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Review Article

POST MASTECTOMY QUALITY OF LIFE IN BREAST CANCER PATIENTS

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Abstract

Background: Quality of life in patients with breast cancer is an important outcome. This paper presents an overview and outcome after surgery in breast cancer patients on the topic ranging from descriptive findings to clinical trials.

Methods: This is a bibliographic review of the literature covering publications that appeared in English language in biomedical journals between 1992 and 2013. The search strategy included a combination of key words 'quality of life' and 'breast cancer', 'breast carcinoma' or post mastectomy in Titles. Of these, research articles like randomized controlled trials, reviews, abstracts, editorials, brief commentaries, letters were included. The major findings are summarized and presented under several headings: instruments used, validation studies, measurement issues, surgical treatment, quality of life as predictor of survival, psychological distress, supportive care, symptoms and sexual functioning.

Results: Instruments-Several valid instruments were used to measure quality of life in breast cancer patients. The European Organization for Research and Treatment of Cancer Core Cancer Quality of Life Questionnaire (EORTC QLQ-C30) and its breast cancer specific complementary measure (EORTC QLQ-BR23) were listed in this study, as it is a common, highly standard and well developed instruments to measure quality of life in breast cancer patients. Different surgical procedures led to relatively similar results in terms of quality of life assessments, although mastectomy patients compared to conserving surgery patients usually reported a lower body image and sexual functioning. Systemic therapies-almost all studies indicated that breast cancer patients receiving chemotherapy might experience several side-effects and symptoms that negatively affect their quality of life. Adjuvant hormonal therapies also were found to have similar negative impact on quality of life, although in general they were associated with improved survival. Quality of life as predictor of survival-similar to known medical factors, quality of life data in metastatic breast cancer patients were found to be prognostic and predictive of survival time. Psychological distress-anxiety and depression were found to be common among breast cancer patients even years after the disease diagnosis and treatment. Psychological factors also were found to predict subsequent quality of life or even overall survival in breast cancer patients.

As recommended, recognition and management of these symptoms is an important issue since such symptoms impair health-related quality of life. Sexual functioning-breast cancer patients especially younger patients suffer from poor sexual functioning that negatively affect quality of life.

Conclusion: There was quite an extensive body of the literature on quality of life in breast cancer patients. These papers have made a considerable contribution to improving breast cancer care, although their exact benefit was hard to define. However, quality of life data provided scientific evidence for clinical decision-making and conveyed helpful information concerning breast cancer patients' experiences during the course of the disease diagnosis, treatment, disease-free survival time, and recurrences.

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Background:

Health-related quality of life (QOL) is now commonly incorporated into the design of clinical trials as a primary or secondary outcome. In 1993, QOL was defined broadly by the World Health Organization as 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.

It is a broad-ranging concept affected in a complex way by the persons' physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment" [1]. In 1989, Moinpour et al. [2] suggested that QOL be included as an endpoint in randomized phase III clinical trials in the following circumstances: "protocols using adjuvant therapy for patients at risk of recurrence, disease sites with an extremely poor prognosis, protocols in which different modalities are compared, protocols in which treatment of different intensities and/or durations are compared and protocols in which survival is expected to be equivalent but QOL is expected to show difference." Data derived from QOL measured in clinical trials can be used to select the optimal intervention, describe a patient's experience, or provide prognostic information[3]. Previous studies[4] have shown that measuring QOL provides more information about symptoms than measuring adverse events alone.

