

# Qualify of life and daily activities performance after breast cancer treatment

Qualidade de vida e desempenho de atividades cotidianas após tratamento das neoplasias mamárias

Leticia Meda Vendrusculo Fangel<sup>1</sup>

Marislei Sanches Panobianco<sup>1</sup>

Leonardo Martins Kebbe<sup>1</sup>

Ana Maria de Almeida<sup>1</sup>

Thais de Oliveira Gozzo<sup>1</sup>

## Keywords

Oncologic nursing; Activities of daily living; Quality of life; Nursing research, Nursing assessment

## Descritores

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## Abstract

**Objective:** To evaluate functional capability, quality of life, and correlation between these variables in women with breast cancer one year after cancer treatment.

**Method:** This descriptive, exploratory, cross-sectional, and quantitative study used the following instruments: a personal data form, Katz's index and Lawton's index to assess functional capability, and the EORTC QLQ-C30 and EORTC QLQ-BR23 to assess quality of life.

**Results:** Regarding functionality, cancer treatment negatively affected instrumental activities of daily life and compromised daily activities in women with breast cancer. These women also had impaired physical and psychosocial functions in leisure time and social participation. These events correlated with a worsening of quality of life.

**Conclusion:** In this study, women with breast cancer had changes in functional capability that negatively affected daily activities and social participation. This situation led to impairment in their quality of life.

## Resumo

**Objetivo:** Avaliar a capacidade funcional, a qualidade de vida e a correlação entre essas variáveis, de mulheres com câncer mamário, que terminaram o tratamento oncológico há, no máximo, um ano.

**Método:** Estudo descritivo, exploratório, transversal e quantitativo por meio da aplicação de questionários: formulário com dados pessoais; Índice de Katz e Índice de Lawton para Capacidade Funcional; EORTC QLQ-C30 e EORTC QLQ-BR23 para Qualidade de Vida.

**Resultados:** Quanto à funcionalidade, este tratamento prejudicou a realização das Atividades Instrumentais de Vida Diária, o que compromete as atividades cotidianas destas mulheres. Houve, também, comprometimento nas funções físicas e psicossociais, nas atividades de lazer e de participação social, sendo que estas se correlacionaram com a piora da Qualidade de Vida.

**Conclusão:** Evidenciou-se que as mulheres com câncer de mama vivenciam alteração na capacidade funcional, o que prejudica a realização de suas atividades cotidianas e sua participação social, levando a um comprometimento na qualidade de vida.

## Corresponding author

Leticia Meda Vendrusculo-Fangel  
Bandeirantes avenue, 3900, Monte Alegre, Ribeirão Preto, SP, Brazil. Zip Code: 14040-902  
leticiamvto@gmail.com

<sup>1</sup>Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brazil.

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## Introduction

Women with breast cancer may experience a feeling of disability because they are unable to manage daily activities such as housekeeping and are unable to care for themselves and their families. Among adverse effects of cancer treatment there is the difficulty for patients to perform occupational activities.<sup>(1,2)</sup>

Occupational performance comprises daily activities and is divided into eight occupational areas: basic activities of daily life, instrumental activities of daily life, sleeping and resting, formal education, work, play, leisure, and social participation. These activities are related to the human needs of self-care, entertainment, and social participation. Because these activities are based on cultural values, they provide structure and meaning to people's lives.<sup>(3)</sup>

Functional capability integrates occupational performance. Functional assessment seeks to verify the disease level and injuries that cause the patient to avoid performing daily activities autonomously and independently (ie, performing daily activities without needing assistance). Therefore, functional assessment enables development of a plan for adequate care.<sup>(4-6)</sup>

Functional capability is associated with the human ability to perform basic activities and is instrumental in maintaining independence in daily life. It is characterized as the efficiency to execute daily life tasks and is linked to preservation of motor and cognitive skills being directly related to quality of life.<sup>(5)</sup>

