



## Changes in social function and body image in women diagnosed with breast cancer undergoing chemotherapy

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**ABSTRACT.** The objective of this study was to investigate the impairment of social and emotional functions, body image and future perspective in women with breast cancer undergoing chemotherapeutic treatment. This is a longitudinal research conducted from October 2012 to October 2013 at the chemotherapy unit of a private institution of Oncology located in Curitiba, PR, Brazil. Sociodemographic and clinical questionnaires were applied, Quality of Life Questionnaire Core 30 e Quality of Life Questionnaire – Breast Cancer Module, to 48 women subjected for the first time to chemotherapy, in three different stages of the treatment. Analysis with Friedman's, Spearman and Kruskal-Wallis nonparametric tests was performed. Changes were observed in social function and body image, which compromised quality of life significantly. Results can subsidize the planning of and adjustments to the care provided to these women by considering the perception about the impact of therapy on QL and their perspectives.

**Keywords:** quality of life, breast neoplasia, oncological nursing.

## Alterações na função social e imagem corporal de mulheres com câncer de mama em quimioterapia

**RESUMO.** O objetivo deste estudo foi investigar o comprometimento da função social, emocional, imagem corporal e perspectiva futura de mulheres com câncer de mama submetidas ao tratamento quimioterápico. Pesquisa longitudinal, realizada em Outubro de 2012 a Outubro de 2013, na unidade de quimioterapia de instituição privada de Oncologia situada em Curitiba-PR, Brasil. Aplicaram-se questionários sociodemográfico e clínico, *Quality of Life Questionnaire Core 30* e *Quality of Life Questionnaire – Breast Cancer Module* a 48 mulheres submetidas pela primeira vez à quimioterapia em três etapas diferentes do tratamento. Realizou-se análise com testes não paramétricos de Friedman, *Spearman* e *Kruskal-Wallis*. Alterações foram percebidas na função social e imagem corporal que comprometeram significativamente a qualidade de vida. Os resultados podem subsidiar o planejamento e ajustes no cuidado a essas mulheres ao considerar a percepção do impacto da terapêutica na QV nas suas perspectivas.

**Palavras-chave:** qualidade de vida, neoplasias da mama, enfermagem oncológica.

### Introduction

Breast cancer can significantly impact a woman's life due to its severity, unpredictable evolution, mutilation and changes in self-image, which compromise the physical, social and emotional aspects of those who suffer from it. In this context, Nursing can promote a variety of actions so as to enable a directed and humanized care during the therapeutic itinerary and help women face this moment with a better quality of life (QL).

The therapeutic approach to this type of cancer consists of local interventions (surgery and radiotherapy) and systemic interventions (chemotherapy, hormone therapy and biological

therapy) and can be employed in an isolated or concomitant manner (Majewski, Lopes, Davoglio, & Leite, 2012). These interventions may, in turn, trigger adverse events that not always can be controlled and, if inadequately handled, may compromise negatively a woman's life (Fangel, Panobianco, Kebbe, Almeida, & Gozzo, 2013). Oftentimes aggressive, though capable of adding 'years to life', they usually do not add 'life to one's years' (Guimarães & Anjos, 2012).

Breast cancer remains as a stigmatized pathology that subjects women to functional losses and relevant social and emotional changes, in addition to important changes in their lifestyles, which may

result in a pronounced negative impact on QL. The impairment of these functions means reduced socio-occupational participation for these women when it comes to their involvement in daily situations, oftentimes compromised by decreased mobility in the homolateral arms of cancer, resulting in worse QL concerning these domains (Fangel et al., 2013).

Currently, an oncological nurse's main concern as to his or her orientations relate to the occurrence of side effects, that is, to the characteristics of chemotherapeutic drugs rather than of women, making it harder for the latter to cope with the physical, psychic and social impact that the disease and therapy may cause.

To take care of a patient with breast cancer is to work with life, regardless of how much time the latter has (Mineo, Matos, Lima, Deluque, & Ferrari, 2013). In this way, it is vital that the nurse also considers subjective dimensions such as emotional and social changes perceived by women during their therapeutic journey. The nurse's actions should be turned to a humanized and holistic approach so as to promote better living conditions and health to this kind of patient.

