Factors affecting Quality of Life (QoL) in Breast Cancer Patients : A Case Study at King George's Medical University, Lucknow

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Abstract

Globally Cancer is the second leading cause of death and approximately 9.6 million deaths due to cancer in 2018. Approximately about 1 in 6 deaths is due to cancer globally. In low and middle-income countries approximately 70% of deaths are due to cancer. Some common cancers in Indian women are Breast, Cervix, Ovary, Mouth & Esophagus, Colorectal and other cancers. Breast cancer is the commonest cancer among women across the World as well as in India. Although rapid advancement, mammography & screening has increased rate of survival but women who survive continue to face medical, physical, social and psychosocial challenges. Evaluation of quality of life is also important for understanding the effect of treatment and how much different factors affect quality of life of the breast cancer patients.

This paper aims to predict Quality of Life (QoL) in breast cancer patients using various physical, psychological, social and spiritual domains. This descriptive and cross sectional study was undertaken to determine the factors affecting quality of life (QOL) in breast cancer patients. Patient's response and hospital records analyses the dimensions which affects quality of life among breast cancer patients in the state of Uttar Pradesh. Findings suggest strong relationship between clinical and socio-demographical factors and breast cancer patients' QoL. This study demonstrates the strength of the relationship between education and physical well-being, education with social well-being and education with spiritual well-being. A strong relationship was found between marital status and spiritual well being. A strong relationship was found between clinical stage and spiritual well being. A good relationship was found between tumor stage and social and spiritual well being. A strong relationship was also found between type of treatment and physical, psychological and social well being. This study fills a gap in the literature related to QoL in Indian women suffering from carcinoma breast.

Keywords: *Cross-sectional study, QoL, QoL instrument, physical well being, psychological; well being, social well being, spiritual well being, independent t-test, ANOVA analysis.*

Introduction

Breast cancer is the most common type of cancer which affects women worldwide (**World Health Organization, 2012)[14]**. The standard treatment for breast cancer is surgery, followed by different combinations of treatments like chemotherapy, radiotherapy and hormone therapy. Although the rate of survival among breast cancer patients has increased in recent past due to rapid advancements in treatment and mammography screening **(Holleczek B et al, 2011)[9]** the surviving women pass through various medical, physical and psychosocial challenges **(Dizon, 2009)[8].**

Studies on breast cancer survivorship seek to examine a broad area of topics related to cancer diagnosis

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and treatment-related outcomes like medical status, late effects of treatment, second cancers and quality of life (QoL) (**Aziz, 2002; Lemieux et al, 2007**)[2,3],. The importance of QoL has been illustrated by studies that evaluated QoL during treatment and found that it can be used to improve the treatment, serve as a prognostic medical factor and predict survival **(Ali Montazeri, 2008; Coates et al, 1997)**[5,6]. Lack of research into QoL among cancer survivors has been proclaimed as a challenge area within academia **(Aziz, 2002)**[2].

Material and Method

Diagnosis of breast cancer and its long term treatment have been shown to have positive and negative effects in recovery and QoL as different interventions have different effects. QoL expresses an overall sense of well-being, happiness and satisfaction with life. It includes subjective evaluations of both positive and negative aspects of life **(CDC, 2000)**.[7]

According to the World Health Organization, QoL is "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" **(World Health Organization, 1997)**[13]. Hence, focus on quality of life issues and measurement of quality of life among breast cancer patients is a very important area for research **(Ali Montazeri et al, 2008)**[5]

The physical domain includes disease or treatment related body concerns like fatigue and pain, while the functional domain measures the ability to work as affected by the illness. The psychological domain assesses the positive and negative emotional effects including stress, depression and anxiety. The ability to participate in the usual social activities are measured in the social domain, while the spiritual domain examines the existential dimension of the patient's experience. Lastly, the sexual domain assesses the impact of the illness on the intimate life of the patient. Hence, health-related quality of life (HRQoL) seems to cover aspects of overall QoL that can be shown to affect both physical and mental health **(CDC, 2000).**[7]

The socio-ecological context assesses socioeconomic status (income, education and employment), life burden (living situation, neighborhood character and resources, day-to-day strain) and social support (emotional, instrumental, social networks). The cultural context includes ethnicity (region of ancestral origin), ethnic identity (level to which ethnicity and cultural heritage defines self), acculturation (language, choice of media, social network and practices), interconnectivity (quality and pressure of family life and social relationships), world-view (attitudes and beliefs) and spirituality (faith based beliefs and practices). The demographic context includes age, while the healthcare system context includes access to health care (cost, insurance, availability of treatment centers), quality of healthcare (state of the art, satisfaction with care) and quality of physician–survivor relationship (compassion, communication, involvement).