It is well known that breast cancer treatment includes chemotherapy, radiotherapy, and/or surgery. All could cause adverse effects that sometimes cannot be avoided. In addition, when management is not adequate, the occupational performance of patients could be affected, resulting in worsening of quality of life.<sup>(1,7)</sup>

Changes in physical and emotional functions and, above all, in functional capability also impair quality of life in women who have undergone breast cancer treatment. Functional capability is characterized as the efficiency to perform daily life tasks and depends on preservation of motor and cognitive skills being directly related to quality of life.<sup>(7,8)</sup>

Historically, disease-free survival and global survival constitute the main parameters in the evalua-

tion of results of cancer treatment. However, they became evidently insufficient. In comparison of different therapies, quality of life is an important parameter that can also help physicians and patients decide which therapy is more suitable. For this reason, the US Food and Drug Administration recommends a quality-of-life assessment in clinical trials for approval of new antineoplastic agents because of involvement of physical, emotional, and social functions particularly during and after treatment.<sup>(9,10)</sup>

Quality of life has been greatly important for women with breast cancer and biopsychosocial aspects problems imposed on them, particularly concerning treatment planning and rehabilitation. Quality-of-life assessment for such patients must consider aspects involving disease improvement, stabilization, or worsening based on treatment that includes physical, psychological, and social well-being.<sup>(10-13)</sup>

This study hypothesis is that the effect generated by diagnosis and implications of treatments could affect functional capability and impair occupational performance because of difficulty in performing daily life activities, therefore causing important changes in quality of life. The objective of this study was to evaluate quality of life and functional capability of women with breast cancer one year after treatment with chemotherapy and/or radiotherapy, and to verify correlations among variables.

## Methods

This exploratory, cross-sectional, and quantitative study was carried out at a physical and psychosocial rehabilitation center for women with breast cancer. This center is organized in a multidisciplinary way and is composed of a nursing team, physiotherapists, occupational therapists, psychologists, and nutritionists.

Inclusion criteria were women who underwent mastectomy and participated in a center rehabilitation service, those who completed chemotherapy and/or radiotherapy treatment no more than one year ago, and those who did not have metastasis or active disease.

To measure the sample of this study, we investigated publications of clinical data regarding vari-

ables used. Therefore, the study by Osoba et al., which followed up on patients with cancer after initiation of chemotherapy treatment, was adopted as the basis for this investigation. The EORTC QLQ-C30 (European Organisation for Research and Treatment of Cancer Quality of Life) questionnaire was used.

This study compared the SF-36 questionnaire, which is considered the gold standard, with the EORTC QLQ-C30 in both groups of cancer patients. The variation, which was lower than ten points between scores obtained using the EORTC QLQ-C30, did not represent a significant clinical worsening or improvement. On the other hand, the opposite occurred when a variation higher than ten was found, indicating a significant clinical difference. In addition, a difference between ten and 20 points was considered moderate, and a difference higher than 20 points represented a high clinical change between the first and second assessment.<sup>(14)</sup>

For this reason, the value of ten was used as the coefficient of variation. As defined in the medical literature, the reliability coefficient was 5% and statistical power was 95%. The sample value was obtained from 42 women.

During data collection, from January to July 2010, a total of 123 women initiated treatment in the service, but after the sample was calculated, 42 were invited to participate in the study.

Data were collected, and some instruments were used, including a personal data form that included age, formal educational level, marital status, leisure activities, occupation, living arrangements, and treatments performed. The Katz's index was used to assess functional capability for basic daily life activities and the Lawton's index to assess instrumental activities of daily life.

The score in Katz's index applied in each question varied from zero to one. The total value was obtained, summing scores of all items. Calculations were done according to the questionnaire, and in the end, the total value was characterized by dependent participants and independent participants. The score in Lawton's index for each question varied from one to three. After all scores were summed, participants were categorized as:

dependent (nine to 13 points), semidependent (14 to 22 points), and independent (over 22 points).

