

Impact Assessment on Quality-of-Life Following Mastectomy in Patients Diagnosed with Breast Cancer

Mihaela Vasoiu, Nicoleta Zenovia Antone

Institutul Oncologic "Prof. Dr. Ion Chiricuță" Cluj-Napoca, România

Abstract

Objective: The quality of life of women diagnosed with breast cancer is a topic of increasing interest in today's research field. Adaptation to body changes, especially for those who have undergone a mastectomy, has a significant impact on their subsequent recovery and well-being. However, there is not yet a validated, specific instrument for assessing quality of life in this subpopulation. The current paper aims to develop a targeted questionnaire to address this need.

Methods: The current study was developed from a sample of 40 female patients diagnosed with breast cancer, who had undergone mastectomy and presented to the Oncological Institute "Prof. Dr. Ion Chiricuță" Cluj-Napoca Romania, where they were evaluated based on a questionnaire. The structure of this questionnaire is based on tools already validated at European and American level, such as the EORTC or FACT-B, to which questions focused on the chosen topic, specifically the quality of life after mastectomy, were added.

Results: Analysis of the questionnaire applied on this population of female patients revealed a significant impact on the physical dimension, both in terms of post-surgical functional recovery and persistent symptomatology. On the other hand, the emotional domain was less affected and the best results were recorded in the social sphere.

Conclusion: This research represents the cornerstone, as current tools are not specific enough to capture the full impact of this surgery on the life of the breast cancer patient, and the development of this questionnaire and its widespread validation could lead to a better understanding of the needs of these particular patients and ultimately improve the healthcare and support interventions available.

Keywords: quality of life, breast cancer, mastectomy

Rezumat

Obiective: Calitatea vieții femeilor diagnosticate cu cancer mamar este un subiect de interes crescut în domeniul cercetării din prezent. Adaptarea la schimbările corporale, în special pentru cele care au suferit o mastectomie, are un impact semnificativ asupra recuperării și bunăstării lor ulterioare. Cu toate acestea, nu există încă un instrument validat, specific pentru evaluarea calității vieții în această subpopulație. Lucrarea curentă își propune să dezvolte un chestionar specializat pentru a aborda această nevoie.

Metode: Studiul a fost dezvoltat pornind de la un eșantion de 40 paciente diagnosticate cu cancer mamar, la care s-a practicat mastectomia și care s-au prezentat în cadrul Institutului Oncologic „Prof.Dr. Ion Chiricuță” Cluj-Napoca România, unde au fost evaluate în baza unui chestionar. Structura acestui chestionar are la bază instrumente deja validate la nivel european sau american precum EORTC sau FACT-B, la care s-au adăugat întrebări concentrate pe tema aleasă și anume calitatea vieții post mastectomie.

Rezultate: Analiza chestionarului aplicat pe această populație de paciente a evidențiat un impact semnificativ asupra dimensiunii fizice, atât în ceea ce privește recuperarea funcțională post-chirurgicală, cât și în privința simptomatologiei persistente. În schimb, domeniul emoțional a fost mai puțin afectat, iar cele mai bune rezultate au fost înregistrate în sfera socială.

Concluzii: Această lucrare reprezintă o inițiativă esențială, având în vedere că instrumentele actuale nu sunt suficient de specifice pentru a surprinde întregul impact al acestei intervenții chirurgicale asupra vieții pacientei cu cancer mamar, iar dezvoltarea acestui chestionar și validarea lui pe scară largă ar putea conduce la o mai bună înțelegere a nevoilor acestor paciente și, în final, la îmbunătățirea asistenței medicale și a intervențiilor de suport disponibile.

Cuvinte cheie: calitatea vieții, cancer mamar, mastectomie

Introduction

Breast cancer is one of the most important health challenges for women worldwide, with mortality rates varying in developed countries. In Europe, breast cancer incidence was about 23.5% of all cancer cases and was responsible for 20.7% of all deaths in 2020, according to Global Cancer Incidence, Mortality and Prevalence (GLOBOCAN) [1].

