RESEARCH ARTICLE

Quality of Life among Breast Cancer Patients Undergoing Treatment in National Cancer Centers in Nepal

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Abstract

Purpose: To study the quality of life and to identify associated factors among breast cancer patients undergoing treatment in national cancer centers in Nepal. **Materials and Methods:** One hundred breast cancer patients were selected and interviewed using a structured questionnaire. European Organization of Research and Treatment of Cancer EORTC-QLQ-C30 and EORTC-QLQ-BR23 were used to assess quality of life and modified Medical Outcome Study -Social Support survey(mMOS-SS) was used to assess social support. Only multi-item scales of EORTC C30 and BR23 were analyzed for relationships. Independent sample T-tests and ANOVA were applied to analyze differences in mean scores. **Results:** The score of global health status/quality of life (GHS/GQoL) was marginally above average (mean=52.8). The worst performed scales in C-30 were emotional and social function while best performed scales were physical and role function. In BR-23, most of the patients fell into the problematic group regarding sexual function and enjoyment. Almost 90% had financial difficulties. Symptom scales did not demonstrate many problems. Older individuals, patients with stage I breast cancer and those with good social support were found to have good GHS/GQoL. Of all the influencing factors, social support was established to have strong statistical associations with most of the functional scales: GHS/GQoL (0.003), emotional function (<0.001), cognitive function (0.020), social function (<0.001) and body image function (0.011). Body image was significantly associated with most of the influencing factors: monthly family income (0.003), type of treatment (<0.001), type of surgery (<0.001), stage of cancer (0.017) and social support (0.011). **Conclusions:** Strategies to improve social support of the patients undergoing treatment should be given priority and financial difficulties faced by breast cancer patients should be well addressed from a policy making level by initiating health financing system.

Keywords: Quality of life - breast cancer - Nepal - financial difficulties

Introduction

Breast cancer is the most common cancer in the world today among female with an estimated 1.7 million new cases (Ferlay et al., 2013). Since 2008, new cases of breast cancer has increased by 20% and death due to it has increased by 14%. More breast cancer deaths occur in developing countries which is partly due to change in lifestyle of the people.

In Nepal, the basis of incidence and mortality of cancer are generated through hospital based records. According to the multi-hospital based cancer registration data in Nepal, breast cancer is one of the leading cancers in Nepalese women (Pradhananga et al., 2009). Most of the hospital based studies and records in Nepal have reported breast cancer as the most frequent (Bajracharya et al., 2006; Pradhananga et al., 2009). Breast cancer is in ever-increasing trend in Nepal and it has been forecasted to rise further (Sathian et al., 2010). The facility of mammography which has been proven to be diagnostically most accurate for the early detection of breast cancer in Nepal by Sidhartha et al. (2008) is limited but number of patients with breast disease who self-present to the hospital is getting higher (Sharma et al., 2005; Singh and Sayami, 2009).

Multidisciplinary approach has been adopted for treatment of breast cancer patients (Singh et al., 2009). The usual modes of treatment in breast cancer patients in Nepal documented by Sharma et al. (2005) and Bhattacharya and Adhikari (2006) are surgery, radiotherapy, chemotherapy and endocrine therapy. With the advancement of the treatment approaches, the chances of survival are also improving in Nepal. Nevertheless, it is a common scenario in Nepal to diagnose cancer in the late stage or when it has spread to more than one quadrant of breast (Khan et al., 2003; Sharma et al., 2005) accompanies by emotional crisis. The priority here is now in achieving longer survival. Survivorship here refers to process of living

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with cancer or living after the diagnosis of cancer. In such situation, patient has to go through aggressive treatment. Getting a diagnosis of breast cancer and to go through aggressive treatment has a dramatic effect on patient's physical, psychological, social and financial aspects of life and that eventually impact on patient's quality of life.

