 5.

In the HADS anxiety score, patients showed improvement except fibroadenoma and nipple discharge [Table 6]. In HADS score for depression [Table 7], a significant improvement was seen in fibroadenoma, breast lump, mastalgia, and others group ($P = 0.040$, $P = 0.005$, $P < 0.001$, and $P = 0.025$, respectively).

DISCUSSION

Benign pathological breast disorders constitute approximately 70%–80% of all breast-related clinical presentations and are estimated to be ten times more common than breast carcinoma in developing world.[14] BBD is a common problem in developing countries.[15] The prevalence of such presentations differs according to the spectrum of the BBDs experienced in various geographical areas.[16] In developing countries, lower literacy rate, social taboo, and lack of understanding result in the delay in the diagnosis of both benign and

Table 3: Comparison of Brief Patient Health Questionnaire and Hospital Anxiety and Depression Scale in baseline and follow-up in patients with benign breast disease

	Baseline, *n* (%)	Follow-up, *n* (%)	*P*
BPHQ			
Depression			
Normal	15 (15.0)	36 (36.0)	0.0016
Minor	58 (58.0)	49 (49.0)	
Major	27 (27.0)	15 (15.0)	
Anxiety			
Present	27 (27.0)	12 (12.0)	0.007
Absent	73 (73.0)	88 (88.0)	
HADS			
Depression			
0- 7	57 (57.0)	78 (78.0)	<0.001*
8- 10	26 (26.0)	12 (12.0)	
11- 21	17 (17.0)	10 (10.0)	
Median (IQR)*	7.0 (5.0−9.0)	5.0 (3.0−6.75)	
Anxiety			
0- 7	40 (40.0)	68 (68.0)	<0.001*
8- 10	22 (22.0)	9 (9.0)	
11- 21	38 (38.0)	23 (23.0)	
Median (IQR)*	9.0 (5.0−13.0)	4.0 (2.0−10.0)	

P value< 0.05 Significant. BPHQ: Brief Patient Health Questionnaire, HADS: Hospital Anxiety and Depression Scale, IQR: Interquartile range

malignant breast problems alike.[17] This delay and the factors mentioned are the major causes for adverse mental health among these patients.

BBD usually affects the most productive and active phase of life, i.e., between 3rd to 4th decades.[18,19] This was evident in our cases also (48.0s% women were in the 3rd and 4th decades of life with a mean age of 30.44 ± 10.37 years). Many researches concluded that BBD usually begins during the 2nd decade of life and peaks in the 4th decade.[20-22]

In a study carried out by Kumar *et al.*,[17] it was asserted that BBDs are 5–10 times more common in Indian rural population than breast cancers. They also observed that the prevalence of BBDs differs in different geographic areas, and BBDs are widespread in developing countries but women ignore the breast lump due to lack of awareness. They proposed that general features of individual breast diseases such as lack of expert advice, illiteracy, social taboo, and lack of knowledge result in delay in both benign and malignant lesions in diagnosis. This delay in diagnosis, lack of health-care facilities, and fear of developing cancer are the primary causes of psychological symptoms that remain overlooked and unattended several times over. Similar results were deduced from our patients where the majority of patients

(39.0%) had their symptoms for more than 12 months, while 35% of patients had their symptoms within 6 months, and 26.0% of patients had their symptoms in 6–12 months.

In our study, most cases had breast pain (70%), out of which 15% of cases had noncyclical pain, while cyclical pain was present in 55% of cases. The presence of breast lump was the next most common symptom (55%). Breast lump is the commonest presentation in females presenting in Breast clinic in other studies as reported by Foxcroft *et al.*[23] from Wesley Breast Clinic and Ratanachaikanont,[24] reporting occurrence of lump in 87.4% and 72.35% repectively. Dixon[14] conducted a study and found breast lump in 69%, breast pain in 50%, and nipple discharge in 5% of cases. Griffith and Griffth[25] examined the occurrence of symptoms present in BBDs. In 33% of cases, they found common symptoms as lump followed by pain and nipple discharge and noted that patients may present with one or more of the symptoms. Over a 10-year period, pain was the most frequent breast symptom in a large cohort of 2400 women participating in a health-care organization in the United States, causing medical assessment and accounting for 47% of breast-related visits.[26]

In the present study, lump was present in right breast in 27 (45.8%) cases, while in 18 (30.5%) cases, lump was present in left breast and bilateral in 14 (23.7%) cases. This is similar to the finding made by Sangma *et al.*, but only the difference between right and left side was only 4%.[27] Akhator[28] stated that the left side was common, but there was also only 6% difference. Bilateral participation was least frequent (11.6%). In a study by Wahane *et al.*[29] from Central India, both sides of the breast involvement were similarly present (44% each), while bilateral involvement was observed in 12% of patients. Krishnaswamy[15] analyzed a total of 216 patients and found that breast pain occurred in 123 (56.9%) patients, while nipple discharge occurred in just 3 (1.4%) patients. In their survey of 500 young females (15–25 years) in 2007, Memon *et al.*[30] found that 210 (71.42%) patients were complaining of breast pain.