Quality of Life in Breast Cancer:

Health-related quality of life is now considered an important endpoint in cancer clinical trials. It has been shown that assessing quality of life in cancer patients could contribute to improved treatment . Above all, studies of quality of life can further indicate the directions needed for more efficient treatment of cancer patients. Among the quality of life studies in cancer patients, breast cancer has received most attention for several reasons. First, the number of women with breast cancer is increasing. It has been reported that each year over 1.1 million women worldwide are diagnosed with breast cancer and 410,000 die from the disease[5]. Secondly, early detection and treatment of breast cancer have improved and survivors now live longer, so studying quality of life in this context is important. Thirdly, breast cancer affects women's identities and therefore studying quality of life for those who lose their breasts is vital. In addition, it is believed that females play important roles as partners, wives, and mothers within any family. Thus, when a woman develops breast cancer, all members of family might develop some sort of illnesses. In fact, breast cancer is a family disease. Other reasons could be added, but overall it is crucial to recognize that with increasing improvements in medicine and medical practice during recent years studying quality of life for any cancer, for any anatomical site and for either gender is considered highly relevant. A descriptive study of the published papers (230 articles) on non-biomedical outcomes (quality of life, preferences, satisfaction and economics) in breast cancer patients, covering the literature from 1990 to 2000, found that the most frequently reported outcomes were health related quality of life (54%), followed by economic analyses (38%), and patient satisfaction (14%). Only 9% measured patient preferences[6] .

The effects of breast cancer on patients:

Breast cancer patients experience physical symptoms and psychosocial distress that adversely affect their quality of life (QOL). QOL generally consists of a number of domains including physical functioning, psychological well-being (such as levels of anxiety and depression), and social support. Their breast cancer experiences vary, but could include the following phases: diagnosis, primary treatment, genetic risk and its psychological management, special issues related to non-invasive breast cancer, recurrence, completing treatment and re-entry to normal living, survivorship, and palliation for advanced cancer . Chemotherapy, for example, is one form of treatment that can cause physical and psychological problems that adversely affect patient QOL . Other effects of cancer include anger, grief, suffering, and pain[7] . While adapting to cancer, many patients may have questions about their illness, but are apprehensive about speaking to their physician.

Psychosocial problems compound the hardships of physical symptoms and affect the QOL of breast cancer patients. The psychosocial distress that patients upon diagnosis feel can affect their treatment because these symptoms can be overwhelming. Many women who are newly diagnosed with breast cancer might feel sad, anxious, shocked, and scared. Psychological treatments could help patients come to terms with their emotions and treat mental illnesses they may develop, including depression, panic disorders, and anxiety disorders[8] .

Breast cancer treatments and quality of life:

Objective tumor response and survival traditionally have been used to assess cancer treatment outcomes. Two major changes in cancer medicine have occurred over the past decade. The first is recognition that the patient's well-being is important to cancer treatment. Another is the use of QOL and psychosocial questionnaires to assess their well-being. Since the time of Hippocrates, QOL has been an implied medical outcome[9]. In 1948, Karnofsky et al. reported the first effort of physicians to assess systematically the effect of cancer treatments on patients' QOL, not just on their quantity of life. QOL instruments currently are being used in clinical trials to predict survival, response to treatment, and to screen for psychological morbidity[10].

Understanding the effect of breast cancer treatment on a patient's QOL has been a central clinical and research question. For the past quarter century, psychosocial and emotional concerns have been addressed in intervention research of women with breast cancer. Findings by Ganz and Goodwin revealed that with the number of survivors growing in recent years, breast cancer patients have been assessed with multiple QOL instruments in order to compare the effects of breast cancer and its treatments to those of people with other chronic illnesses as well as to healthy women[11].

Some cancer patients may be unwilling to reveal their concerns about their disease and treatment, and may be even more unwilling to raise psychological problems they may develop throughout the course of their disease. While patients want their health care providers to inquire about their daily functioning and well-being, health care providers may seldom do so. However, if physicians were not concerned about their patients' outcomes, there would be no reason for follow-up visits. Oncologists, nurses, and psychosocial staff agree that QOL is an important variable to consider in cancer treatment . However, patients and physicians frequently have different priorities regarding treatment and the effect that the illness will have on a patient's life and possible outcomes. Employing the patients' views into the decision process would not only empower patients, but also could improve satisfaction and compliance with treatment. Strangers and Schwarz stated that patient outcomes could be improved further by utilizing QOL assessments to detect and treat functional and psychological issues that have not been brought previously to the forefront. People whose expectations are met in the areas they consider as most important are those who report a good QOL[12].