Quality of Life is a multidimensional construct that includes physical health status, psychological wellbeing, social and cognitive functioning and impact on disease as well as treatment based on patient's life experiences. Health is not simply a measure of either absence or presence of disease but also includes social and physical functioning as well. Developing countries like Nepal seems to be so focused on early screening and diagnosis issues such that the ones actually diagnosed, those who need active treatment and the cancer survivors seems to be given a lesser priority. Hence, compromising their quality of life. Robert Kaplan said, "The measure of health must be able to encompass not only differences in length of life but differences in the quality of that life". It's time that Nepal focuses on quality of life so that they not only cure the patient but understand the patient in a better way.

Materials and Methods

It was a cross-sectional quantitative study. It targeted 100 breast cancer patients undergoing treatment in national cancer centers in Nepal i.e. B. P. Koirala Memorial Cancer Hospital and Bhaktapur Cancer Hospital. The data were collected from the breast cancer patients undergoing treatment in national cancer centers in Nepal after receiving approval from ethical review board of Mahidol University. A trained interviewer and two research assistants were responsible for securing informed consent and for conducting the interviews. Patients who fits the criteria (female breast cancer patients of age 18 and above with a pathological diagnosis of cancer) were purposively approached on daily basis until the sample size (N=100) was secured. Patients from three oncological units: chemotherapy unit, radiotherapy unit and surgical units were interviewed.

Questionnaires:

The tool used to interview patients was a combination of three instruments: European Organization for Research and Treatment of Cancer-Quality of Life Questionnaire (EORTC-QLQ-C30) (Aaronson et al, 1993). It consisted of 30 items that included 5 functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, nausea/vomiting and pain), a global health status/QoL scale, and six single items (dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties). EORTC-QLQ-C30 version 3 was used and in this version 28 items were rated on a response scale of "not at all" (1) to "very much" (4). The time frame was "during the past week". However, for the items 29 (an overall general health) and 30 (on overall QoL), the response options ranged from "very poor" (1) to "excellent" (7) and the time frame was "during the past week". EORTC-QLQ-C30 was complemented by 23 item breast cancer module (EORTC-QLQ-BR23) (Sprangers et

al, 1996). It composed of two multi-item functional scales (body image and sexual functioning), three symptom scales (systemic side effects, breast symptoms, and arm symptoms), and three single item scales on sexual enjoyment, future perspectives, and upset by hair loss. The responses were rated on the scale of "not at all" (1) to "very much" (4) and time frame was "during the past week", except for the sexual items "during the past four weeks". A scoring algorithm recommended by EORTC was used (Fayers et al, 2001). A problematic group was defined as one with a GQoL or functional scale score of 33 or less and symptom scale score of 66 or more on the QLQ- C30 and QLQ-BR23 (Alawadi and Ohaeri, 2009; Ahn et al., 2007).

Another scale, modified medical outcome study social support (mMOS-SS) survey was also used which measured social support addressing emotional/ informational, tangible, affectionate and positive social interaction subscales and an overall functional social support index (Moser et al, 2012). The response scale for mMOS-SS survey was from "little of the time" (1) to "all of the time" (5). To obtain an overall support index, the average of the scores for all 8 items was calculated as per the scoring manual provided by Medical outcome study social support survey. A score of more than 80 was considered to be good social support, 60-80 was considered fair social support and less than 60 was considered poor social support.

EORTC QLQ-C30, QLQ-BR23 and mMOS-SS was translated into Nepali language, evaluated for cultural appropriateness by two experts in the field. We assessed the internal consistency of the questionnaires by estimating the cronbach's alpha values of the multi-item scales, based on the recommendation of >0.70.

Statistical analysis

Descriptive statistics was used to present demographic characteristics, clinical characteristics, QoL scores and social support index. Only multi-item scales of EORTC-C30 (global health status/QoL, physical, role, emotional, cognitive and social functioning) and QLQ-BR23 (body image and sexual function) have been analyzed for the relationship. Independent sample T-tests and ANOVA were used to analyze the differences in mean scores.