To be undergoing specialized treatment does not exclude the chances for a woman to keep up with her routine activities. However, the nurse should address some precautions beforehand, with highlight to those comprehending facilitating measures, help women adapt to the experienced reality, prevent complications related to the treatment and stimulate their autonomy face all adversities of cancer.

It is clear that breast cancer treatment, just as diagnosis, is surrounded by uncertainties and stigmas. Nevertheless, it is understood that social and functional activities should be resumed during therapy so that the patient feels independent and confident about the treatment and the reconstruction of her everyday life.

Therefore, this research aimed to investigate the impairment of social and emotional functions, body image and future perspective in women with breast cancer undergoing chemotherapeutic treatment.

## Material and methods

This is a longitudinal and observational research conducted at the chemotherapy unit of a private institution of Oncology in the city of Curitiba, Paraná State, Brazil, specialized in outpatient chemotherapeutic treatment.

Data collection used three questionnaires: Questionnaire for sociodemographic and clinical profiling, applied on the first day of treatment and

aimed at obtaining the profile of the study participants; Quality of Life Questionnaire Core 30 (QLQ C30), made up by 30 items approaching overall health status and QL; and Quality of Life Questionnaire – Breast Cancer Module (QLQ BR23), consisting of 23 items broken into four functional scales and four symptom scales.

Questionnaires QLQ C30 and QLQ BR23 were applied at three different moments, with the first stage being held on the first day of chemotherapy, the second stage from 40 to 50 days after the first stage, and the third stage from 40 to 50 days after the second one. Such stages were determined by the causality of side effects. For this research, the items assessed in QLQ C30 were those related to social function and emotional function, and in QLQ BR23 were those related to body image and future perspective.

All women subjected for the first time to chemotherapy between October 2012 and October 2013 were invited to participate in the study. Inclusion criteria were: being female, having breast cancer, being initiating the outpatient chemotherapeutic treatment, regardless of the therapy prescribed and the clinical stage of the disease. Non-probability convenience sampling was adopted, being composed of 48 women and totaling 144 collected questionnaires.

Sociodemographic data were assessed by absolute and relative frequency, and results of questionnaires QLQ C30 and QLQ BR23 were grouped in the respective scales and expressed as scores ranging from 0 and 100, in accordance with the EORTC Scoring Manual (Fayers et al., 2001). For social function, emotional function, body image and future perspective, all belonging to functional scales, higher scores meant better overall status and, consequently, better QL as to these domains.

Afterwards, Friedman's nonparametric test was applied for comparison between stages, complemented by the Least Significant Difference multiple-comparison test ( $p < 0.05$  were taken as significant). For association between sociodemographic variables and QLQ C30 and QLQ BR23 variables, Spearman's and Kruskal-Wallis nonparametric tests were applied.

## Results and discussion

The characteristic of the institution where the study was conducted is an important component that should be observed; for being a private one, it can evidence specific results to this scenario and diverge from other populations. However, it is worth highlighting that studies in different contexts

draw attention to the need for a Nursing care that meets the characteristics of each group's population.

Considering sociodemographic data, it was possible to observe that the average age was 46 years old, 54% ( $n = 26$ ) completed higher education, and 56.5% ( $n = 27$ ) claimed to be active. As for monthly family income, an average of 12 minimum wages was found.

Results show the occurrence of breast cancer within an age group younger than the national average (50 years old), fact which was considered little frequent in the literature (5 to 7% of the cases) (Nunes, Silva, Ribeiro, Campelo & Veras, 2013; Instituto Nacional do Câncer [INCA], 2014; Renck et al., 2014). Younger women of reproductive age go more often to the doctor and are more frequently examined, which contributes to early diagnosis (Lima et al., 2011).

International studies oppose to the findings of this research and point the occurrence of breast cancer in an age group older than 50 years old, with average age among Swedish women of 61.8 years (Hoyer et al., 2011), 57 years in Chile (Irrázaval et al., 2013), 58.4 years in France (Anota et al., 2014), and 58 years in the United States (Sio et al., 2014).