The primary aim of this study is to assess the prevalence of anxiety and depression in patients with BBD. HADS and BPHQ questionnaires are valid tools for the assessment of anxiety and depression among Indian patients.[13] In our study, on the basis of BPHQ, major depression was seen in 27% and minor depression in 58%, while on the basis of HADS scale, depression was present in 17% and 26% were on borderline score. On comparing both BPHQ and HADS depression scale between cases and controls, there was significantly more

Table 4: Comparison of Brief Patient Health Questionnaire (anxiety) between baseline and follow-up in patients of benign breast disease (disease and symptom wise)

BPHQ anxiety	Baseline, n (%)	Follow-up, n (%)	P
Fibroadenosis (*n*=30)			
Present	10 (33.3)	10 (33.3)	1.000
Absent	20 (66.7)	20 (66.7)	
Fibroadenoma (*n*=28)			
Present	7 (25.0)	8 (28.5)	0.762
Absent	21 (75.0)	20 (71.5)	
Both# (*n*=7)			
Present	2 (28.6)	3 (42.9)	0.577
Absent	5 (71.4)	4 (57.1)	
Others$ (*n*=35)			
Present	18 (51.5)	16 (45.7)	0.632
Absent	17 (48.5)	19 (54.3)	
Breast lump (*n*=55)			
Present	18 (32.7)	17 (30.9)	0.837
Absent	37 (67.3)	38 (69.1)	
Nipple discharge (*n*=9)			
Present	3 (33.3)	3 (33.3)	1.000
Absent	6 (66.7)	6 (66.7)	
Mastalgia (*n*=70)			
Present	20 (28.6)	21 (30.0)	0.852
Absent	50 (71.4)	49 (70.0)	

#Both=Fibroadenosis + Fibroadenoma, $Others=Nipple discharge + mastalgia + chronic breast abscess + duct ectasia. BPHQ: Brief Patient Health Questionnaire

Table 5: Comparison of Brief Patient Health Questionnaire (depression) between baseline and follow-up in patients of benign breast disease (disease and symptom wise)

BPHQ depression	Baseline, n (%)	Follow-up, n (%)	P
Fibroadenosis (*n*=30)			
Major	7 (23.3)	4 (13.3)	0.584
Minor	15 (50.0)	16 (53.3)	
Normal	8 (26.7)	10 (33.3)	
Fibroadenoma (*n*=28)			
Major	4 (14.3)	7 (25.0)	0.126
Minor	22 (78.5)	15 (53.5)	
Normal	2 (7.2)	6 (21.5)	
Both# (*n*=7)			
Major	3 (42.9)	0 (0)	0.053
Minor	3 (42.9)	2 (28.6)	
Normal	1 (14.3)	5 (71.4)	
Others$ (*n*=35)			
Major	4 (11.4)	0 (0)	0.051
Minor	27 (77.2)	26 (74.2)	
Normal	4 (11.4)	9 (25.8)	
Breast lump (*n*=55)			
Major	14 (25.5)	8 (14.5)	0.001
Minor	37 (67.3)	27 (49.1)	
Normal	4 (7.3)	20 (36.4)	
Nipple discharge (*n*=9)			
Major	3 (33.3)	1 (11.1)	0.490
Minor	5 (55.6)	6 (66.7)	
Normal	1 (11.1)	2 (22.2)	
Mastalgia (*n*=70)			
Major	18 (25.7)	10 (14.3)	0.008
Minor	40 (57.1)	32 (45.7)	
Normal	12 (17.1)	28 (40.0)	

#Both=Fibroadenosis + Fibroadenoma, $Others=Nipple discharge + mastalgia + chronic breast abscess + duct ectasia. BPHQ: Brief Patient Health Questionnaire, BBD: Benign breast disease

depression in cases ($P < 0.001$). The level of anxiety on the basis of BPHQ and HADS scale was 27% and 38%, respectively, which was significantly higher when compared to age-matched controls ($P < 0.001$). After 3 months of follow-up, both BPHQ and HADS anxiety and depression showed a statistically significant improvement in BBD, emphasizing the fact that the presence of BBD or its symptoms is directly related to the presence of anxiety and depression in these patients. These patients apart from medical and/or surgical intervention also attended the counseling sessions (done by DK in form of cognitive behavioral therapy), which would have added to improvement in psychological status in follow-up apart from the impact of symptomatic relief.