Quality-of-life assessment was done using the EORTC-QLQ-30 questionnaire and a specific model for women with breast cancer - EORTC-BR 23 translated into Portuguese. This instrument has 30 items with 16 domains that create four scales: a general health status scale and quality of life (one domain; two items); a functional scale (five domains; 15 items); a symptoms scale (nine domains; 12 items); and a financial difficulties scale (one domain; one item).

The EORTC-QLQ model is multidisciplinary, and the self-administered questionnaire includes specific symptoms of cancer, treatment adverse effects, psychological distress, physical functioning, social interaction, body image, sexuality, global health, and satisfaction with medical care. For this reason, these characteristics turned this questionnaire the most indicated to measure quality of life in patients with cancer.<sup>(11,13)</sup>

The QLQ-C30 questionnaire had units defined as items groups that are not approached or not explored enough in the main questionnaire, although it is relevant for a quality-of-life assessment of specific groups.<sup>(11)</sup>

The QLQ-BR23 unit was created specifically for women with breast cancer. This unit has 23 questions divided into two groups: a functional scale and a symptoms scale.<sup>(13)</sup>

Data collection was carried out in the center during the activities period. Participants answered questionnaires at preestablished times after the investigator read the questions out loud.

To analyze data, all information was first gathered and organized using Microsoft Office Excel® 2007 spreadsheet. Sociodemographic data were evaluated using a descriptive analysis-of-form variables to characterize the sample.

To address aims proposed in this study, a descriptive statistical analysis of sociodemographic, clinical, and therapeutic data of QLQ-C30 was done using mean calculation, standard deviation, and Pearson's correlation coefficient between Lawton's index and quality-of-life instruments.

This study followed the national and international ethical and legal aspects of human subject research.

## Results

Sociodemographic characterization and data related to work, leisure activity, and cancer treatment are presented in tables 1 and 2.

**Table 1.** Distribution of participants related to age, marital status, and formal education

	Variable	n(%)
Age (years)	35-39	2(4)
	40 – 44	3(7)
	45-49	12(30)
	50-54	16(38)
	55-59	6(14)
	60+	3(7)
Marital status	Single	1(2)
	Married	31(73)
	Cohabitant	4(10)
	Divorced	0(0)
	Widow	6(15)
Formal Education	Incomplete elementary school	10(23)
	Complete elementary school	10(23)
	Incomplete high school	6(15)
	Complete high school	10(23)
	Incomplete college degree	0(0)
	Complete college degree	6(15)

Leisurely activities reported by 32 (76%) of women were joyrides, walks, visits to a family member, the internet, embroidering, reading, and cooking. They also reported that people who join them in such activities were sons and daughters (90%), husband (70%), other family members (20%), and friends (20%).

Mean duration of surgery was 6±2.8 months. Highest duration was 11 months, and lowest was less than two months. It important to emphasize that all participants had finished treatment such as chemotherapy and/or radiotherapy, and some patients underwent more than one procedure.

**Table 2.** Distribution of participants related to work, leisure time, and cancer treatment

	Variable	n(%)
Work before treatment	Housewife	14(33)
	Formal job	15(36)
	Freelancer	13(31)
Work after treatment	Unemployed	35(83)
	Employed	7(17)
Leisure activity	Kept track	32(76)
	Not kept track	10(24)
Surgery type	Conservative (nodulectomy and quadrantectomy)	32(77)
	Radical (Madden)	10(23)
Other cancer treatments	Chemotherapy	34(82)
	Radiotherapy	14(33)
Lymphedema presence	Absent (0 - 2 cm)	31(74)
	Mild (2 - 3 cm)	8(20)
	Moderate (3 - 5 cm)	3(6)
	Severe (more than 5 cm)	0(0)

The functional capability assessment was divided into basic activities of daily life and instrumental activities of daily life according to instruments. In basic activities of daily life, all participants had maximal point (six), being classified as independent.

Lawton's index had a mean of 21.8±3.1, and women were classified as semi-independent. When evaluated separately, 56% of women were classified as semi-independent, that is, they needed someone to help them at any moment to perform activities.