Results

Demographic and Medical characteristics

The mean age of the patients was 46.79±11.51. Majority of them were married (82%) and very few of them were single (5%). Most of them were uneducated (66%), 31% of them were housewife. The average monthly family income of the patients was USD123.35±116.83. However, majority of them had a monthly family income less than USD 100 (43%) and between USD 100 and 200 (42%). Women with family history of any kind of cancer were 17 out of 100. The majority of the patients were diagnosed as having stage II breast cancer (55%) and 33% were in stage III. Eighty-eight patients out of 100 had undergone surgery, 81% of them had undergone

or were undergoing chemotherapy and 37 out of 100 had been treated or were being treated by radiotherapy. Modified radical mastectomy (85.23%), breast conserving surgery (11.36%) and lumpectomy (3.41%) were surgical modalities that patients had undergone. Among the 100 patients interviewed, time duration since their diagnosis was less than 6 months for 43% patients and a year or more for 11% of the patients.

Quality of Life

Women scored marginally above 50 on global health status/QoL scale (mean=52.8). The scores for physical and role functioning were much better compare to other domains (mean 71.4 and 78.5 respectively). Social and emotional function were the only functional scales that received scores below 50. On symptom scales, patients were not found to have much problem except in financial difficulties. Majority of the patients had financial problems due to the disease and the treatment (84%).

On the QLQ-BR23, women scored poorly in most of the scales except in body image (mean=56.0). On breast cancer specific symptom scales also patient scored well below 50 which indicated that they were not much disturbed by symptoms.

Table 1. EORTC-QLQ-C30 Scale Scores and Level of Quality of Life Perceived by Breast Cancer Patients

EORTC-QLQ-C30 Variables	No. of items	Good ≥66.7	Average 33.3-66.6	Poor <33.3	Mean	SD
Global Health Status/QOL						
Global Health Status/QOL	2	48	32	20	52.8	24.6
C-30 Functional Scales						
Physical Functioning	5	77	21	2	71.4	17.1
Role Functioning	2	78	22	0	78.5	24.8
Emotional Functioning	4	38	38	24	46.4	34.4
Cognitive Functioning	2	56	27	17	59.3	31.6
Social Functioning	2	35	46	19	45.2	31.7
C-30 Symptom Scales						
Fatigue	3	42	36	22	37.1	23.2
Nausea/Vomiting	2	60	31	9	20.3	24
Pain	2	32	43	25	39.8	25.5
Dyspnea	1	65	17	18	19	29.3
Insomnia	1	45	12	43	40.7	41.7
Appetite Loss	1	42	19	39	38	38.2
Constipation	1	72	6	22	17.7	30.1
Diarrhea	1	82	4	14	11.7	26.5
Financial Difficulties	1	9	7	84	67.7	28.2

Table 2. EORTC-QLQ-BR23 scale scores and level of quality of life perceived by breast cancer patients (n=100)

EORTC QLQ-BR23 Variables	No. of items	Good ≥66.7	Average 33.3-66.6	Poor <33.3	Mean	SD
BR-23 Functional Scales						
Body Image	4	50	28	22	56	39.4
Sexual Functioning	2	3	18	79	87.7	17.7
Sexual Enjoyment	1	19	23	58	79.3	26.3
Future Perspective	1	38	33	29	43.3	36.9
BR-23 Symptoms Scale						
Systemic Therapy Side effects	7	42	47	11	37.6	20.5
Breast Symptoms	4	46	44	10	35.6	22
Arm Symptoms	3	38	40	22	37.4	26.6
Upset by hair loss	1	51	7	42	40.3	43.2