Breast cancer in young women is little understood, and it is believed that it represents a biologically more aggressive disease with adverse histopathological characteristics and worse prognoses when compared to women aged over 50 years old. For this reason, it is worth noting the need for a differentiated look from health professionals while caring for these women, in order to promote better QL conditions during the treatment (Pinheiro et al., 2013).

Another important factor that should be part of the assistance to these women relates to education, with predominance of higher education in this research, diverging from results found in the literature (Lima et al., 2011; Guimarães & Anjos, 2012; Nunes et al., 2013; Pinheiro et al., 2013; Silva et al., 2013).

Authors point out that education is directly linked to the practice of prevention actions and, consequently, to early detection of breast cancer, making it possible to infer that higher education level means greater knowledge and, thus, greater participation in tracking methods, which subsidizes better prognoses (Lima et al., 2011; Guimarães & Anjos, 2012; Nunes et al., 2013; Pinheiro et al., 2013; Silva et al., 2013). A review study about the survival rate of patients with breast cancer found that women with higher education had a 5-year overall survival equivalent to 92.2% (Rosa & Radunz, 2012).

The present research highlights that 56.5% ( $n = 27$ ) of women claimed to be economically active, with high average family and *per capita* wages (12 and four minimum wages, respectively), diverging from the economic standard found in the literature (Leite, Bubach, Amorim, Castro, & Primo, 2011; Guimarães & Anjos, 2012; Leite, Gonçalves, Amorim, & Bubach, 2012). Authors stress the association of these variables with education, since these women usually have better jobs/occupations and, consequently, higher incomes, which subsidizes a higher economic status, favors therapy and contributes to better living and health conditions (Leite et al., 2011; Rosa & Radunz, 2013).

On the other hand, economically-active and productive women suffer greater impact on their social function face the diagnosis and treatment, which is triggered by the feeling of powerlessness face the disease, the social and family life they are part of, fearing the future for the uncertainty of the present, as they have to conciliate labor activities during therapy (Silva et al., 2013).

About marital status, data of the present study corroborate with other ones in the literature, that is, women were married or cohabiting, had one to three children, with the latter being considered the main companions during the treatment (Guimarães & Anjos, 2012; Fangel et al., 2013; Pinheiro et al., 2013).

Thus, it is possible to infer that presence of a partner and higher number of children contribute to a woman attending gynecological consultations, which favors follow-up, health assessment and nursing care throughout the sickening process, in addition to assisting positively with the emotional function for women to cope with conflicting situations in the therapeutic itinerary (Mineo et al., 2013).

It is worth highlighting that this condition is satisfactory in relation to support to chores, being regarded as an attitude of solidarity and respect to be stimulated by the nurse. Participating in the maintenance of her household is one of a woman's intrinsic roles, which may be impaired face the exposure to the pathology, therapy and physical, psychological and social changes derived from the treatment (Salimena, Campos, Melo, & Magacho, 2012). Besides, support from a partner strengthens the couple's emotional bond and smoothens possible feelings of contempt, quite feared by women, who express their femininity and sensuality through their breasts (Majewski et al., 2012; Vidotti, Scorsolini-Comin, & Santos, 2013).

About clinical data of the treatment, 62.2% ( $n = 30$ ) of women had undergone adjuvant treatment, 39.5% ( $n = 19$ ) were at clinical stage III, and 54% ( $n = 26$ ) were subjected to the AC – T therapeutic scheme

(Adriamicina® and Ciclofosfamida® followed by a Taxano). With regard to the time elapsed from the date of diagnosis and the start of the chemotherapeutic treatment, 35.5% ( $n = 17$ ) of women had started therapy in up to a month, with variation between 0 and 8 months.

As for results referring to questionnaires QLQ C30 and QLQ BR23 (Table 1), social function and body image showed an oscillation in mean values between stages, with lower scores in the third stage of the treatment.

Assessing social function, which figures in the functional scale of QLQ C30, a deficit was found in its scores throughout therapy, with decrease in mean values in each stage. Such values were significant, denoting impairment as to this function. In contrast, some authors have observed scores higher than 75% for social function, which characterized, in a positive way, the maintenance of living conditions, social activities and leisure among the affected women (Hoyer et al., 2011; Yusuf, Hadi, Mahomood, Ahmad, & Keng, 2013).