Literature is abundance in support of evidence that increased the level of anxiety and depression is seen in benign breast conditions in comparison to healthy controls.[17,31] Patey first suggested in 1949 that a psychologically related problem could occur in most patients with mastalgia.[32] Anxiety and depressive symptoms were significantly negatively associated with the women's Health-Related QOL.[33]

There are several potential pathways that may link psychosocial stress, severe depression, and BBD. Depressed women can get more worried about their physical health than normal. Therefore, they may be more scrupulously evaluating their own breasts, more likely to appear in medical settings where regular breast examinations are conducted, or more concerned about a minor breast symptom they would usually have overlooked. One or more direct links could also occur mediated by hormone imbalance. Stressful experiences lead to increased production of cortisol and have variable effects on other hormone systems, including the sex hormones.[34]

The prevalence of anxiety and depressive symptoms in benign breast lump patients was found to be 40.2% and 62.0%, respectively, in a recent article from China by Lou *et al*.[33] Jenkins *et al*.[35] showed in a study conducted on mastalgia patients that anxiety and

Table 6: Comparison of Hospital Anxiety and Depression Scale (anxiety) between baseline and follow-up in patients of benign breast disease (disease and symptom wise)

HADS anxiety score	Baseline, *n* (%)	Follow-up, *n* (%)	*P*
Fibroadenosis (*n*=30)			
0- 7	15 (50.0)	27 (90.0)	0.002*
8- 10	7 (23.3)	0 (0)	
11- 21	8 (26.7)	3 (10)	
Median (IQR)*	9.50 (5.75- 12.25)	4.0 (2.75- 10.0)	
Fibroadenoma (*n*=28)			
0- 7	9 (32.14)	13 (46.4)	0.181*
8- 10	7 (25)	5 (17.8)	
11- 21	12 (42.8)	10 (35.7)	
Median (IQR)*	8.50 (5.0- 10.5)	4.0 (2.0- 11.5)	
Both# (*n*=7)			
0- 7	3 (42.9)	5 (71.4)	0.042*
8- 10	0 (0)	2 (28.6)	
11- 21	4 (57.1)	0 (0)	
Median (IQR)*	8.0 (6.0- 13.0)	7.0 (2.0- 4.0)	
Others$ (*n*=35)			
0- 7	17 (48.6)	28 (80.0)	0.041*
8- 10	9 (25.7)	4 (11.4)	
11- 21	9 (25.7)	3 (8.6)	
Median (IQR)*	8.0 (5.0- 14.25)	3.0 (1.0- 8.0)	
Breast lump (*n*=55)			
0- 7	22 (40.0)	34 (61.8)	<0.001*
8- 10	12 (21.8)	8 (14.5)	
11- 21	21 (38.2)	13 (23.6)	
Median (IQR)*	9.0 (6.0- 13.0)	4.0 (2.0- 10.0)	
Nipple discharge (*n*=9)			
0- 7	3 (33.3)	6 (66.7)	0.373*
8- 10	2 (22.2)	1 (11.1)	
11- 21	4 (44.4)	2 (22.2)	
Median (IQR)*	9.0 (6.0- 14.50)	5.0 (2.50- 10.50)	
Mastalgia (*n*=70)			
0- 7	33 (47.1)	49 (70.0)	<0.001*
8- 10	14 (20.0)	5 (7.1)	
11- 21	23 (32.9)	16 (22.9)	
Median (IQR)*	8.0 (5.0- 12.25)	4.0 (2.75- 10.0)	

*P value< 0.05 Significant. #Both=Fibroadenosis + Fibroadenoma, $Others=Nipple discharge + mastalgia + chronic breast abscess + duct ectasia. HADS: Hospital Anxiety and Depression Scale, IQR: Interquartile range

depression scores increased and recurrent psychiatric conditions such as minor and major depression were identified when the patient did not respond to mastalgia treatment. Coşar *et al.*[5] studied a group of women undergoing mammography and stated that there was no significant difference in scores of anxiety and depression between patients with and without mastalgia.[36] A study conducted by Turgut *et al.*[37] showed that there were high levels of anxiety among women with mastalgia. When the final diagnosis was decided and no organic etiology was determined, a reevaluation was conducted and anxiety levels were found to have decreased significantly. Another analysis of 121 women found that mastalgia symptoms decreased among 70.2% of patients

once they were assured that organic etiology was not present. The success rates for mild, moderate, and severe mastalgia after assurance of patients were 85.7%, 70.8%, and 52.3%, respectively.[38] The findings of the research on the relationship between anxiety and depression to mastalgia are contradictory. However, most studies addressing anxiety and depression in BBDs have not taken untreated or refractory mastalgia into consideration as a research group for medical care[39,40] or on patients who are waiting for diagnosis after breast biopsy or are being investigated due to suspicious findings on mammogram.[41] We have searched extensively for Indian literature, but we have failed to find any research addressing this problem in BBDs, although studies