Over the last decades, the number of long-term survivors of breast cancer has increased because of advances in early diagnosis, as well as surgical and adjuvant treatments. Thus, long-term quality of life (QoL) and factors affecting QoL are of growing research interest. The QoL construct refers to a general sense of well-being in multiple dimensions of life. However, because of the variety of divergent definitions and measures of the construct results of QoL research in cancer patients are varied and often contradictory[13]. Longitudinal studies about changes of QoL and persistent impairments in breast cancer patients show conflicting results. Furthermore, there are few data about long-term anxiety in women with breast cancer[14].

Instruments to Measure health related QOL[15]:

Australian Health Outcomes Collaboration

The Australian Health Outcomes Collaboration (AHOC) is part of the Centre for Health Service Development at the University of Wollongong but is located with the Centre for Advances in Epidemiology and Information Technology at The Canberra Hospital. Its functions include dissemination of information about health outcomes research, maintaining an active network of collaborators in health outcomes research, maintaining a database of health outcomes projects, literature and instruments, facilitating health outcomes research throughout Australia, providing advice on the selection of measures for health outcomes assessment, providing health outcomes education and training, organizing national and international conferences and seminars and distributing measures/ instruments used in health outcomes assessment.

Australian Centre for Quality of Life (ACQoL)

The mission of the Australian Centre for Quality of Life (ACQoL) at Deakin University is to facilitate research into quality of life, to serve as a resource for both researchers and students, to gather knowledge and expertise related to both theoretical and applied areas, to facilitate research links with industry, government and the community.

MAPI

MAPI Research Institute is a non-profit international health outcomes organisation established to support and promote research in the field of Health-Related Quality of Life (HRQoL). The Institute has particular expertise in cultural adaptation and linguistic validation of questionnaires, helpful instrument pages, a widely distributed newsletter and useful links.

EQ-5D

The EuroQoL-5D (EQ-5D) is a standardised instrument for use as a measure of health outcome. Applicable to a wide range of health conditions and treatments, it provides a simple descriptive profile and a single index value for health status that can be used in the clinical and economic evaluation of health care as well as population health surveys. The EuroQol website contains information about the EuroQol Group, membership and research activities, details of EQ-5D development and current status.

SF-36 Health Survey

The SF-36(Short Form Health Survey) is a 36-item instrument for measuring health status and outcomes from the patient's point of view. Designed for use in surveys of general and specific populations, health policy evaluations, and clinical practice and research, the survey can be self administered by people 14 years of age or older, or administered by trained interviewers either in person or by telephone. The SF-36 Health Survey measures the following eight health concepts, which are relevant across age, disease and treatment groups: physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality (energy/fatigue), social functioning, role limitations due to emotional problems and mental health (psychological distress and psychological well being). Both standard (4-week) and acute (1-week) recall versions are available. The surveys standardized scoring system yields a profile of eight health scores and two summary measures and a self-evaluated change in health status.

WHOQOL-BREF

The World Health Organization Quality of Life (WHOQOL) project was initiated in 1991. The aim was to develop an international cross-culturally comparable quality of life assessment instrument. It assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns. The WHOQOL instruments were developed collaboratively in a number of centres worldwide, and have been widely field-tested[16]

Measuring anxiety, depression and/or distress:

The most commonly used PROMs for measuring anxiety, depression and/or distress were:

- Profile of Mood States (POMS; various versions);
- State-Trait Anxiety Inventory (STAI);
- Centre for Epidemiologic Studies Depression Scale (CES-D);
- Hospital Anxiety and Depression Scale (HADS); and
- Impact of Event Scale – Revised IES-R).

Measuring HRQoL

The most commonly used PROMs for measuring HRQoL were:

- the core measure from the Functional Assessment of Chronic Illness and Therapy (FACIT) suite,the FACT-G;
- the core measure from the European Organisation for the Research and Treatment of Cancer

Quality of Life Questionnaire (EORTC QLQ) suite, the EORTC QLQ-C30;

- Medical Outcomes Survey Short Form Health Survey-36 (SF-36v2);
- Cancer Rehabilitation and Evaluation Systems Short Form (CARES-SF); and
- Rotterdam Symptom Checklist (RSCL).

