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Psycho-social distress and disease specific treatment affecting quality of life in breast cancer patients: A brief report

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Abstract
Health-related quality of life (QOL) in breast cancer patients is very pertinent to assess due to advances in treatment leading to prolonged survival. Nevertheless, psycho-social distress and various treatment modalities used in breast cancer can have both acute and delayed complications which can significantly affect QOL of the patient. The diagnosis of the disease, impairment of body image, alopecia and alteration of femininity are some of the major factors causing psychological distress. Among the treatment related factors, fatigue, insomnia, lymphedema, premature menopause and pain are the prominent factors influencing QOL. Measures should be undertaken to timely diagnose and treat these symptoms. Physical activity such as yoga, tai-chi, aerobics, meditation can enhance QOl and reduce these symptoms. Also psychosocial education is an upcoming treatment which helps to improve overall QOL.

Keywords: psycho-social distress, quality of life, EORTC QLQ C-30, surgery, chemotherapy, radiation

Introduction
Quality of life (QOL) or specifically health-related quality of life is defined as breast cancer patients' perception of their own physical, mental and social health that is influenced by cancer diagnosis, treatment, post-treatment complications and survivorship as assessed by using well validated instruments [1]. Health-related quality of life is now considered an important endpoint in cancer clinical trials. Among the QOL studies in cancer patients, breast cancer has received most attention for several reasons. First, it is the most common cancer in women. As per GLOBOCAN 2018, over two million cancer cases have been diagnosed with breast cancer worldwide [2]. Secondly, in the past years, breast cancer prognosis has improved significantly over time, so increasing proportion of cured patients require dedicated strategies to manage long term sequelae with particular attention to quality of life [3].
Thirdly, breast cancer affects women's identity and therefore studying QOL for those who loose their breasts as their femineity is important.
The first paper on QOL in breast cancer patients was published in 1974 where advanced breast cancer patients receiving adrenalectomy with chemotherapy were assessed for their response rates, survival and quality of life. The results showed that 64% of the patients returned to essentially normal living with the treatment [4]. However, the publications related to QOL gained momentum two to three decades later as the advances in cancer treatment increased the survival. Our article is a brief review about QOL in breast cancer patients, focussing on the psycho-social issues and treatment related factors affecting their overall QOL.

QOL Instruments
Broadly, quality of life measures can be classified according to three categories: general, disease specific, and tools related to breast cancer symptoms. Several valid tools for measuring quality of life in breast cancer patients have been developed in recent years. The most commonly used instruments is the European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaire and its Breast Cancer supplement (EORTC QLQ-C30 and QLQ-BR23) [5]. This additional BR module assesses areas that are specific to breast cancer such as body image, sexual functioning, breast and arm symptoms, sexual enjoyment and side effects of systemic therapy.
The second most commonly used tool is the Functional Assessment of Cancer Therapy General Questionnaire and its Breast Cancer Supplement (FACT-G and FACT-B). This tool assesses the overall well-being of the patient. Some other tools used are the Hospital Anxiety and Depression Scale (HADS); the Medical Outcomes Study Short Form Survey (SF-36) and Body Image After Breast Cancer Questionnaire (BIBCQ), which is a valid measure for assessing the long-term impact of breast cancer on body image [6]. The commonly used tools to measure QOL in breast cancer is shown in Table 1.

Table 1: Commonly used Instruments to measure QOL in breast cancer

General	Disease specific	Symptom related
Medical outcomes study Short form health survey (SF-36)	European Organization for Research and Treatment of Cancer Core quality of Life questionnaire (EORTC QLQ-C30)	European Organization for Research and Treatment of Cancer Breast Cancer Quality of Life Questionnaire (EORTC QLQ-BR23)
Sickness impact profile (SIP)	Functional Assessment of Chronic Illness Therapy General Questionnaire (FACT-G)	Functional Assessment of Chronic Illness Therapy-Breast (FACT_B)
Spitzer Quality of life index (QLI)	Functional Living Index-Cancer(FLI-C)	Breast Cancer Chemotherapy Questionnaire(BCQ)

Psycho-social distress

Psycho-social distress is seen very commonly in women with breast cancer. The diagnosis of the disease, impairment of body image, alopecia, alteration of femininity, sexuality and attractiveness are factors that can cause unexpected psychological distress even years after diagnosis and treatment [7]. It leads to depression, anxiety, and overall decline in QOL especially emotional functioning, social functioning and mental health. In some cases, overall survival is also affected and timely treatment of depression is helpful. However, it has been seen that older patients have more acceptance towards cancer diagnosis although they might have more co-morbidities as compared to younger ones [8]. Sexual functioning is also an important issue, especially in younger patients which can lead to psychosocial distress. About 60% of women usually report disruption in their sexual quality of life which is related to diagnosis at younger age, treatment with chemotherapy, emotional distress and psychosocial issues [9]. Premenopausal patients scored significantly higher in sexual enjoyment as compared to postmenopausal patients in a study by Imran *et al* from Saudi Arabia [10]. It is important that younger survivors may need interventions that specifically target their needs related to relationships, sexual functioning and body image.

Treatment related

Patients with breast cancer have to undergo a combination of treatment modalities like surgery, chemotherapy, radiation therapy and hormonal therapy [Table2]. Side effects of each modality can vary and can influence the QOL of the patient**.** Fatigue (as measured by the EORTC QLQ-C30 fatigue subscale) was the most significant factor influencing quality of life and independently predicted longer recurrence-free survival in a recent study of 1,588 breast cancer patients [11].

