

Problems in Breast Cancer Patients: A Review

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Abstract

Introduction: Breast cancer is not only the second most prevalent type of cancer but also most frequent cause of cancer deaths in women. Psychological problems like depression, anxiety, poor self image and use of unhealthy coping strategies affect quality of life of breast cancer patient. This article sought to review the available evidence regarding psychological problems in patients with breast cancer.

Method: Literature was searched by using Google scholar database and articles from last 10 years, meeting inclusion criteria of this article were reviewed. Review of 36 articles was included.

Results: For prevalence of depression and anxiety, 17 articles were reviewed showing high prevalence of depression as well as anxiety in breast cancer patients. Poor self image was found in patients receiving any type of treatment for breast cancer. Avoidance coping was commonly used by most of patients with breast cancer. Poor quality of life has been highlighted by several studies and association was found between poor quality of life and depression in breast cancer patients.

Conclusion: Majority of the studies reported high prevalence of depression and anxiety in breast cancer patients. Use of poor coping strategies is common in breast cancer patients at all stages even after treatment. Poor self image and quality of life is associated with all types of treatments.

Keywords: Breast cancer; Depression; Anxiety; Self image; Coping; Relationship issues; Quality of life; Social support

Introduction

Breast cancer is second most prevalent type of cancer and is equally common in developing as well as developed countries (American Cancer Society, 2013). Despite favorable survival in developed countries, the most frequent cause of cancer deaths in women is still breast cancer, in developed as well as in developing countries (GLOBOCAN: International Agency for Research on Cancer, 2008). The treatment expenditure of breast cancer is a burden not only for people diagnosed with cancer but also for their families and society as a whole. According to American Cancer Society (2010) breast cancer is one of the top three types of cancer that caused the most economic impact (\$88 billion) [1-5].

Though successful treatment options are available to deal with breast cancer, pain and suffering associated with available treatment modalities is significant. Chronic, persistent pain acts as an additional stressor for a person already suffering from many psychological, social and medical stressors. Research has demonstrated association between clinically relevant pain and breast cancer surgery in 10-50% patients. There are pathogenic mechanisms involved in breast cancer like nerve damage and certain sensory disturbances (e.g., burning and sensory loss) are part of side effects of surgical processes [6]. Breast cancer surgery is followed by chronic neuropathic pain syndrome like Phantom breast pain (a sensory experience that is present even after removal of breast and is painful), Intercostobrachial Neuralgia (pain in the distribution of intercostobrachial nerve) and Neuroma pain (pain in the region of scar on breast, chest or arm). Radical mastectomy is most disfiguring type of breast cancer surgery and it involves removal of breast, major and minor chest muscles, and lymph nodes [7]. Breast conserving techniques, another treatment option, were expected to reduce psychiatric morbidity and sexual dysfunction, but none of the studies involving appropriate assessment of psychiatric morbidity showed any advantage of breast conserving therapy [8].

Patients with the breast cancer differ significantly in time of relapse

despite the fact that nature of tumors was similar at initiation of breast cancer. These differences in time of relapse has led to the thought that determinants of breast cancer survival are much broader than assumed by medical framework. A large body of research has been devoted to understand the role of psychosocial factors in determination of clinical outcomes of breast cancer [9]. Research evidences showed that psychological morbidity like helpless/hopelessness [10,11], hostility and guilt [12], chronic stress [13,14], extroversion and cognitive disturbance [15], lack of joy and negative mood [16], stressful life events [9,17,18], lack of perceived social support [19], obsessive-compulsive symptoms [20] adjustment problems [21], are experienced by one-third of women in the first two years after treatment.

Method

Literature search

A systematic search of literature was performed to obtain original studies that involved investigation of association between psychological factors and breast cancer. The relevant studies were identified by using Google scholar database. Search was made by pairing following word with breast cancer after AND: depression, anxiety, self image/self esteem, quality of life, coping strategies.