The FACT-B – FBSI is a 44-item self-administered questionnaire specific to breast cancer patients. The assessment is comprised of six domains (physical well-being, social/family well-being, relationship with doctor, emotional well-being, functional well-being, and additional concerns)[17,18] .

The EORTC Questionnaire:

The EORTC QLQ-C30 is a 30-item self-administered cancer specific questionnaire designed to measure QOL in the cancer population. The assessment is comprised of nine domains (physical, role, cognitive, emotional, social, fatigue, pain, nausea and vomiting[19].

The EORTC QLQ-C30 is a HRQOL questionnaire, developed by the European Organization on Research and Treatment of Cancer (EORTC) Study Group on QoL .The core questionnaire is intended to measure general aspects of HRQOL specific to cancer patients. EORTC QLQ-C30, Version 3, incorporates five functional scales on physical (PF), role (RF), cognitive (CF), emotional (EF) and social (SF) functioning, three symptom scales on fatigue (FA), pain (PA) and nausea and vomiting (NV), single items assessing dyspnoea (DY), insomnia (SL), loss of appetite (AP), constipation (CO) and diarrhoea (DI), one item assessing perceived financial impact (FI) and a global health status: QoL scale (Global QoL). Each item is scored in one of four categories 1) 'Not at all', 2) 'A little', 3) 'Quite a bit' 4) 'Very much', with the exception of 'Global QoL', which ranges from 1) 'Very poor' to 7) 'Excellent' .

The EORTC QLQ-BR23 is a 23-item self-administered breast cancer specific questionnaire, usually administered with the EORTC QLQ-C30, designed to measure QOL in the breast cancer population at various stages and with patients with differing treatment modalities. The assessment is comprised of five domains (body image, sexuality, arm symptoms, breast symptoms, and systemic therapy side effects) [19].

Methods

A systematic review was conducted by searching the PubMed database, limiting the research to the years

1992–2013. Sources are Pub Med, Medline, Medscape, Science Direct and Hinari data bases. Using the following keywords: quality of life and breast cancer (in all of the searches) in conjunction with computer, software, touch-screen, program, assessment, questionnaire, instrument, and patient reported outcomes separately within each search. Inclusion criteria included articles published in a peer reviewed journal, specifically utilizing QOL assessments with chronically ill patients (particularly female breast cancer patients), articles examining the use of QOL assessments in randomized trials, studies involving both paper and pencil versions of the instruments as well as computerized versions of the assessments, and literature reviews concerning QOL of breast cancer patients. Exclusion criteria included comments/letters and papers published in a language other than English.

Spectrum of EORTC Questionnaire:

The EORTC is a Health related quality of life questionnaire, developed by the European Organization on Research and Treatment of Cancer (EORTC) Study Group on QoL. Its components are:

EORTC QLQ-C30

It includes Global Health Status, Functional Scales, Physical Functioning, Role Functioning, Emotional Functioning , Cognitive Functioning , Social Functioning , Symptom Scales , Fatigue , Nausea and Vomiting and Pain .

EORTC QLQ-BR23

It is the breast component of this questionnaire. It includes Functional Scales, Body Image, Sexual Functioning, Symptom Scales, Systemic Therapy Side Effects, Breast Symptoms and Arm Symptoms.

Results

Because of the complexity of breast cancer and the diverse nature of its patient population, no one instrument is both comprehensive and sensitive enough to report clinically meaningful changes in all outcomes across all phases of care and has satisfactory respondent or provider burden.

However, based on the comprehensive meta-analysis of breast cancer outcomes literature it is possible to develop a “core” set of questions to measure breast cancer outcomes. After reviewing the articles retrieved in the PubMed search, 21 QOL instruments were identified as being the most used assessments within the breast cancer population. Most used instrument was **EORTC Questionnaire.**

Table-I

Shows opinions of different authors in regard to post mastectomy quality of life.