The individual level is measured under general health (disease status and co-morbid illness(es)), cancer-specific medical factors (stage, surgery, chemotherapy, radiation and age at diagnosis), health efficacy (motivation and know-how about health practices, utilization, perceived health efficacy, medical adherence) and psychological well-being (level of functioning as affected by depression, anxiety, stress, self-esteem)

Existing research on QoL of breast cancer survivors has looked into measurement of QoL from a diverse range of focus areas like surgical treatment, systemic therapies, psychological distress, supportive care and common symptoms **(Ali Montazeri et al, 2008)**[5]. Further, research papers have looked into QoL by examining defined subgroups under age, ethnicity, treatment (surgical procedure, adjuvant therapy, breast reconstruction) and time elapsed since diagnostic **(Lemieux et al, 2007)**[3]. While studies have focused on the physical, functional and psychological effects, more research is required in order to examine the economic effects of cancer on the quality-of-life outcomes **(Aziz, 2002)**[2]. As argued by (**Ashing-giwa,2005)**[4]under the contextual model of HRQoL, diverse variables like care-giving and medical care settings need to be taken into consideration (**Rowland et al, 2002)**[1] in order to shed more light on the topic. Furthermore, it is required that factors like socio-economic status, education level be considered, especially in countries like India where a large percentage of women are from rural backgrounds with limited literacy and healthcare access **(Sharma and Purkayastha, 2017).**[11]

Method

This cross-sectional study was conducted at King George's Medical University, Lucknow, UP, India. Data collection was conducted through a structured questionnaire of two portions. The first portion included

demographic, disease and treatment related information and second portion consist of specific questionnaire regarding the quality of life of breast cancer patients.

This is a descriptive study done at King George's Medical University, UP, Lucknow which is situated at capital of U.P. Lucknow, India. A non-probability purposive and convenience sampling was done as the Institute is a tertiary care centre and all types of cancer patients are treated here. Study was conducted between April 2018 and June, 2018. All the patients attending Endocrine Surgery Department and Radiotherapy Department both in OPD and Indoor were included in the study who agreed to participate and gave written consent. Patients who were serious and unable to give a written consent were excluded from the study. Ethical clearance was taken from Institutional ethics committee of KG Medical University, Lucknow.

The data includes patient's demographics, clinical stage, type of treatment etc and entered in a data collection Proforma already designed for the study. The quality of life of patients were assessed using a QoL questionnaire designed by Ferrel's Quality of Life Instrument-Breast Cancer patient version and the instrument is already validated by Ferrel BR et al (2012). The data obtained gives Cronbach alpha value of 0.642 which is reliable enough for further study.

The quality of life instrument (BREAST CANCER PATIENT VERSION) is a forty-six item ordinal scale which measures the quality of life of a breast cancer patient. These questionnaires consist of general well being, psychological well being, distress, fearfulness, social concerns and spiritual well being.

Statistical analysis: Data entry and analysis was performed using SPSS version 25. Before the analysis data was cleaned, accuracy was checked, missing values were filled and categorization and coding of fields were completed. Demographic characteristics (qualitative/ categorical data) were presented as frequencies and percentages and quality of life subscale score (quantitative data) were presented as mean and SD. The mean score for each subscale of the QOL instrument (physical, psychological, social and spiritual subscale) was compared to socio-demographic and clinical characteristics of the patients by ANOVA (Analysis of variance), p-value $\leq .005$ was considered significant.

Findings:

Demographic characteristics of patients: In this study 10.7% respondents were above 60 years age and 54.7% were between 41 and 60. 37.4% were aged less than 40 years. Regarding marital status 96.7% women were married and 2.7% were unmarried. Among all these women 47.3% were illiterate and 14% were merely educated up to primary level. As far as occupation is concerned, 95.3% were housewives and 3.3% were employed as government servant. 74% woman belongs to low income category while 25.3% belongs to middle income group..

Clinical and treatment related characteristics of patients: Cancer staging of all patients were II-A, II-B, III-A, III-B, III-C and stage IV. Among all patients 51.3% patients had stage III-B while Stage IV were 14.7%, Stage IIIA were 12.7 and IIB were 12%. Regarding treatment 90.7% received neo-adjuvant chemotherapy (NACT) while 6% patients received adjuvant chemotherapy.