Table 7: Comparison of Hospital Anxiety and Depression Scale (depression) between baseline and follow-up in patients of benign breast disease (disease and symptom wise)

HADS depression score	Baseline, *n* (%)	Follow-up, *n* (%)	*P*
Fibroadenosis (*n*=30)			
0- 7	24 (80.0)	25 (83.3)	0.186*
8- 10	4 (13.3)	3 (10.0)	
11- 21	2 (6.7)	2 (6.7)	
Median (IQR)*	6.0 (4.0−9.0)	5.0 (3.0−9.0)	
Fibroadenoma (*n*=28)			
0- 7	10 (35.7)	21 (75.0)	0.040*
8- 10	12 (42.8)	3 (10.7)	
11- 21	6 (21.5)	4 (14.3)	
Median (IQR)*	6.50 (4.75−9.0)	4.50 (2.0−6.25)	
Both# (*n*=7)			
0- 7	4 (57.1)	6 (85.7)	0.107*
8- 10	1 (14.3)	1 (14.3)	
11- 21	2 (28.6)	0 (0)	
Median (IQR)*	7.0 (4.0-9.0)	5.0 (2.0−5.0)	
Others$ (*n*=35)			
0- 7	16 (75.6)	26 (74.2)	0.005*
8- 10	6 (17.1)	3 (8.6)	
11- 21	13 (37.3)	6 (17.2)	
Median (IQR)*	7.50 (6.75−9.25)	3.50 (3.0−5.25)	
Breast lump (*n*=55)			
0- 7	29 (52.7)	45 (81.8)	<0.001*
8- 10	17 (30.9)	4 (7.3)	
11- 21	9 (16.4)	6 (10.9)	
Median (IQR)*	7.0 (5.0−10.0)	5.0 (3.0−6.0)	
Nipple discharge (*n*=9)			
0- 7	3 (33.3)	7 (77.8)	0.108*
8- 10	4 (44.4)	2 (22.2)	
11- 21	2 (22.2)	0 (0)	
Median (IQR)*	8.0 (7.0−10.50)	5.0 (4.0−7.50)	
Mastalgia (*n*=70)			
0- 7	46 (65.7)	53 (75.7)	0.025*
8- 10	14 (20.0)	8 (11.4)	
11- 21	10 (14.3)	9 (12.9)	
Median (IQR)*	6.0 (4.0−9.0)	5.0 (3.0−7.25)	

*0.186 *P* value< 0.05 Significant. #Both=Fibroadenosis + Fibroadenoma, $Others=Nipple discharge + mastalgia + chronic breast abscess + duct ectasia. HADS: Hospital Anxiety and Depression Scale, IQR: Interquartile range

have been done from India regarding the prevalence of anxiety/depression among breast cancer patients. This study is probably the first study addressing the issue of anxiety and depression among all types of BBDs and the change in its level after treatment.

We have further extended the assessment of anxiety and depression in these benign conditions after treatment as per indications. On comparing BPHQ depression and anxiety from baseline to 3 months after treatment, there is no significant improvement among cases; however, on comparing HADS depression and anxiety score, HADS anxiety score showed a significant improvement in fibroadenosis group, both fibroadenosis and fibroadenoma group, and others group (nipple discharge,

mastalgia, chronic breast abscess, and duct ectasia). On comparing HADS depression score, there is a significant improvement in fibroadenoma and others group (nipple discharge, mastalgia, chronic breast abscess, and duct ectasia).

In our study, we have also investigated the symptom-wise change of anxiety and depression score at baseline and follow-up. On the basis of BPHQ anxiety score, there was no difference in score at baseline or at 3 months of follow-up, while HADS anxiety score showed a significant improvement (*P* = 0.013) in the mastalgia group, while lump or nipple discharge did not show any significant improvement. On assessing depression by BPHQ, patients who presented with mastalgia or

breast lump showed a significant improvement, while nipple discharge patients did not show improvement. The HADS depression scale also showed a similar result. Thus, based on these results, we can conclude that mastalgia and breast lump remains the main psychological concern and patients show improvement in anxiety and depression levels once the symptoms subside.

Thus, on the basis of this study, we can conclude that Indian female patients who present with BBD are also affected by psychological disturbances in the form of anxiety and depression. On the treatment of these conditions, there is definite improvement in their psychological status and thus a strong counseling should be advocated as part of treatment of these conditions as majority of females are apprehensive of having or developing cancer in future.

In conclusion we can say that Indian female patients who present with BBDs are also affected by anxiety and depression which needs to be treated/managed along with primary disease.

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Conflicts of interest

There are no conflicts of interest.

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