Author	year	Procedure	Opinion
Ganz et al[20]	1992	MAS vs. BCS after one year	No significant differences in QOL and both groups improved; BCS patients did not experience significantly better QOL but had fewer problems with clothing and body image.
Shimozuma et al[21].	1994	Surgery-any	Hospitalization had a strong negative relation to overall QOL; type of surgery had no significant association with QOL.
Curran et al[22].	1998	MRM vs. BCS	Significant benefit in body image and satisfaction in BCS group; no difference in fear of recurrence.
Wapnir et al[23].	1999	Lumpectomy with axillary dissection (LAD) or mastectomy	No major differences except for dressing, comfort with nudity and sexual drive in favor of ALD.
King et al[24].	2000	MAS or BCS (3 months and 1 year after)	Most symptoms declined over time but arm and menopausal symptoms persisted; worse QOL in younger patients.
Janni et al[25].	2001	MAS or BCS (median 46 months follow-up)	Surgical modalities had no long-term impact on overall QOL,but certain body image related problems in MAS was observed.
Cocquyt et al[26].	2003	Skin-sparing MAS or BCS	Both yielded comparable QOL, but cosmetic outcome was better after skin-sparing MAS.
Elder et al[27].	2005	MAS + immediate breast reconstruction (before and 12 months after)	After 12 months good QOL comparable with aged-matched women from the general population.
Pandey et al[28].	2006	MAS or BCS	No significant change in overall QOL after surgery; poorer QOL in MAS patients.
Parker et al[29].	2007	MAS or MAS+ reconstruction or BCS (short- and long term effects on aspects of psychosocial adjustment and QOL	Overall, the general patterns of psychosocial adjustment and QOL were similar among the three surgery groups.
Pawan Agarwal,et al[30]	2011	MAS+ reconstructive surgery	Majority of women after immediate breast reconstruction live their life with acceptable quality and a lower incidence of psychological morbidity.
Simeão S et al[31]	2013	MAS+ reconstructive surgery	The mastectomized group of women who had not had reconstruction surgery were seen to have a very low level of quality of life

Abbreviations: MRM: modified radical mastectomy, MAS: mastectomy, BCS: breast conservation surgery, SNLB: sentinel lymph node biopsy, ALND: axillary lymph node dissection.

Table-II

List shows common symptoms in breast cancer patients

Author	Year of publication	Main focus	Results/conclusion
Hann et al[32].	1999	Fatigue after high-dose therapy and	Fatigue was related to medical and psychosocial factors.
Velanovich and Szymanski [3]	1999	Lymphedema	Lymphedema occurred in a minority of patients and negatively affected QOL.
Bower et al[34].	2000	Fatigue, occurrence, and correlates	About one-third (n = 1957) reported more severe fatigue which was associate with higher level of depression, pain, and sleep difficulties
Kuehn [35]	2000	Surgery related symptoms following ALND	Shoulder-arm morbidity following ALND was found to be the most important long-term sources of distress.
Kwan et al[36].	2002	Arm morbidity after curative breast cancer treatment	Symptomatic patients and patients with lymphedema had impaired QOL compared to patients with no symptoms.
Caffo et al[37]	2003	Pain after surgery	Pain distressed 40% of patients (n = 529) regardless of treatment type and had negative effect on patients' QOL.
Burckhardt et al[38].	2005	Pain	Widespread pain significantly caused more experience of pain severity, pain impact and lower physical health than regional pain.
Janz et al[39].	2007	Relationship between symptoms and post treatment QOL	Five most common symptoms were: systemic therapy side effects, fatigue, breast symptoms, sleep difficulties, and arm symptoms. Fatigue had the greatest impact on QOL.

.ALND: axillary lymph node dissection, SLNB: sentinel lymph node biopsy.

Symptoms

There were studies on breast cancer symptoms and their relationship to quality of life. Most of these studies were related to fatigue, lymphedema, pain, and menopausal symptoms. The results are summarized in Table II[32,-39].