The time of diagnosis, the early stages of treatment and the months immediately following the end of adjuvant treatment are considered the most vulnerable transition periods. Studies have shown that the decline in quality of life is influenced by health condition due to side effects of chemotherapy, radiotherapy or even surgery and may predict early treatment discontinuation in these patients [2,3].

Quality of life studies conducted over time on patients who have undergone surgery have shown that surgery targeting the facial and breast regions in particular has profound psychological effects on a person's body image, as well as on their sex life. Anxiety, depression, anger, guilt, fear and social isolation are the most common post-mastectomy problems [4]. Mastectomy affects female patients physically, psychologically and socially. Common physical problems encountered after mastectomy may include limitations of arm and shoulder movements of the surgical side (reduced range of motion), associated lymphoedema, axillary paresthesia to sensory changes and decreased arm muscle strength. [5,6,7]

Psychological distress among mastectomy breast cancer patients is related to depression, anxiety, anger and low self-esteem. Fear and worry over death and recurrence of the disease, impaired body image, altered femininity, sexuality and attractiveness are factors that can precipitate psychological distress even years after diagnosis and treatment. Some studies in western countries have shown that the prevalence of depression after mastectomy ranges from 1 to 56% [8].

The World Health Organization (WHO) defines quality of life as a person's perception of their position in life, in the context of the whole culture and value systems of the social environment in which they live and in relation to their goals, expectations, standards and concerns. [9] The definition is based on a subjective measurement and implies that the person must actually experience quality of life in order to describe it.

Previous quality of life studies evaluating both diagnosis, treatment and cure have shown that women with breast cancer are at increased risk of developing symptoms that impact daily life (i.e. vomiting, sleep disturbance and pain), psychological distress (depression, anxiety, negative thoughts), fear of recurrence and death, feelings of loneliness, sexual dysfunction and altered self-image, all of which have a negative influence on quality of life and with it, poor long-term survival [10, 11].

A negative body image perceived by breast cancer women patients undergoing breast surgery can inevitably affect the woman's psycho-emotional state and her interpersonal relationships, leading to stigmatization and, consequently, social isolation. Body image disorders can also be associated with a variety of changes that can have a significant impact on life (psychological distress, anxiety, reduced physical health, sexual dysfunction). Therefore, body image perception can be seen as a potential key determinant of quality of life. Thus, in general, mastectomy female patients have body image concerns, and this continues for many years even after a successful treatment [12].

Aims and objectives

This paper aims to bring to public attention the consequences on quality of life, in all its dimensions, following mastectomy in women diagnosed with breast cancer. The aim is to highlight the complexity of the spectrum of problems faced by breast cancer female patients, from the spectrum of physical, mental/emotional, social, financial, existential and spiritual issues, to family issues and those involving professional reintegration.

One of the main objectives of this study is to design a tool to identify and quantify the physical, psychological, emotional, social and spiritual changes that mastectomy causes in women diagnosed with breast cancer, with the possibility of future validation and recognition at European level.

Materials and Methods

The present study is a quantitative, observational, cross-sectional, single-center study based on the individual application of a questionnaire to the patients diagnosed with breast cancer, regardless of the stage of the disease, who have undergone mastectomy and are undergoing treatment at the Oncological Institute "Prof. Dr. Ion Chiricuța" Cluj-Napoca. The designed questionnaire includes 43 questions organized in 3 functional scales (physical functionality, social performance, emotional functionality) and a scale related to concerns about general health. From a temporal point of view, the aim was to quantify the experiences of the last week. The questionnaire used in the present research is based on the original version, FACT-B [13], which aims to analyse quality of life domains in women diagnosed with breast cancer. Several questions, not validated and not found in official questionnaires, were added to the original questionnaire to highlight the main theme, namely the overall impact that mastectomy has on these women.