Table 2: Factors affecting QOL in breast cancer patients

Psycho-social factors	Treatment related
Diagnosis of cancer	Chemotherapy induced side effects- fatigue, pain, alopecia
Impaired body image	Surgical-lymphedema of arm
alopecia	Hormonal therapy side effects-hot flushes, vaginal dryness, arthralgia
Alteration of feminity and attractiveness	Radiation related dermatitis, pneumonitis, cardiotoxicity
Impaired sexual functioning	Associated co-morbid conditions, poor economic status

1. Surgery

Quality of life in breast cancer depends significantly on the type of surgery. Patients can have arm lymphedema, pain, insomnia and disfigurement of body image due to surgery. The results of a 5-year prospective study indicated that patients undergoing total mastectomy had a significantly worse body image, role and sexual functioning, and their lives were more disrupted as compared to patients who underwent breast preservation surgery [12]. However, both short-term and long-term distress levels may depend on patient's age and type of adjuvant treatment given. The negative impact of breast cancer and its treatment was greater for younger women regardless of treatment type [8]. Patients receiving either immediate vs delayed breast reconstruction experienced similar satisfaction and QOL after reconstruction [13]. Furthermore, women with breast reconstruction had better health related QOL, significantly better mental health, less stress and anxiety levels. On the contrary, women without breast reconstruction had higher level of loneliness, which was found to be correlated with poor QOL and higher levels of anxiety [14].

2. Chemotherapy

Almost all patients of breast cancer require chemotherapy and/targeted therapy. Chemotherapy can have acute detrimental effects on many physical and psycho-social aspects of health related QOL. In the present scenario, longer and more aggressive therapies can cause more severe and persistent effects [15, 16]. This is the reason why out of all treatments in breast cancer, maximum number of QOL studies are done on patients receiving chemotherapy. Nevertheless, most aspects of QOL recover rapidly after the end of chemotherapy without long-term effects in the majority of patients. The review of 57 studies on 75 determinants of health-related QOl in Asian patients with breast cancer indicated that associated co-morbidities, extent of social support, and current income level were strong predictors of quality of life [17]. To improve clinical outcomes, an international

randomized controlled trial compared dose-intensive chemotherapy with standard systemic chemotherapy in patients with locally advanced breast cancer showed that a dose-intensive regimen only has a temporary effect on health-related quality of life, thus enabling more research on intensive treatment for patients with locally advanced breast cancer, as it might also offer a survival benefit [18].

3. Hormonal therapy

Breast cancer patients may require long term endocrine therapies, upto 5 year or 10 years, and their QOL may be affected due to long term sude effects of hormonal therapy. Recent studies focusing on adjuvant hormonal therapies and QOL in postmenopausal breast cancer patients reported that overall QOL was improved in patients receiving hormonal therapy [19]. Adverse events such as hot flushes were the most common, other side effects were vaginal dryness and discharge, dyspareunia, and arthralgia which vary in prevalence with the hormonal therapy. A trial comparing tamoxifen with exemestane showed that quality of life did not change significantly in either groups, but there were improvements in endocrine-related symptoms [20]. Finally, it has been recommended that currently in assessing QOL in breast cancer patients receiving systemic therapies priorities should be given to cognitive functioning, menopausal symptoms, body image and long-term effects of new therapies that might cause musculoskeletal and neurological side-effects [21].

4. Radiation

Radiation therapy is an important and validated modality for the management of breast cancer patients in all clinical stages. However, only a few studies have studied impact of QOL in breast cancer patients receiving radiation. In a systematic review of 182 trials by Marta *et al*, it was interpreted that improved local outcomes with radiation can have positive effect on overall quality of life [22]. However, severe radiation related toxicities are relatively infrequent nowadays due to improvements in radiation planning and delivery methods. Long-term complications such as pneumonitis, cardiotoxicity and radiation-induced second malignancy can happen many years after radiation, therefore longer follow up is required to derive any significant conclusion.

Measures to improve QOL

Many interventions have been tried in breast cancer patients to improve their QOL with positive results [Table 3]. First of all, physical activity can enhance QOl and reduce symptoms related to breast, arm and menopause. This was shown in a meta-analysis consisting of 5544 patients where exercise interventions such as aerobic, Tai Chi, yoga, stretch training, and resistance training in survivors had statistically significant effects on overall QOL and breast and arm symptoms [23]. Along with this, various other complimentary and alternative medicine therapies like dietary changes, mind-body techniques yoga and spiritual therapy can also improve QOl [24]. These therapies act on mind and body to reduce anxiety, depression, fear of recurrence, insomnia and fatigue. Psychosocial education is an upcoming treatment which helps the patient to fight against symptoms and improves emotional well-being among cancer patients [25]. In recent years, judicious use of newer treatment strategies in radiation planning, targeted chemotherapy and breast preservation surgery is very important to restore QOL of the patient.

Table 3: Measures to improve QOL in breast cancer patients

1	Implementation of physical activity- yoga, tai-chi, aerobics
2	Mind -body techniques- meditation, spirituality
3	Dietary changes
4	Psycho-social education to overcome fear and anxiety
5	More advanced radiation treatment planning
6	Use of targeted therapies to decrease side effects
7	Oncoplastic breast surgery
8	Treatment of lymphedema
9	Sexual counselling of partner also
10	Cognitive behavioral therapy

Conclusions

Over the past 10 years, much clinical effort has been expanded in the treatment of breast cancer in order to improve survival. Simultaneously, overall QOL in terms of global health status in breast cancer patients has also improved due to effective treatments and psychosocial counselling. However management of symptoms such as fatigue, pain, lymphedema, alopecia and sexual functioning in younger patients deserve further considerations. Long term sequalae of treatment and its related QOL need further attention in view of improved survival rates.

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Conflict of interest

Nil

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