Fatigue is the least definable symptom experienced by patients with breast cancer and its effect on impaired quality of life cannot be explained precisely. A recent publication studying 1,588 breast cancer patients showed that fatigue (as measured by the EORTC QLQ-C30 fatigue subscale) independently predicted longer recurrence-free survival when biological factors were controlled in the analysis. When combined with the biological model, fatigue still remained a significant predictor of recurrence free survival.

Psychological distress

Women with breast cancer might develop psychological distress including anxiety and depression during diagnosis and treatment and after treatment. The psychological impact of breast cancer has received considerable attention. Since this is a separate topic, the focus here is on psychological distress as it relates to quality of life studies in breast cancer patients.

Psychological distress in breast cancer patients is mostly related to depression, anxiety, and low emotional functioning and almost all studies have shown that psychological distress contributed to impaired quality of life especially emotional functioning, social functioning, mental health and overall quality of life. The diagnosis of the disease, importance of fears and concerns regarding death and disease recurrence, impairment of body image, and alteration of femininity, sexuality and attractiveness are factors that can cause unexpected psychological distress even years after diagnosis and treatment[40]

Sexual functioning

Breast cancer could be regarded as a disease that relates to women's identities. In this respect, sexual functioning is an important issue, especially in younger breast cancer patients. Among quality of life studies in breast cancer patients less number of papers focused especially on sexual functioning[41]. The findings indicated that disrupted sexual functioning or unsatisfactory sexual life was related to poorer quality of life at younger age, treatment with chemotherapy, total mastectomy, emotional distress consequent on an unsatisfactory sexual life, and difficulties with partners because of sexual relationships.

Discussion:

This bibliographic review has provided an extensive list of studies that focused on quality of life in breast cancer patients. The benefit of such an approach is that it reveals how much effort has been made in this area and shows the achievements of a journey that was started more than 30 years ago. If quality of life has now become an important part of breast cancer patients' care, it is due to all these efforts. Furthermore, this approach might help potential investigators to formulate new questions or conduct more focused studies on the topic in the future. It should be admitted that investigations of this type have limitations and are inconclusive. Since in this review the search strategy was limited to the key words 'quality of life' and 'breast cancer' in titles, perhaps many other papers also were missed even from enumeration. A number of studies that covered measurement issues and introduced instruments used to measure quality of life in breast cancer patients. Hopefully there is now sufficient evidence to use these valid instruments and to adopt the practices that are needed to assess quality of life in research or clinical settings. Since 1974, when the first study on quality of life in breast cancer patients was published, there has been quite impressive progress and improvement, indicating that measuring quality of life in breast cancer patients is both crucial and scientific. Now several valid instruments that capture quality of life dimensions in cancer patients in general and in breast cancer patients in particular are available. The EORTC QLQ-C30, EORTC QLQ-BR23, FACIT-G and FACIT-B are among the most acceptable instruments to patients and health professionals. They have been used in many studies, so it is possible to compare results between studies with similar objectives. It seems that it is time to stop developing new instruments, since there are enough valid and comprehensive measures to assess quality of life in breast cancer patients. New instruments might cause confusion and may be regarded as a waste of resources, so any such developments would need robust justification[19].

It appears that the most common and important disease and surgery-related side-effects and symptoms in breast cancer patients including arm morbidity, pain, fatigue and postmenopausal symptoms, are among neglected topics.

It has been recommended that currently in assessing quality of life in breast cancer patients 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 . In addition, sexual functioning seems important area that needs more attention, especially for younger breast cancer survivors. It is argued that younger survivors may need interventions that specifically target their needs related to menopausal symptoms and problems with relationships, sexual functioning and body image[42].

There were few qualitative studies. Breast cancer survivors even might rate their quality of life more favorably than outpatients with other common medical conditions and identify many positive aspects from the cancer experience. However, it is not only the study of quality of life in newly diagnosed breast cancer patients that is necessary; studying quality of life in long-term survivors is equally important. As suggested, when assessing quality of life in breast cancer patients, the stage of disease should also be considered. There are differences in quality of life between patients with non-invasive breast cancer, newly diagnosed breast cancer and advanced local breast cancer, and disease-free breast cancer survivors, women with recurrence breast cancer, and women with advanced metastatic breast cancer[43] .