The target cohort consists of women, who presented to the outpatient medical oncology/day hospital/continuous hospitalization, within the Medical Oncology Department, Radiotherapy I or Breast Tumor Center of the Institute. Participants were selected by the investigator using databases (e.g. FileMaker, InfoWorld) identified by the study's inclusion and exclusion criteria.

The inclusion criteria for the study were:

- Females over 18 years of age
- Female patients diagnosed with breast cancer documented by histopathological evidence and who underwent mastectomy surgery, regardless of the type of procedure (modified radical mastectomy, simple mastectomy, skin-sparing mastectomy (SSM) or nipple sparing mastectomy (NSM)).
- Breast cancer patients with mastectomy should have at least one month after surgery, so that acute post-surgical symptoms do not interfere with "chronic" changes in quality of life.

Exclusion criteria consisted of:

- Patients with cognitive impairment or psychiatric diseases
- Patients whose life expectancy is less than 1 month
- Patients for whom consent to participate in this study is not obtained

Statistical Analysis

In order to protect participants' information, the data collected from them was stored in a database in the investigator's computer system only, without being made available to the general public and without containing personal information such as full names or any other identifying personal details of the participants.

The scores on these scales were calculated according to a 4-level Likert scale, from "not at all" corresponding to score 1 to "very much" corresponding to score 4. The EORTC manual was also used, as well as the interpretation provided by the official FACT website, where scores were converted using a scale from 1 to 100. The interpretation varied for each domain, but as an example, higher scores on the functional scales represent better functionality, whereas higher scores on the symptomatic scales represent more severe symptomatology. For statistical processing, the data obtained has been integrated using Microsoft Office Excel 2010, Microsoft Office

Word 2010, SPSS (Statistical Package for the Social Sciences) and then represented using tables and charts.

Ethics Statements

The Ethics Committee of the Oncological Institute "Prof. Dr. I. Chiricuța" Cluj-Napoca approved the study. Before being asked to participate in this study, all participants were informed about the objectives of the study on a voluntary basis, and after they had given their informed consent in writing, they were given questionnaires to complete.

Results

We analysed the answers to the questions of 40 female patients. Following the application of inclusion and exclusion criteria, 12 women were in the age range 40-60 years, 27 women over 60 years and only 1 (one) woman under 40 years. Therefore, the present research obtained a result similar to the international statistics, which state that the average age of the occurrence of breast cancer in women is 62 years and very few cases diagnosed under 40 years.

In the UK, more than a third of breast cancer cases occur in women over 70 and less than one in five women are under 50 at the time of diagnosis. [14] In less developed countries, by contrast, more than half of breast cancers occur in women under 50. A younger population and shorter life expectancy are criteria that support the occurrence of breast cancer in younger women in less developed countries. [15]

Distribution of patients by year of breast cancer diagnosis

According to the analysis of the year of breast cancer diagnosis, among the patients surveyed there were 9 patients diagnosed after 2020, 8 patients diagnosed during 2020 and 23 patients diagnosed before 2020. Thus, these results reinforce recent hypotheses regarding the COVID 19 pandemic, which began on December 1, 2019, causing a decrease in cancer diagnoses, particularly breast cancers, given that on March 26, 2020, the American Society of Breast Surgeons (ASBrS) and the American College of Radiology (ACR) issued a joint statement recommending that healthcare facilities postpone all breast screenings, including mammography, ultrasound, and MRI. As a result, these recommendations have also been implemented in Romania, reducing the opportunities for patients to benefit from annual mammography or breast ultrasound screening. [16]

Distribution of patients by year of mastectomy

Among the parameters studied in these patients was the year of mastectomy. Thus, 19 of the 40 female patients underwent mastectomy before 2020 and the remaining 21 patients after 2020. It should be noted that among the 21 patients there were 2 patients for whom a second radical intervention was necessary, on the contralateral breast, because the disease relapsed over time, through bilateralization.