Changes in social function might lead a woman to social isolation and, consequently, to a decline in her routine activities, which should be maintained in the course of the therapy. In this way, facilitating

measures that help her adapt to the experienced moment should be developed by the nurse, in addition to precautions that prevent complications resulting from the treatment, in order to favor her independence and autonomy throughout the therapeutic itinerary.

Women with breast cancer lives daily with behavioral and emotional disorders caused by the threat that the disease generates, due to the presence, real or imaginary, of disability or life risk, which brings fear, distress, shame and feelings of discrimination, tough situations to be emotionally comprehended by patients (Fangel et al., 2013; Terra et al., 2013).

Comparing results obtained in questionnaires QLQ C30 and QLQ BR23 in the three stages (Table 2), it was possible to observe a significant reduction in social function between the first and the third stages, and in body image between the first and the second ones, and between the first and the third stages.

Table 3 displays the association between sociodemographic variables that differed from data found in the literature, with variables of QLQ C30 and QLQ BR23 that presented significant results between stages, with significant values in the association between education and body image in the first stage.

**Table 1.** Data of QLQ C30 and QLQ BR23 obtained in the three research stages ( $n=48$ ).

Variables	1 <sup>st</sup> STAGE			2 <sup>nd</sup> STAGE			3 <sup>rd</sup> STAGE		
	Mean	Min-Max	SD	Mean	Min-Max	SD	Mean	Min-Max	SD
<i>Quality of Life Questionnaire - Core 30 (QLQ C30)</i>									
Social Function	82.2	0 - 100	27.5	77.4	0 - 100	25.3	69.7	0 - 100	29.7
Emotional Function	65.8	0 - 100	27.6	69.2	0 - 100	27.2	64.2	0 - 100	28.5
<i>Quality of Life Questionnaire - Breast Cancer (QLQ BR23)</i>									
Body Image	90.4	0 - 100	19.5	75	0 - 100	27.9	72.5	0 - 100	27.9
Future Perspective	46.5	0 - 100	40.5	45.1	0 - 100	39.7	45.8	0 - 100	37.4

Note: SD - standard deviation

**Table 2.** Significant scores of QLQ C30 and QLQ BR23 between the three research stages ( $n=48$ ).

Domains	1 <sup>st</sup> Stage	2 <sup>nd</sup> Stage	<i>p</i> value	1 <sup>st</sup> Stage	3 <sup>rd</sup> Stage	<i>p</i> value	2 <sup>nd</sup> Stage	3 <sup>rd</sup> Stage	<i>p</i> value
<i>Quality of Life Questionnaire - Core 30 (QLQ C30)</i>									
Social Function	82.20%	77.40%	**	82.20%	69.70%	0.00551*	77.40%	69.70%	**
Emotional Function	65.80%	69.20%	**	65.80%	64.20%	**	69.20%	64.20%	**
<i>Quality of Life Questionnaire - Breast Cancer (QLQ BR23)</i>									
Body Image	90.40%	75%	0.00003*	90.40%	72.70%	0.00003*	75%	72.50%	**
Future Perspective	46.50%	45.10%	**	46.50%	45.80%	**	45.10%	45.80%	**

Note: SD - \*statistically significant. \*\*nonsignificant.

**Table 3.** Described data about the association between sociodemographic variables and variables of the QLQ C30 and QLQ BR23 in the three research stages ( $n = 48$ ).

<i>Quality of Life Questionnaire - Core 30 (QLQ C30)</i>							
Sociodemographic variables	Variables	1 <sup>st</sup> STAGE		2 <sup>nd</sup> STAGE		3 <sup>rd</sup> STAGE	
		Spearman	<i>p</i> value	KW	<i>p</i> value	KW	<i>p</i> value
Age	Social Function	-0.098	0.508	-0.133	0.368	0.111	0.451
Occupation	Social function	3.938	0.268	3.425	0.331	0.006	0.999
Education	Social Function	2.518	0.472	7.603	0.055	2.044	0.563
<i>Quality of Life Questionnaire - Breast Cancer (QLQ BR23)</i>							
Age	Body Image	0.221	0.136	0.136	0.357	0.125	0.399
Occupation	Body Image	5.285	0.152	0.366	0.947	4.556	0.207
Education	Body Image	8.566	0.036*	2.975	0.395	3.655	0.301

Note: SD - \*statistically significant. KW - Kruskal-Wallis.