QOL Item scores: In the physical well-being subscale, highest mean score was observed for menstrual changes or fertility (Mean = 5.41, SD = 2.35) followed by vaginal dryness/menopausal symptoms (Mean = 5.37, SD = 2.32), Weight gain (Mean = 5.28, SD = 2.36). In Psychological well-being subscale highest score was observed for fear of metastasis (Mean = 6.03, SD = 2.58) followed by appearance (Mean = 6.01, SD = 1.53), treatment completion distress (Mean = 5.39, SD = 1.99).In the social well-being subscale, highest score was observed for employment (Mean = 6.73, SD = 2.55) followed by sexuality (Mean = 5.73, SD = 2.27) and support/others (Mean = 5.66,SD = 1.47). The highest score in spiritual well being subscale was observed for spiritual activities (Mean = 6.19, SD = 2.65) followed by religious activities (Mean = 5.95, SD =2.54) and spiritual changes (Mean = 5.89, SD = 2.34).

QOL subscale scores: The spiritual well-being subscale (Mean = 5.32, SD = 2.46) exhibited the highest score followed by social well-being (Mean=4.98, SD=1.94), psychological well-being (Mean=4.95, SD=2.02), physical well-being (Mean = 4.82, SD = 2.19). (T

QOL subscale domain scores in relation to demographic and clinical characteristics of the patients: Age (patients < 40 years had the highest

scores and patients between 41-60 years had the lowest scores).Urban population had higher scores as compared to rural population. Obese (≥30 Kg/m2) had higher scores followed by normal weight (18.4-24.9 Kg/m2). Post-graduates had higher scores followed by higher secondary. Marital status also influences QoL and widows were found to score high. Unemployed had highest scores followed by home maker and for socio-economic status, upper had higher scores followed by middle. Patients with stage-I had highest scores followed by stage-II and surgery has shown highest level of improvement as this treatment type reflects highest scores followed by adjuvant chemotherapy Clinical stage showed significant correlation with social well being and spiritual well-being.

Discussion

This study aims to assess the QoL of Indian women with breast cancer receiving treatment at Endocrine Surgery department at King Georges Medical University, Lucknow, UP, India. The QoL of these women was compared according to their socioeconomic, psychological and clinical characteristics to determine the impact of these factors on their routine lives. Currently assessment of QoL is an essential component of cancer research and clinical trials.

The results of this study showed that the mean score for spiritual well-being (Mean=5.32, SD=2.46) was highest followed by social well-being (Mean=4.98, SD=1.94), psychological well-being (Mean=4.95, SD=2.02), physical well-being (Mean=4.82, SD=2.19). The higher the scores, the worse the quality of life (**Victoria Wochna Loerzel et al, 2008)**[12]

In this study the mean score of the physical well-being showed significant differences with respect of age, marital status and weight/BMI category. Patients who are less than 40 years of age, unmarried and who are Obese (≥30 Kg/m2) have higher scores indicating poorer physical functioning. For the social well-being subscale, the highest score was observed for employment followed by sexuality, social support and personal relationship. Married and unmarried women have shown significantly higher scores for the spiritual well-being indicating their positive approach with spiritual and religious activities as well as positive changes and hopefulness towards their health and recovery. Studies have also shown that spirituality affects the QoL in a positive way by helping to cope the side effects of treatment given and other symptoms of the diseases during treatment like hair-loss, body pain and life threatening aspects and uncertainly about the disease. **Kimberly A Wildes (2009)**[10] reported a positive correlation between spirituality, social and functional well-being.

This study also reported that patients with higher education levels had higher scores and thus poor physical functioning compared to women who are less educated. This study has also shown a positive effect of age on QoL. Items of the physical well-being scale, fatigue and appetite showed the lowest scores and menstrual changes or fertility and vaginal dryness/menopausal symptoms showed higher scores.

Findings of this study cannot be directly compared to other studies for many reasons like cultural differences and the instrument used to assess the QOL of patient (may be the instrument was not developed in Indian scenario). The results of the study can be utilized by health care providers for effective prediction and proper management of breast cancer patients.

Conclusion

QoL was assessed in patients diagnosed with breast cancer who were undergoing treatment and follow-up at different departments like Endocrine Surgery department at King Georges Medical University, Lucknow, UP, India. This study demonstrates the strength of the relationship between clinical and socio-demographical factors and QoL of breast cancer patients'. This study demonstrates the strength of the relationship between education and physical well-being, education with social well-being and education with spiritual well-being. A strong relationship was found between marital status and spiritual well being. A strong relationship was found between clinical stage and spiritual well being. A good relationship was found between tumor stage and social and spiritual well being. A strong relationship was also found between type of treatment and physical, psychological and social well being. This study fills a gap in the literature related to QoL in Indian women suffering from carcinoma breast.

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