Proportion of patients by the type of mastectomy

For mastectomy, patients were evaluated according to unilateral or bilateral breast removal, in order to highlight the impact that a double intervention can have on the quality of life of these patients. Thus, 35 patients with unilateral mastectomy and 5 patients with bilateral mastectomy were enrolled in this study, of which 2 patients had them performed at a distance in terms of time due to the progression of the disease, which led to its bilateralization and hence the need for re-intervention.

Self-image concerns analysis

There were 45% of patients obtaining below average scores with regard to their concerns, indicating that they experienced little impact on their quality-of-life following mastectomy surgery. This may suggest that these patients had a better adjustment to the changes brought about by the surgery and were not significantly affected emotionally or psychologically. The remaining 55% of patients scored above average, meaning that they felt an increased impact on their quality-of-life following the mastectomy. It is possible that this group was made up of patients who had greater difficulty adjusting to the physical changes caused by the procedure, resulting in a negative influence on their quality of life.

Functional well-being assessment

Another aspect of quality of life examined in this paper was functional well-being, which is considered an important parameter to highlight the influence mastectomy can have on a patient's body. Therefore, by means of the questions asked to the patients, we followed the activity they undertake both at work and at home and to what extent it is influenced by the surgery.

The data revealed that 68% of the patients included in the study scored below average in terms of their functionality after mastectomy. This indicates a significant prevalence of a negative impact on their ability to maintain daily activities and overall functionality. The presence of a large number of patients with negative functional impact may suggest that recovery and adaptation to the changes brought about by the intervention require significant attention and support. Thus, it may be important to develop care strategies and rehabilitation interventions to help patients regain functionality and confidence in their own bodies.

Although a smaller percentage, only 32% of the patients analysed reported a positive impact, this can be seen as a confirmation that some individuals manage to adapt and maintain their functionality despite a possible physical disability.

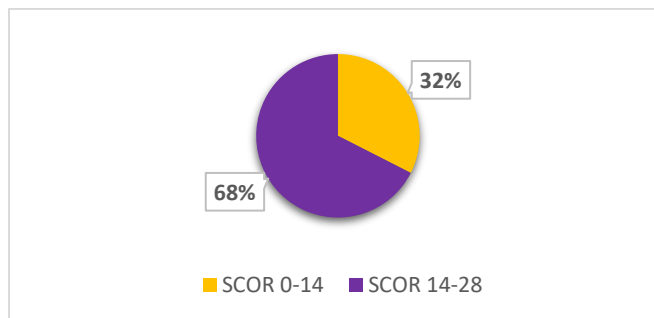


Figure 1 - Data analysis of responses in the field of physical functionality

Furthermore, the data obtained support other recent studies on the same topic that have demonstrated, based on the results obtained using IPAQ, Stanford Health Assessment Questionnaire (HAQ-20) and Medical Outcomes Study 36-item Short-Form Health Survey (SF-36), that radically operated patients have a lower level of physical activity and their quality of life is negatively impacted compared to those who have undergone breast reconstruction. [17]

In order to create an overview regarding the impact of mastectomy on patient functionality, the distribution of

responses reported by the age ranges analysed was followed. Thus, we obtained:

- Age group under 40 (mean 20): The mean score of 20 for this group suggests that younger patients (under 40) reported good functionality after mastectomy. This may indicate that, in general, these patients were better able to adapt to changes and maintain satisfactory functionality, which could be attributed to greater physical and psychological resilience in this age group.

- Age range 40-60 (mean 19.58): With an average close to 20, this age group also scored well in terms of functionality. This may suggest that despite older age compared to the first group, patients aged 40-60 years can still maintain good functionality and coping capacity.

- Age group over 60 years (mean: 15.93): The lower mean score in this age group may suggest some decrease in functionality after mastectomy in older patients. However, it is important to consider that the recovery and adaptation process may be different in older patients and that there are other factors related to general health and age that may play a role in this outcome.