About emotional function, which figures in the functional scale of QLQ C30, low mean values were found in the three stages of the present study, which denotes that the women were emotionally worried, fearful and weakened during the whole treatment. In another study conducted in Porto Alegre about QL in women with breast neoplasia undergoing chemotherapeutic treatment, authors found changes in emotional function, signaling the impact that therapy had on this domain and on the QL of the affected women (Nicolussi & Sawada, 2011). Corroborating, authors observed in their findings that the worst QL levels were related to the emotional function, referring to the presence of irritation, depression, tension or worry among the women (Miranda, Neves, Costa, & Souza, 2013). This fact warns professionals about the need for emotional follow-up during all the chemotherapeutic treatment, which is not limited only to assessments and questions about physical signs and symptoms, but rather comprehends psychosocial aspects involving QL.

Identifying these changes requires a critical skill from the nurse face observed attitudes, which are verbalized by the patient or not. Thus, follow-up and orientation during the entire therapeutic itinerary will assist in the identification of emotional variations, as well as the need for referral to another professional, aiming at the maintenance of a woman's wellbeing during the treatment.

The therapy instituted for breast cancer can affect many dimensions in a woman's life, being directly linked to symptomatology and body image perception by the affected one, in addition to compromising QL.

In this research, analyzing the body image variable, which figures in the functional scale of QLQ BR23, it was possible to observe a decline in its scores throughout therapy, with decrease in mean values in each stage. The latter were significant, denoting impaired QL for the women in relation to their self-image, data which corroborate with a study conducted with 42 women with breast neoplasia, with a negative impact on QL for this domain (Fangel et al., 2013).

On the other hand, a study conducted in the United States evidenced mean scores between 69% and 90%, denoting that the women were coping better when it comes to their body image (Sio et al., 2014). In France, although evidenced mean values were high, they showed a decline after the start of the treatment (from 90 to 70%), indicating impairment of QL due to chances caused by the therapy (Anota et al., 2014).

Changes in body image is a worrisome factor that has an individual impact on each woman, who perceives cancer as something unexpected, threatening, capable of affecting her integrity and proof of their feminine existence, since the breasts represent the symbolism and the concept a woman has about herself. The literature points that body image elaboration by women with breast cancer can be regarded as a multidimensional phenomenon made up by concepts that are individual and concerning one's own body, with psychological, social, physical and cultural impact, influencing QL negatively (Santos & Vieira, 2011; Oliveira et al., 2014).

Despite the space conquered by women in society, their representation is linked to body image, generating constant concern and frustration if it does not meet ideal standards, culturally imposed. The possibility of breast removal, partially or totally, can be experienced traumatically, for being related to femininity, sensuality, sexuality and the maternal role (Majewski et al., 2012).

A review study that identified the impact of physical discomforts derived from the treatment on the sexuality of a woman with breast cancer evidenced that changes in body image and self-image affected their sexual experience and marital satisfaction (Cesnik & Santos, 2012). Corroborating, another study shows that breast preservation relates to the maintenance of a more positive body image, helping women maintain their psychological wellbeing, resume routine activities and preserve their QL (Moreira & Canavarro, 2012).

It is possible to observe that, just as surgical intervention, chemotherapeutic treatment causes secondary effects that interfere negatively with the everyday life, body image and sexual life of women, such as: decrease in libido, fertility, vaginal lubrication, and early menopause in young women (Santos & Vieira, 2011; Remondes-Costa, Jemenéz, & Pais-Ribeiro, 2012).

Consonantly, a study revealed in its findings that body image is associated with sexual function and satisfaction and the alopecia caused by the treatment, impacting QL negatively (Recalde & Samudio, 2012).