Study selection

Systematic search included only original studies therefore letters, reviews, case notes and editorials were excluded from study. Those studies were included in review that reported association between

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psychological factors (depression, anxiety, self image, quality of life and coping strategies) with breast cancer. Studies conducted in last 10 years were included (from 2003-2013). For depression and anxiety, only those studies were included that mentioned prevalence of depression and anxiety in breast cancer sample. For self image/self esteem and quality of life, only those studies were included that clearly mentioned impact of breast cancer on self image/self esteem and quality of life. For coping strategies, those studies were included that investigated types of coping styles used by breast cancer patients. There were no limitations regarding sample size, outcome measures and study design of researches included in review. Those studies were also excluded that focused on psychological impact of specific types of breast cancer treatments. Studies investigating effects of biological and organic factors on quality of life were also excluded. Those studies that investigated impact of psychological factors on onset of breast cancer were excluded. Furthermore, studies evaluating effectiveness of interventions for treatment of psychological morbidity of breast cancer were also excluded [22-25].

Data extraction

Following data was extracted from studies that were part of this review: date of publication, objective of study, study design, study population, measures used for psychological factors (depression, anxiety, self image/self esteem, coping strategies and quality of life), main findings regarding: prevalence of depression and anxiety, effects on self image/self esteem, and quality of life, types of coping styles used by breast cancer patients [26-28].

Results

Depression and anxiety

For depression and anxiety, Google scholar database given 341 results from 2003 to 2013. Out of 341 studies, 17 studies met inclusion criteria of this review [29-32]. Out of 17 studies, 9 studies assessed only depression [33-41]. In Table 1, those studies were summarized that investigated depression alone and depression and anxiety. Out of 17 studies, 5 were conducted in UK [30,34] 5 studies from China, 2 from USA, 2 from Australia [42], 1 from Thailand [43], 1 from Turkey [2], one from Europe [44] and 1 from Malaysia [45]. Out of 17 studies, 9 studies followed descriptive cross sectional research design [2,34,42,43,45,57,59,60,62] cross sectional comparative design was used in 2 studies [38,65] 2 studies followed longitudinal design [33,44,54] observational cohort design was used in 2 studies [30,65] and only 1 study followed correlation design [63]. Only four studies had sample size lower than 100 [2,56]. Most of the studies used Hospital Anxiety and Depression scale (HADS) to assess anxiety and depression [44,45,54,60,62]. Three studies used Structured Clinical Interview for Depression and Anxiety [30,38,42]. Prevalence of depression in early stage breast cancer ranges from 9.6% to 33% [30,38,57] and anxiety in early stage breast cancer was reported to be 34% [57]. Three studies reported prevalence of depression at advanced stage of stages and it ranges from 6.5% to 61% [38,42,59]. None of the studies included in this review reported prevalence of anxiety at advanced stage of breast cancer [61-63]. Only one study reported differences in prevalence of depression in malignant and benign tumors: 38.4% depression in patients with malignant tumors and 20.8% depression in patients with benign tumors [64]. Two studies reported that prevalence of depression in breast cancer patients at 0-III stage ranges from 13-30% [57,65]. Prevalence of depression in breast cancer women undergoing chemotherapy is 19.1% 29% [2,45] and of anxiety is 24.1% while in women at 6 months post-chemotherapy prevalence of depression is

10% and of anxiety is 46.4% [62]. Prevalence of depression in women under follow up for breast cancer treatment is 29% while prevalence of grade I anxiety is 2.5%, grade II anxiety is 77%, grade III anxiety is 19% [34] while prevalence of depression in breast cancer women at completion of treatment is 22.2% and of anxiety is 38.4% [54].

Coping strategies

For coping strategies and breast cancer, Google scholar database given 16 results. Out of 16 results, 4 studies met inclusion criteria of this review. Four studies were conducted in China [32,52,66] and one in Malaysia [45]. Research design of two studies was descriptive cross sectional [42,52] and two were correlational studies [32,66]. Studies indicated that facing coping is negatively associated with mood at preoperative level (anxiety, $p = 0.032$, depression, $p = 0.001$) [66] as well as at post-operative level poor mood was found in patients using avoidant coping ($F=6.78$, $P=0.01$). Avoidance coping was higher ($p=0.01$) at rehabilitative period as well along with complying coping strategy [32]. Disengagement ($p=0.002$) and self blame ($p=0.013$) were commonly used coping strategies for depressed breast cancer patients receiving chemotherapy (Table 2).