Relationship between patient's characteristics, social support and QoL

Global health status/QoL was found to be good in patients who were older, literate, housewives, women with monthly family income of more than USD 100, patients who underwent breast conserving surgery or lumpectomy, women with stage I breast cancer, women who had been diagnosed for less than 6 months and women with good social support. However, statistically significant association was found between stage of cancer (0.007) and social support (0.003). Physical function was not found to be associated with any of the independent variables. On the other hand, role function had a significant association with educational status (0.010) and stage of cancer (0.0018). Emotional and social functioning were poorly performed functional scales of QLQ-C30. Younger (0.012), married women (0.012), housewives (0.014), women with the monthly family income less than USD 100 (0.019), women who had undergone mastectomy (0.019), and with poor social support (<0.001) were significantly associated with poor emotional function. Conversely, poor social function was found to be associated with monthly family income less than USD 100 (0.037), patients who had undergone mastectomy (0.009) and those with poor social support (<0.001). Good cognitive function is found to be associated statistically to the patients who had undergone lumpectomy/BCS (0.013) and with good social support (0.020). Among analyzed functional scales of BR-23; older, married, literate, housewives, and who had been diagnosed for less than 6 months were found to be related to good perception about the body image. And, monthly family income more than USD 100 (0.003), who had been receiving chemotherapy treatment only (<0.001), who had undergone lumpectomy/BCS (<0.001), stage I breast cancer (0.017) and those with good social support (0.011) were found to have statistically significant association with body image function.

Discussion

The study categorized the score to define the problematic functioning and symptoms taking the reference from earlier studies conducted by Alawadi and Ohaeri (2009) and Ahn et al. (2007). To make quality of life results more meaningful the study had compared results by using mean scores and proportion of patients meeting the cut off level of ≥66% for good functioning and ≤33% for poor functioning. Mean score of the patients in this study was compared to other international data. Most of the countries reported mean of global health status/QoL scores above 50% (Janz et al., 2005; Abu-Saad and Abboud, 2012; Moro-Valdezate et al., 2012) which was consistent with the mean in this study. As a matter of fact, when comparing the proportion of the patients based on cut off levels, Nepalese breast cancer patients scored better in global health status/ QoL than those in Kuwait (Alawadi and Ohaeri, 2009). Patient recruitment method can explain the differences though socio-demographic profiles of the patients in both the groups were almost similar. Our study enrolled patients undergoing any form of treatment but

their study enrolled patients attending follow up clinic appointment for chemotherapy only.

Furthermore, the patients in our study were undergoing treatment during the interview and majority had been diagnosed for less than a year but still demonstrated better physical and role funciton. Conversely, study done in India that used FACT scale found out score to be very low in general physical wellbeing (Pandey et al., 2006). India being the neighboring country to Nepal, it is expected to get the similar results but this vast distinction could have been because unlike us, they interviewed post-operative patients only and post-operative period is usually associated with pain and limitation of mobility.

Comparatively, patient scored worse in emotional and social functioning. The result is consistent with the study done in Norway (Schou et al., 2005), India (Pandey et al., 2005) and Lithuania (Bulotiene et al., 2007). In Nepalese society, the role of men and women has been traditionally and culturally determined. Men are the bread winners and women are supposed to take care of the family. So, when they get sick, they perceive disruption in their usual role and worry more about their family. Also, they have utmost concern for their children's future, which might have resulted to poor emotional function.

Comparing to former studies by Alawadi and Ohaeri, (2009), Hart et al. (2003) and Hopwood et al. (2007), mean score of financial difficulty was well above 50%. In our study, the financial difficulty has been reported as a major problem with a much bigger impact as compared to the aforementioned studies. The discrepancy in result is very much understandable as the studies were conducted in developed countries with sound policy of cancer management. Thus, also highlighting the fact that it is high time that government of Nepal prioritize breast cancer patients. This might be possible through a concrete plan to financially support cancer patients which can be through initiation of health insurance policy, allocation of budget to cancer treatment and increasing the financial support to cancer patients, keeping in mind the overall cost of cancer care.