Changes in body image is a continuous sign of the presence of cancer, which maintains and aggravates feelings of anxiety, fear, anger, and psychologically shakes a woman's interpersonal relations. Faced with that, the oncological nurse should be attentive to these possibilities and instruct on existing alternatives that minimize the impact of these changes, such as utilization of esthetic

attributes and prostheses, favoring the social, family, emotional and sexual dimensions and QL in relation to self-image (Bonassa & Gato, 2012).

When faced with the diagnosis, women go through reflections and questions about their past and future lives, which directly affect their lifestyle and behavior in relation to their own health (Santos & Vieira, 2011). Thus, breast cancer raises doubts and afflictions related to a woman's perception about her future and life projects, since it is the most feared disease in the female population, for being associated with pain, suffering, mutilation and death (Oliveira et al., 2014).

As for the future perspective variable, which figures in the functional scale of QLQ BR23, it remained stable during the three stages, with mean values between 45 and 46%, confirming that the patients' basal perception about the planning of their future life did not change with the treatment and did not impact QL negatively.

Similar findings were observed in a study about QL in women with breast cancer undergoing outpatient treatment, conducted in Asunción, Paraguay (Recalde & Samudio, 2012). A 51.5% mean was found for the future perspective domain, denoting that, although some women were concerned with their future health, the latter was not a predictor for worse QL.

Corroborating, studies carried out in Malaysia, United States and France point a better perspective for women about the future, presenting variation in mean values between 44 to 57%, 46 to 70% and 47 to 54%, respectively (Yusuf et al., 2013; Anota et al., 2014; Sio et al., 2014).

Other two studies conducted in Rio de Janeiro and Ribeirão Preto found 36% as mean value for future perspective, indicating impairment of QL in women in relation to this domain, with great concern with future health (Silva, Albuquerque, & Leite, 2010; Fangel et al., 2013).

It is understood that breast cancer causes several concerns about the future and human finitude, leading women to the vulnerability of the uncertainties of the treatment and future family, professional and social life, compromising QL. For this reason, the nurse should be present in all therapy phases, instructing and helping women reduce their distress and have a better life with greater control of effects derived from the treatment.

In the present research, it is possible to observe that the association between the education and body image variables was significant in the first stage, which denotes that women with a higher education level present greater impairment of QL when body image changed due to the therapy. Such a fact can be

explained because women with higher education level usually have higher socioeconomic status, which allows them to keep up with their social activities and meet the esthetic standard imposed by society (Leite et al., 2011; Rosa & Radunz, 2013).

Education level can have an influence on a woman's self-image, making her understand the temporary reality experienced and adapt to possibilities of changes that may occur due to the therapy, impacting her lifestyle positively (Santos & Vieira, 2011).

Resumption of social relationships, leisure activities, work and family life leads women to concerns related to their own existence, making them feel satisfied with the end of the treatment, but mentally and physically exhausted with prolonged exposure to therapeutic procedures (Cesnik & Santos, 2012).

In this way, follow-up throughout therapy requires a directed Nursing assistance capable of stimulating women to look at themselves not as an ill, weak and isolated individual but as a woman strong enough to face the disease and any type of prejudice, aiming at their wellbeing and QL.

## Conclusion

This research approached the impacts that breast cancer and chemotherapeutic treatment have on social and emotional functions, body image and future perspective of the affected women. Results corroborate with Nursing clinical practices and health policies targeting women, considering their perception about the therapy and the impact the latter has on their lives. It is worth noting that the results should be interpreted with caution and cannot be generalized. Further researches are necessary so that nurses can better understand the QL of these patients and intervene so as to reduce or control possible changes.

## References

- Anota, A., Bascoul-Molleli, C., Conroy, T., Guillemin, F., Velten, M., & Jolly, D. (2014). Item response theory and factor analysis as a mean to characterize occurrence of response shift in a longitudinal quality of life study in breast cancer patients. *Health and Quality of Life Outcomes*, 12(32), 1-18.
- Bonassa, E. M. A., & Gato, M. I. R. (2012). *Terapêutica oncológica para enfermeiros e farmacêuticos*. São Paulo, SP: Atheneu.
- Cesnik, V. M., & Santos, M. A. (2012). Desconfortos físicos decorrentes dos tratamentos do câncer de mama influenciam a sexualidade da mulher mastectomizada? *Revista Escola Enfermagem USP*, 46(4), 1010-1018.