Participants had impairment on the physical function domain and social function, with a mean of 60.5 and 64.5, respectively. The emotional function domain showed the most relevant change, with a mean of 48.4. The other domains had mild changes (Table 3).

Table 4 Shows that impairments were mild, but we observed that all domains and standard deviations were high, therefore indicating a greater variability in points achieved between maximal and minimal scores. Some women did not report these symptoms, and others reported them with strong intensity.

**Table 3.** Distribution of mean and standard deviation of participants in EORTC-QLQ-C30

Scale	Domain	Mean $\pm$ standard deviation
Global health mean and quality of life	MGS – QV	70.1 $\pm$ 21.6
Functional scale	Physical function	60.5 $\pm$ 23.9
	Performing roles	80.5 $\pm$ 20.6
	Emotional function	48.4 $\pm$ 22.2
	Cognitive function	73.8 $\pm$ 20.2
	Social function	64.5 $\pm$ 30.9
Symptoms scale	Fatigue	40.9 $\pm$ 26.3
	Loss of appetite	15.5 $\pm$ 23.8
	Insomnia	21.9 $\pm$ 31.7
	Pain	28.9 $\pm$ 31.5
	Nausea and vomiting	8.5 $\pm$ 10.6
	Dyspnea	3.5 $\pm$ 9.8
	Constipation	20.6 $\pm$ 9.8
	Diarrhea	12.7 $\pm$ 27.4

**Table 4.** Descriptive analysis of domains of functional scale and symptoms of EORTC-QLQ-BR23

Scale	Domain	Mean $\pm$ standard deviation
Functional scale	Body image	32.6 $\pm$ 37.1
	Sexual function	39.7 $\pm$ 23.1
	Sexual satisfaction	45.2 $\pm$ 17.1
	Future perspective	36.1 $\pm$ 24.7
	Adverse effects of systemic therapy	26.8 $\pm$ 17.9
Symptoms scale	Breast symptoms	37.9 $\pm$ 23.1
	Arm symptoms	26.1 $\pm$ 21.4
	Hair loss	6.7 $\pm$ 13.4

Legend: n=42

In correlation analysis between functional capability and quality of life, we observed that the physical function and emotional function domains

of EORTC-QLQ-C30 presented a moderate correlation and positive functional capability, which indicated that more impairment in these domains yielded more difficulties in instrumental activities of daily life. In addition, a moderately inverse correlation was found between dyspnea and insomnia.

Correlation between Lawton's index and EORTC-QLQ-BR23 was higher than EORTC-QLQ-C30 (Table 5). In the domains future perspectives, breast symptoms, and hair loss, a

**Table 5.** Correlation between Lawton's index and EORTC-QLQ-C30 and EORTC-QLQ-Br23 questionnaires

EORTC-QLQ-C30		Lawton's index	Pearson's coefficient
EORTC-QLQ-C30	Functional scale	Global mean/QL	0.124888
		Physical function	0.432453
		Performing roles	0.051652
		Emotional function	0.480261
		Cognitive function	-0.18144
	Symptoms scale	Social function	0.243092
		Fatigue	0.088839
		Loss of appetite	-0.13189
		Insomnia	0.289297
		Pain	-0.50839
		Nausea and vomiting	-0.51112
		Dyspnea	-0.34605
		Constipation	-0.4115
		Diarrhea	-0.34909
Financial difficulties	-0.1247		
EORTC-QLQ-BR23	Functional scale	Body image	0.199379
		Sexual function	0.166803
		Sexual satisfaction	-0.41442
	Symptoms scale	Future perspective	0.681042
		Secondary symptoms of cancer treatment	-0.20177
		Breast symptoms	0.635616
		Arm symptoms	0.326929
		Hair loss	0.596361

moderate and positive correlation occurred; in other words, more impairment in the categories yielded more difficulties in functional capability. There was a moderate correlation but of inverse function for sexual satisfaction. Such results indicate that women who reported low sexual satisfaction had more impairment in functional capability. In other domains, this correlations was weak.

Correlation analysis of functional capability related to questions approached in Katz's index was not performed because participants did not have impairments in these items.