Self image

For self image/self esteem and breast cancer, Google scholar database given 11 results, out of which 4 studies met inclusion criteria of this review. All studies were conducted in developed countries: 1 from USA [22] 1 from Europe [46], 1 from Australia [51] and 1 from UK [50]. Three studies used descriptive cross sectional research design [22,46,51] and 1 study followed longitudinal design [50]. Significant impairment in body image is reported by cross sectional (17%) [22] as well as by a longitudinal study ($p=0.035$) [50]. Positive association was found between self image difficulties and depression, anxiety and stress ($p=0.01$) in women who completed treatment for cancer [51]. Women who underwent mastectomy reported dissatisfaction with the scars, feeling less sexually attractive, self consciousness (44%, 48%, and 48% respectively) [46] (Table 3).

Quality of life

Google scholar database given 1140 results for "quality of life and breast cancer". Out of 1140 studies, 9 studies met inclusion criteria for this review because studies investigating effects of specific types of treatments on quality of life were excluded. Four studies were conducted in USA [24,25,41,55], two in Australia [4,27], one in Germany [36], one in UK [31] and one in Iran [5]. Four studies used descriptive cross sectional research design [4,5,27,31] three studies followed cross sectional comparative design [24,25,41], one study used longitudinal design [36] and one study used Correlational design [55]. European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire-Core 30 (EORTC-QLQ-C30) was used in most of the studies [4,27,31,36]. Study involving early breast cancer patients ($p<0.001$) [31] as well as study involving participants after 4 years of diagnosis of breast cancer reported significant impairment in quality of life ($p<0.01$) [36]. Study investigating women with breast cancer who are in midway of their cancer treatment reported negative correlation between quality of life and depression [5] while study involving patients who are at end of cancer treatment reported problems in physical functioning. Patients with advanced breast cancer also reported problems in physical and social roles [4] as well as self image problems [27] (Table 4).

Discussion

From review of literature many useful information has been sought

Reference	Study site	Type of study	Study population	Psychological factor	Measure	Results
Schou et al. [44]	Norway, Europe	Longitudinal study	165 women newly diagnosed with breast cancer	Depression Anxiety	Hospital Anxiety and Depression Scale	12% depression at diagnosis and 9% after 1 year, 34% anxiety at diagnosis and 26% after 1 year
Kissane et al. [38]	Australia	Cross sectional comparative study	Overall 503 women with breast cancer (303 with early breast cancer and 200 with advanced breast cancer)	Depression	Structured Clinical interview for Depression	9.6% depression in early stage breast cancer, 6.5% in advanced stage breast cancer
Love et al. [42]	Australia	Descriptive Cross sectional study	227 women with stage IV breast cancer	Depression	Structured Clinical interview for Depression	32% depression
Badger et al. [33]	USA	Longitudinal study	169 women with breast cancer	Depression	Side Effect Checklist-Depression Burden scale	27.2% depression
Burgess et al. [30]	London, UK	Observational cohort study	222 women with early breast cancer	Depression, anxiety or both	Structured Clinical interview for Depression Structured Clinical interview for Anxiety	33% at time of diagnosis 24% at 3 months after diagnosis
Rodgers et al. [62]	England, UK	Descriptive Cross sectional study	110 patients with breast cancer at 6 months post-chemotherapy	Depression Anxiety	Hospital anxiety and depression scale	10% depression, 46.4% anxiety
Ell et al. [57]	USA	Descriptive Cross sectional study	472 women with stage 0-III breast cancer	Depression	Patient Health Questionnaire-9 (PHQ-9)	30% depression
Yen et al. [65]	Taiwan (Republic of china)	Cross sectional comparative study	Overall 97 patients with breast cancer (73 having malignant tumor and 24 having benign tumor) receiving active therapy	Depression	Center for Epidemiological Studies-Depression scale (CES-D)	38.4% depression in malignant group, 20.8% depression in benign group
Lueboonthavatchai [43]	Thailand	Descriptive Cross sectional study	300 women with breast cancer	Depression Anxiety	Hospital anxiety and depression scale	9% depression (16.7% depressive symptoms), 16% anxiety (19% anxiety symptoms)
Yan-li et al. [63]	China	Correlational study	124 breast cancer patients at first postoperative stage	Depression	Self-rating depression scale (SDS)	59.7% depression at postoperative stage
Slovacek et al. [59]	Czech Republic, Europe	Descriptive Cross sectional study	41 patients with metastatic breast cancer	Depression	Czech version of Zung self-rating depression scale	61% depression
So et al. [60]	China	Descriptive Cross sectional study	215 woman at midway through treatment for breast cancer	Depression Anxiety	Hospital anxiety and depression scale	21% depression 36% anxiety
Alacacioglu et al. [2]	Turkey	Descriptive Cross sectional study	55 breast cancer women undergoing chemotherapy	Depression	Beck Depression Inventory	29% depression
Chen et al. [65]	China	Observational Cohort study	1399 women with stage 0 to III breast cancer	Depression	Center for Epidemiological Studies-Depression scale	13% at 18 months after diagnosis
Karakoyun-celik et al. [34]	England, UK	Descriptive Cross sectional study	250 women under follow up for breast cancer treatment	Depression Anxiety	Beck Depression Inventory State-Trait anxiety Inventory	29% depression 2.5% Grade I anxiety, 77% Grade II, 19% Grade III anxiety
Vahdaninia et al. [54]	England, UK	Longitudinal study	167 patients at completion of breast cancer treatment	Depression Anxiety	Hospital Anxiety and Depression Scale	22.2% depression, 38.4% anxiety at 18months post-treatment of breast cancer
Saniah and zainal, [45]	Malaysia	Descriptive Cross sectional study	82 patients with breast cancer receiving chemotherapy	Depression Anxiety	Hospital Anxiety and Depression Scale	19.1% depression, 24.1% anxiety