- Fangel, L. M. V., Panobianco, M. S., Kebbe, L. M., Almeida, A. M., & Gozzo, T. O. (2013). Qualidade de vida e desempenho de atividades cotidianas após tratamento das neoplasias mamárias. *Acta Paulista de Enfermagem*, 26(1), 93-100.
- Fayers, P. M., Aronson, N. K., Bjordal, K., Groenvold, M., Curran, D., & Bottomley, A. (2001). *EORTC Quality of Life Group. The EORTC QLQ C30 scoring manual*. Brussels, BE: EORTC.
- Guimarães, A. G., & Anjos, A. C. Y. (2012). Caracterização sociodemográfica e avaliação da qualidade de vida em mulheres com câncer de mama em tratamento quimioterápico adjuvante. *Revista Brasileira de Cancerologia*, 58(4), 581-592.
- Hoyer, M., Johansson, B., Nordin, K., Bergkvist, L., Ahlgren, J., & Lidin-Lindqvist, A. (2011). Health-related quality of life among women with breast cancer – a population-based study. *Acta Oncologia*, 50(1), 1015-1026.
- Instituto Nacional do Câncer (INCA). (2014). *Estimativa 2014: incidência de câncer no Brasil*. Rio de Janeiro, RJ: Inca.
- Irrázaval, M. E., Rodríguez, P. F., Fasce, G., Silva, F. W., Waintrub, H., & Torres, C. (2013). Calidad de vida em câncer de mama: validación del cuestionário BR23 em Chile. *Revista Médica Chile*, 141(1), 723-734.
- Leite, F. M. C., Gonçalves, C. R. A., Amorim, M. H. C., & Bubachi, S. (2012). Diagnóstico de câncer de mama: perfil sócio econômico, clínico, reprodutivo e comportamental de mulheres. *Cogitare Enfermagem*, 17(2), 342-347.
- Leite, F. M. C., Bubach, S., Amorim, M. H. C., Castro, D. S., & Primo, C. C. (2011). Mulheres com diagnóstico de câncer de mama em tratamento com tamoxifeno: perfil sociodemográfico e clínico. *Revista Brasileira de Cancerologia*, 57(1), 15-21.
- Lima, A. L. P., Rolim, N. C. O. P., Gama, M. E. A., Pestana, A. L., Silva, E. L., & Cunha, C. L. F. (2011). Rastreamento oportunístico do câncer de mama entre mulheres jovens no Estado do Maranhão, Brasil. *Caderno de Saúde Pública*, 27(7), 1433-1439.
- Majewski, J. M., Lopes, A. D. F., Davoglio, T. & Leite, J. C. C. (2012). Qualidade de vida em mulheres submetidas à mastectomia comparada com aquelas que se submeteram à cirurgia conservadora: uma revisão de literatura. *Ciência Saúde Coletiva*, 17(3), 707-716.
- Mineo, F. L. V., Matos, F. L. B., Lima, S. S., Deluque, A. L., & Ferrari, R. (2013). Assistência de enfermagem no tratamento do câncer de mama. *Revista Eletrônica Gestão & Saúde*, 4(2), 366-388.
- Miranda, T. V., Neves, F. M. G., Costa, G. N. R., & Souza, M. A. M. (2013). Estado nutricional e qualidade de vida de pacientes em tratamento quimioterápico. *Revista Brasileira de Cancerologia*, 59(1), 57-64.
- Moreira, H., & Canavarro, M. C. (2012). Tipo de cirurgia, adaptação psicossocial e imagem corporal no câncer de mama. *Psicologia, Saúde & Doenças*, 13(2), 169-190.
- Nicolussi, A. C., & Sawada, N. O. (2011). Qualidade de vida de pacientes com câncer de mama em terapia adjuvante. *Revista Gaúcha de Enfermagem*, 32(4), 759-766.
- Nunes, R. R., Silva, S. O., Ribeiro, C. D. S., Campelo, L. M. L., & Veras, C. M. T. (2013). Casos de recidiva ou metástase de câncer de mama após três anos de tratamento. *Revista Interdisciplinar*, 6(1), 80-87.