Cronbach's alpha was calculated for each instrument to evaluate internal consistency. The results of EORTC QLQ-C30 and EORTC QLQ-Br23 were 0.73 and 0.82, respectively. Functional capability scale values concerning Katz's index and Lawton's index were 1.0 and 0.97, respectively.

## Discussion

Our study findings showed that women with breast cancer had limitations in performing daily activities of living such as housework, self-care, and other activities. Basic activities of daily life comprise self-caring such as dressing eating, and maintaining personal hygiene. Instrumental activities are those that need higher physical effort because they support daily life at home and within society. Such activities often require more emotional, cognitive, and physical functions. This study found high variability in the quality of life of patients who did not have changes in global quality of life but presented changes in some aspects of quality of life.

Results could be influenced by the fact that all participants were part of a rehabilitation center where self-care was easy and guidance given offered the opportunity for them to change experiences, which helped their biopsychosocial recovery. This could be a limitation of our study; time could also be a limitation because it could interfere with the results due to short- and long-term adverse effects of treatment (these become more expressive later on).<sup>(15,16)</sup>

In this sense, several studies indicate that breast cancer treatment causes many changes in the patient's life concerning autonomy and independence, which could generate psychosocial problems.<sup>(1,17-20)</sup> In accordance with other studies,<sup>(21,22)</sup> women reported that dependency and loss of identity could cause anxiety and fears. These feelings could impair their emotional function and quality of life, which is intensified among those who have undergone cancer treatment.

Breast cancer has an important influence on women's emotional aspects because it changes their autonomy and independence.<sup>(20)</sup> Another factor is the closeness, real or idealized, of death and incapability, which cause fear, anxiety, shame, and feelings of discrimination. All of these factors could lead to emotional impairments.<sup>(22)</sup>

At least one third of patients who received cancer treatment will present distress<sup>(21)</sup> that will negatively reflect their quality of life.<sup>(22)</sup>

-20 pain.<sup>(22)</sup> It is important to highlight that even if no symptoms were reported, close attention to the rehabilitation of women with breast cancer is critical to avoid negative influences in their quality of life.

Future perspective is considered a limitation in quality of life because it is close to the end of treatment. Some researchers have shown that concern about the future, close or distant, happens because of fear of disease recurrence. This feeling is more intense in the period close to the date of follow-up examinations.<sup>(22)</sup> In addition, patients worry about possible complications associated with treatment such as dehiscences and infections, among others.<sup>(18,19)</sup>

The results of our study can contribute to management of difficulties faced by women with breast cancer in a more integrative way. It also can help health professionals better understand the impact that this disease and its treatment have on women's daily living activities, especially because at times these women totally abandon their activities, therefore causing worsening quality of life.

Our study shows that reduction of the adverse effects of breast cancer treatment can lead

to positive and effective reconstruction of occupational life in women who have undergone cancer treatment.

The relevance of participants to be part of a rehabilitation center and receive advice on how to continue with their basic activities of daily life, even in the postoperative period, must be mentioned. In addition, these approaches stimulate maintenance of self-care. Findings of our study also suggest that compared with data in the medical literature, adherence of the participant to the integral rehabilitation service, including a multidisciplinary team, favored presentation of few complaints related to disease symptoms and less difficulties after cancer treatment.

In addition, after completion of cancer treatment, women were able to begin life reconstruction and become more independent, which improved their quality of life.

## Conclusion

Breast cancer negatively affected the daily living activities and occupational performance of participants in instrumental activities such as cleaning house, cooking, using domestic instruments, taking medication, taking care of others, managing money, shopping, and using public or private transportation. Participants also had difficulty with engaging in leisure activities.

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## Collaborations

Fangel LMV, Panobianco MS, Kebbe LM and Almeida AM contributed to the design of the project and analysis and interpretation of the data. They also were responsible for drafting and critically reviewing the manuscript, and performing final approval of proofs. Gozzo TO contributed to drafting and reviewing the manuscript, and performing final approval of proofs.

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