Table 1: Methods and outcomes of studies examining prevalence of depression and anxiety in patients with breast cancer.

regarding psychological issues faced by patients with breast cancer. Most of the studies included in review followed cross sectional design rather than prospective follow up studies. Prospective studies can be more helpful in addressing the issue of how association between different psychological variables and breast cancer may change over time. Studies comparing patients at different stages of illness were limited in this review.

Review included studies with patients at different stages of illness and depression and anxiety was found at early as well as at advanced stage. Patients with malignant as well benign tumors reported

depression though frequency of those with benign tumors was slightly low. Depression was found in patients who were in process of receiving chemotherapy as well as those who completed their chemotherapy. This may indicate that the disease characteristics have little impact on level of depression. Self image problems were faced by those who were at early stage of illness as well as those received mastectomy. Association was found between poor self image and depression.

There is consensus in studies regarding common use of avoiding coping strategies as well as association between avoidance coping strategies and poor mood or depression. Disengagement, self blame

Reference	Study site	Type of study	Study population	Measure	Results
Canhual et al. [52]	China	Descriptive Cross sectional study	68 post-operative breast cancer patients	Dealing with Illness-Coping Inventory(DWI-CI)	Significant effect of coping styles on mood ($F=6.78$, $P=0.01$). poor mood was found in patients with avoidance behaviors
XuMei and XiaoMei [66]	China	Correlational design	98 patients with breast cancer at preoperative	Medical Coping Modes Questionnaire	High avoidant coping at end of chemotherapy. Negative correlation between preoperative facing coping and anxiety ($r=-0.209$, $P=0.032$) and depression ($r=-0.313$, $P=0.001$)
Saniah and zainal [45]	Malaysia	Descriptive Cross sectional study	82 patients with breast cancer receiving chemotherapy	Brief COPE Scale	Depressed breast cancer patients had significantly higher score on coping strategies such as behavior disengagement ($p=0.002$) and self-blame ($p=0.013$)
Jiaojiao et al. [32]	China	Correlational design	98 breast cancer patients at rehabilitative period	Medical Coping Modes Questionnaire	"complying with" and "avoiding" coping was higher (0.01)

Table 2: Methods and outcomes of studies examining coping strategies in patients with breast cancer.