- Oliveira, L. B., Dantas, A. C. L. M., Paiva, J. C., Leite, L. P., Ferreira, P. H. L., & Abreu, T. M. A. (2014). A feminilidade e sexualidade da mulher com câncer de mama. *Revista Científica da Escola da Saúde*, 3(1), 43-53.
- Pinheiro, A. B., Lauter, D. S., Medeiros, G. C., Cardozo, I. R., Menezes, L. M., & Souza, R. M. B. (2013). Câncer de mama em mulheres jovens: análise de 12.689 casos. *Revista Brasileira de Cancerologia*, 59(3), 351-359.
- Recalde, M. T., & Samudio, M. (2012). Calidad de vida en pacientes con câncer de mama en tratamiento oncologico ambulatorial en el Instituto de Previsión Social en el año 2010. *Memorias del Instituto de Investigaciones en Ciencias de la Salud*, 8(2), 13-29.
- Remondes-Costa, S., Jimenez, F., & Pais-Ribeiro, J. J. (2012). Imagem corporal, sexualidade e qualidade de vida no câncer de mama. *Psicologia, Saúde & Doenças*, 13(2), 327-339.
- Renck, D. V., Barros, F., Domingues, M. R., Gonzales, M. C., Sclowitz, M. L., & Caputo, E. L. (2014). Equidade do acesso ao rastreamento mamográfico do câncer de mama com intervenção de mamógrafo móvel no Sul do Rio Grande do Sul, Brasil. *Caderno de Saúde Pública*, 30(1), 88-96.
- Rosa, L. M., & Radunz, V. (2012). Taxa de sobrevida na mulher com câncer de mama: estudo de revisão. *Texto Contexto Enfermagem*, 21(4), 980-989.
- Rosa, L. M., & Radunz, V. (2013). Do sintoma ao tratamento adjuvante da mulher com câncer de mama. *Texto Contexto Enfermagem*, 22(3), 713-721.
- Salimena, A. M. O., Campos, T. S., Melo, M. C. S. C., & Magacho, E. J. C. (2012). Mulheres enfrentando o câncer de mama. *Revista Mineira Enfermagem*, 16(3), 339-347.
- Santos, D. B., & Vieira, E. M. (2011). Imagem corporal de mulheres com câncer de mama: uma revisão sistemática da literatura. *Ciência Saúde Coletiva*, 16(5), 2511-2522.
- Silva, C. B., Albuquerque, V., & Leite, J. (2010). Qualidade de vida em pacientes portadoras de neoplasia mamária submetidas a tratamentos quimioterápicos. *Revista Brasileira de Cancerologia*, 56(2), 227-236.
- Silva, M. M., Silva, J. A., Esteves, L. O., Mesquita, M. G. R., Stipp, M. A. C., & Duarte, S. C. M. (2013). Perfil sociodemográfico e clínico de pessoas em tratamento quimioterápico: subsídios para o gerenciamento em enfermagem. *Revista Eletrônica de Enfermagem*, 15(3), 704-712.
- Sio, T. T., Chang, K., Jayakrishnan, R., Wu, D., Politi, M., & Malacarne, D. (2014). Patient age is related to

- decision-making, treatment selection and perceived quality of life in breast cancer survivors. *World Journal of Surgical Oncology*, 12(230), 1-8.
- Terra, F. S., Costa, A. M. D. D., Damasceno, L. L., Lima, T. S., Filipini, C. B., & Leite, M. A. C. (2013). Avaliação da qualidade de vida de pacientes oncológicos submetidos à quimioterapia. *Revista Brasileira Clínica Médica*, 11(2), 112-117.
- Vidotti, J. F., Scorsolini-Comin, F., & Santos, M. A. (2013). Qualidade de vida em sobreviventes de longo prazo ao câncer de mama: análise da produção científica. *Revista Psicologia: Teoria e Prática*, 15(3), 49-68.
- Yusuf, A., Hadi, I. S. A., Mahomood, Z., Ahmad, Z., & Keng, S. L. (2013). Quality of life in Malay and Chinese women newly diagnosed with breast cancer in Kelantan, Malaysia. *Asian Pacific Journal of Cancer Prevention*, 14(1), 435-440.

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