So, QOL data tend to be most useful for clinical decision making in trials of nonbiomedical interventions, in which QOL is often the primary outcome. In randomized clinical trials testing adjuvant treatments, QOL data provided additional information on the effect of new treatments; however, QOL data rarely affected the decision to use or not to use these new interventions[1].

It has been seen in a large study that age was an important factor for HRQOL measured by EORTC QLQ-C30 in the total study population. The oldest age group (70–79 years) rated the lowest levels on physical functioning (PF) and role functioning (RF) and a higher level on pain (PA). These results are concordant with earlier findings[44] and lend support to the construct validity of the questionnaire. The trend toward a decrease in functional scales with the exception for emotional functioning (EF) and an increase in PA with increasing age was similar in comparison with Norwegian and Danish reference values. HRQOL in this study was associated with employment, education and income levels corresponding to the earlier findings in a study among the Norwegian population[44]. In a study among relapse-free breast cancer patients interviewed eight years after mastectomy, women who belonged to a higher social class more often felt themselves to be 'cured' and had less cancer-related limitations and restrictions. Work-related problems concerning promotional and income prospects have also been reported by long-term cancer survivors from several cancer diagnoses[45]. Return to work may result in an increasing number of reported health problems are associated with lower assessment levels of HRQOL across the different age groups. It is noteworthy that it has been shown that the financial impact associated with health problems is considerable, irrespective of the equal accessibility to healthcare in Sweden. Financial constraints combined with chronic health conditions can be expected to affect almost all aspects of QoL..Review by Kristin Ha[14] showed that the "classic" QoL parameters, they found distinct changes over the first 6 months, which remained stable, but improvement did not continue at 1-year follow-up. Concerning body image, sexual problems, and anxiety, no change was observed.Also, younger and middle-aged women seem to have persistent QoL impairments, as compared with healthy women.

Age seems to be an important mediator: Shortly after surgery, and 12 months later, younger patients had lower scores on almost all QoL scales of the QLQ–C30, with more arm, breast, and body-image problems, and higher anxiety levels. Cancer diagnosis and treatment might affect younger patients to a greater extent because of many job- and family related demands and possible financial problems caused by periods when they are out of work. Older patients may have already developed strategies to cope with these issues. Furthermore, young age symbolizes health and vitality; thus, there is more psychological stress if life-threatening disease occurs. Their finding also present unexpected results regarding tumor stage and subjective well-being of patients: Patients with good tumor prognosis, that is, stage pT1a–c, did not differ on any QoL scale from patients with tumor stage pT2–4, and both groups reported similar anxiety levels.

However, patients with larger tumor sizes had more body-image problems and arm and breast symptoms; this might be related to surgery or the toxic effects of chemotherapy. On the other hand, cytotoxic treatment seems to have a negative impact on arm symptoms and a tendency to worsen breast symptoms. Size is an important prognostic factor; it influences surgical and adjuvant-therapy decisions, and it should therefore affect patients' physical, mental, and emotional well-being.

Conclusion

There was quite an extensive body of the literature on quality of life in breast cancer patients especially after surgery. These papers have made a considerable contribution to improving breast cancer care, although their exact benefit was hard to define. However, quality of life data provided scientific evidence for clinical decision-making and conveyed helpful information concerning breast cancer patients' experiences during the course of the disease diagnosis, treatment, disease-free survival time, and recurrences; otherwise finding patient-centered solutions for evidence based selection of optimal treatments, psychosocial interventions, patient-physician communications, allocation of resources, and indicating research priorities were impossible. It seems that more qualitative research is needed for a better understanding of the topic. In addition, issues related to the disease, its treatment side effects and symptoms, and sexual functioning should receive more attention when studying quality of life in breast cancer patients.

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