Reference	Study site	Type of study	Study population	Measure	Results
Fobair et al. [22]	USA	Descriptive Cross sectional design	549 women with breast cancer, at seventh month after diagnosis	Breast Cancer problem Checklist (3 items related to body image problems)	33% of women reported body image problems some of the time while 17% reported body image problem much of the time
Brandberg et al. [46]	Sweden, Europe	Descriptive Cross sectional design	90 women with breast cancer who underwent mastectomy	Body Image Scale	Majority of the patients reported problems with body image i.e., dissatisfaction with the scars 44%, feeling less sexually attractive 48%, self consciousness 48%
Przedziecki et al. [51]	Australia	Descriptive Cross sectional design	279 women with breast cancer and completed treatment of cancer	Body Image Scale Self-compassion Scale	Body image problem has positive association with depression ($r=0.039$, $p=0.01$), anxiety ($r=0.026$, $p=0.01$) and stress ($r=0.30$, $p=0.01$)
Oudsten et al. [50]	Netherlands, UK	Longitudinal study	600 women with early breast cancer	World Health Organization Quality of Life-Body Image and appearance subscale	Women receiving mastectomy had significant impairment in body image ($p=0.035$)

Table 3: Methods and outcomes of studies examining self image/self esteem in patients with breast cancer.

Reference	Study site	Type of study	Study population	Measure	Results
Kerr et al. [36]	Germany	Longitudinal study	980 patients with breast cancer at 4 years after diagnosis	European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire-Core 30 (EORTC-QLQ-C30)	17 out of 27 items of quality of life were significantly worse in patients who are at stage of 4 years after diagnosis ($p<0.01$)
Patricia et al.	USA	Cross sectional comparative study	558 patients with breast cancer at end of treatment of cancer	Medical Outcome Study (MOS-SF-36)	Patients who received mastectomy had poor physical functioning as compared to those received lumpectomy ($p<0.001$)
Casso et al. [41]	USA	Cross sectional comparative study	216 women with breast cancer, included both who received adjuvant therapy and those who did not receive.	Cancer Rehabilitation Evaluation System-Short Form (CARES-SF)	Women who received adjuvant has poor quality of life as compared women with non-adjuvant therapy ($p<0.01$)
Aranda et al. [4]	Australia	Descriptive Cross sectional study	105 women with advanced breast cancer	European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire-Core 30 (EORTC-QLQ-C30)	25% women reported difficulties with physical role, 33.3% reported problems in social functioning
Avis et al. [25]	USA	Cross sectional comparative study	218 women with stage I, II, III breast cancer	Functional Assessment of Cancer Therapy-Breast Cancer (FACT-B)	Quality of life was significantly lower in breast cancer patients as compared to non-patient sample ($p<0.0001$). 70% women reported general aches and pain
Grabsch et al. [27]	Australia	Descriptive Cross sectional study	227 women with advanced breast cancer	European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire-Core 30 (EORTC-QLQ-C30)	33.3% reported feeling less attractive, 25% reported dissatisfaction with body image
Hopwood et al. [31]	UK	Descriptive Cross sectional study	2208 women with early stage breast cancer	European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire-Core 30 (EORTC-QLQ-C30)	Chemotherapy has highest affect on domains of quality of life and resulted in poor body image and sexual functioning ($p<0.001$)
Sammarco and Konecny [55]	New York , USA	Correlational study	89 women with breast cancer survivors	Ferrans and Powers Quality of Life Index-Cancer Version III	Significant negative correlation between uncertainty and quality of life, 10.4% variance in quality of life was predicted by uncertainty

Ardebil et al. [5]	Iran	Descriptive Cross sectional study	60 women with breast cancer in midway of their course of treatment	Functional Assessment of Cancer Therapy (FACT)	There was significant negative correlation between depression and quality of life ($r=-17-77$, $p=0.001$)
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Table 4: Methods and outcomes of studies examining quality of life in patients with breast cancer.

and “complying with” strategies has also been found to be used by breast cancer patients and these coping styles also has association with depression. Like depression and anxiety, poor quality of life is also reported by both early as well as advanced breast cancer patients.

Most of the studies on depression, anxiety, self image and quality of life were conducted in developed countries. According to Yen et al. [64] prevalence of breast cancer is also increasing in developing countries. Therefore psychological problems faced by breast cancer patients in low income countries should also be focused.

Conclusion

Majority of the studies reported high prevalence of depression and anxiety in breast cancer patients. Use of poor coping strategies is common in breast cancer patients at all stages even after treatment. Poor self image and quality of life is associated with all types of treatments.

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