Many studies had been conducted to explore the differences in quality of life of women who had undergone breast conserving surgery and mastectomy. In a study by Rabin and colleagues (2008), lowest QoL score were reported in physical and psychological domains for women who had undergone mastectomy. Conversely Indian study (Pandey et al., 2006) demonstrated no difference in terms of QoL scores between Mastectomy and breast conserving surgery patients. They had argued that among indian breast cancer patients surviving was more important issue than concerning over losing their breast. However, this study found mastectomy to be related with emotional, cognitive, social and body image function. The finding were in line with earlier results of Moro-Valdezate et al. (2014), Park et al. (2011), Janz et al. (2005), Hartl et al. (2003), Gorisek et al. (2009), Chang et al. (2007), Montazeri (2008). All these studies discussed strong association between mastectomy and discontentment with body image. Similarly, body image was found related to time since diagnosis, being better in patients who had been diagnosed for less than six months in contrast with earlier results of DiSipo et al

(2008) who stated improved quality of life in women at 12 months after diagnosis than at 6 months.

Finding from the study by waters et al. (2012), Ozkan and Ogce. (2008), Parker et al. (2013) and Lehto et al. (2005) showed some association between social support and QoL subscales which was in accordance with the results of this study.

Acknowledgements

References

Aaronson NK, Ahmedzai S, Bergman B et al (1993). The european organization for research and treatment of cancer QLQ-C30: a quality-of-life instrument for use in international clinical trials in oncology. *J Natl Cancer Inst*, **5**, 365-76.

Abu-Saad Huijer H, Abboud S (2012). Health-related quality of life among breast cancer patients in Lebanon. *Eur J Oncol Nurs*, **5**, 491-97.

Ahn S, Park B, Noh D, et al (2007). Health-related quality of life in disease-free survivors of breast cancer with the general population. *Ann Oncol*, **1**, 173-82.

Alawadi SA, Ohaeri JU (2009). Health - related quality of life of Kuwaiti women with breast cancer: a comparative study using the EORTC quality of life questionnaire. *BMC Cancer*, **9**, 222.

Bulotiene G, Veseliunas J, Ostapenko V (2007). Quality of life of Lithuanian women with early stage breast cancer. *BMC Public Health*, **7**, 124.

Bhattacharya S, Adhikari S (2006). Evaluation of risk factors, diagnosis and treatment in carcinoma breast-a retrospective study. *Kathmandu Univ Med J*, **1**, 54-60.

Bajracharya N, Karki Pratima, Sapkota S et al., (2006). Prevalance pattern of cancer and handling of cytotoxic drugs. *Kathmandu Univ Med J*, **1**, 1-7.

Chang JT-C, Chen C-J, Lin Y-C, et al (2007). Health-related quality of life and patient satisfaction after treatment for breast cancer in Northern Taiwan. *Int J Radiat Oncol*, **1**, 49-53.

DiSipio T, Hayes S, Newman B, Janda M (2008). Health-related quality of life 18 months after breast cancer: comparison with the general population of Queensland, Australia. *Support Care Cancer*, **10**, 1141-50.

Fayers PM, Aaronson N, Bjordal K, et al (2001). The EORTC QLQ-C30 scoring manual. 3rd edition. Brussels, Belgium: European Organization for Research and Treatment of Cancer.

Ferlay J, Soerjomataram I, Ervik M, et al (2013). GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer. Available at: http://globocan.iarc.fr.

Gorisek B, Krajnc P, Krajnc I (2009). Quality of life and the effect on social status among Slovenian women after breast

cancer treatment. *J Int Med Res*, **2**, 557-66.

Hopwood P, Haviland J, Mills J, et al (2007). The impact of age and clinical factors on quality of life in early breast cancer: An analysis of 2208 women recruited to the UK START Trial (Standardisation of Breast Radiotherapy Trial). *Breast*, **3**, 241-51.

Härtl K, Janni W, Kästner R, et al (2003). Impact of medical and demographic factors on long-term quality of life and body image of breast cancer patients. *Ann Oncol*, **7**, 1064-71.

Janz NK, Mujahid M, Lantz PM, et al (2005). Population-based study of the relationship of treatment and sociodemographics on quality of life for early stage breast cancer. *Qual Life Res*, **6**, 1467-79.

Khan S, Kapoor AK, Khan IU, Shrestha GB, Singh P (2003). Prospective study of pattern of breast disease at nepalgunj medical college (NGMC), Nepal. *Kathmandu Univ Med J*, **2**, 95-100.