Overall, the scores suggest that younger patients and those in the 40-60 age group had good functionality after mastectomy, while functionality decreased slightly in patients over 60. Interpretation of this could reflect the different adaptation process depending on age and general health. It might also be useful to consider other variables such as pre-existing health status and available support resources for each age group.

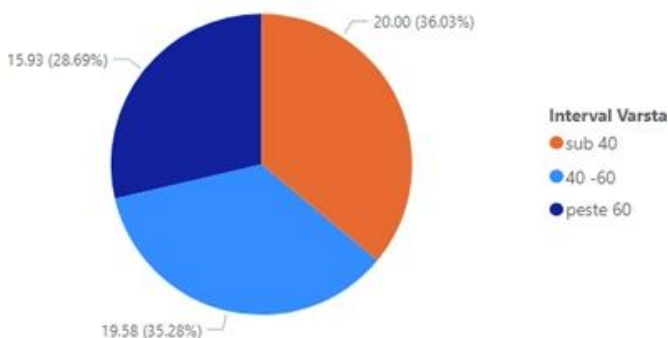


Figure 2 - Assessment of physical functionality by age range

Exploring social/family function

In the vision of the founder of the hospice movement, Cicely Saunders, the concept of total pain, which mirrors the quality of life of palliative patients, had among its criteria the study of the social domain of patients. [18] The results of the present work bring good news in terms of the impact on the social domain of these patients, as 90% of the patients surveyed claim to have felt no significant impact on their social life and only 10% of them have noticed changes in a negative sense. So, most patients manage to adapt to a positive or at least neutral extent to the changes brought about by this type of treatment, and supportive interventions may only be necessary for a smaller number of patients who feel affected at this level.

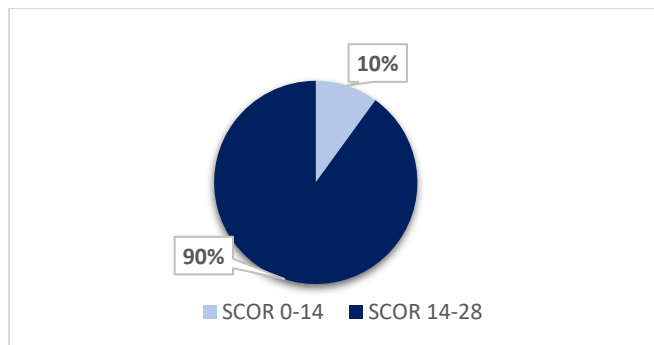


Figure 3 - Analysis of scores in the social domain

The findings in this paper are consistent with the evidence in the literature that breast cancer patients generally enjoy a normal social life, whereas few cases of social isolation can be found in women who have few people around them who might be willing or able to step in as a caregiver in the event of a serious illness. Carers are usually family or friends of the person with cancer, including spouses, daughters, sons, brothers, parents, other family members and close friends. Interestingly, being married was not significantly associated with reduced mortality. Results from the literature also support the idea that, among women, the most important source of social support is often not family, but significant others around the patient, either friends, people with the same illness, colleagues or people from religious or emotional support groups, to which patients adhere. [19, 20]

Conclusions

The results obtained in the present study are consistent with data from the literature, confirming that the incidence of breast cancer in women varies significantly by age group. The COVID-19 pandemic, had a significant impact on breast cancer diagnosis and management, affecting screening programs and access to health care, leading to a decrease in early breast cancer diagnosis after 2020. In terms of the sphere of concerns, more than half of the patients surveyed felt a negative impact on this aspect of quality-of-life following mastectomy. A significant 68% of patients scored below average in terms of functionality, thus signaling a negative impact on their ability to cope with daily activities and general performance, which may indicate that the recovery process after mastectomy requires more attention, data also supported by the literature suggesting that mastectomy patients have a more difficult functional recovery than those undergoing conservative intervention.

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