Lehto US, Ojanen M, Kellokumpu-Lehtinen P (2005). Predictors of quality of life in newly diagnosed melanoma and breast cancer patients. *Ann Oncol*, **5**, 805-16.

Montazeri A (2008). Health-related quality of life in breast cancer patients: a bibliographic review of the literature from 1974 to 2007. *J Exp Clin Cancer Res*, **27**, 32.

Moro-Valdezate D, Buch-Villa E, Peiró S, et al (2014). Factors associated with health-related quality of life in a cohort of Spanish breast cancer patients. *Breast Cancer*, **4**, 442-52.

Moser A, Stuck AE, Silliman RA, Ganz PA, Clough-Gorr KM (2012). The eight-item modified medical outcomes study social support survey: psychometric evaluation showed excellent performance. *J Clin Epidemiol*, **10**, 1107-16.

Ozkan S, Ogce Filiz (2008). Importance of social support for functional status in breast cancer patients. *Asian Pac J Cancer Prev*, **4**, 601-4.

Park BW, Lee S, Lee AR, Lee KH, Hwang SY (2011). Quality of life differences between younger and older breast cancer patients. *J Breast Canc*, **2**, 112-8.

Pandey M, Thomas B, SreeRekha P, et al., (2005). Quality of life determinants in women with breast cancer undergoing treatments with curative intent. *World J Surg Oncol*, **3**, 63.

Pandey M, Thomas BC, Ramdas K, Ratheesan K (2006). Early effect of surgery on quality of life in women with operable breast cancer. *Jpn J Clin Oncol*, **7**, 468-72.

Parker PA, Baile WF, de Moor Cd, Cohen L (2003). Psychosocial and demographic predictors of quality of life in a large sample of cancer patients. *Psychooncology*, **2**, 183-93.

Pradhananga Kk, Baral M, Shrestha BM (2009). Multi-institutional hospital-based cancer incidence data for Nepal-an initial report. *Asian Pac J Cancer Prev*, **2**, 259-62.

Rabin EG, Heldt E, Hirakata VN, Fleck MP (2008). Quality of life predictors in breast cancer women. *Eur J Oncol Nurs*, **1**, 53-7.

Sathian B, Sreedharan J, Sharan K, et al (2010). Forecasting breast cancer cases requiring radiotherapy at a teaching hospital in Nepal. *J Clin Diag Res*, **4**, 2378-83.

Sathian B, Bhatt CR, Jayadevan S, et al (2010). Prediction of cancer cases for a hospital in Nepal: a statistical modelling. *Asian Pac J Cancer Prev*, **2**, 441-45.

Sidhartha, Thapa B, Singh Y, Sayami P, Khanal U (2008). Mammographic diagnosis of breast carcinoma: an institutional experience. *J Nepal Med Assoc*, **170**, 62-5.

Sharma A, Bhandari R, Gilbert D, Sharma AK (2005). Benign and malignant breast disease presenting to bhaktapur cancer hospital. *Kathmandu Univ Med J*, **4**, 384-7.

Singh YP, Sayami P (2009). Management of breast cancer in Nepal. *J Nepal Med Assoc*, **175**, 252-7.

Schou I, Ekeberg Ø, Sandvik L, Hjermstad MJ, Ruland CM (2005). Multiple predictors of health-related quality of life

in early stage breast cancer. data from a year follow-up study compared with the general population. *Qual Life Res*, **8**, 1813-23.

Sprangers MA, Groenvold M, Arraras JI et al (1996). The European organization for research and treatment of cancer breast cancer-specific quality-of-life questionnaire module: first results from a three country field study. *J Clin Oncol*, **10**, 2756-68.

Waters EA, Liu Y, Schootman M, Jeffe DB (2012). Worry about cancer progression and low perceived social support: implications for quality of life among early-stage breast cancer patients. *Ann Behav Med*, **1**, 57-58.