

Breast cancer surgery effect over professional activities

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Abstract: Introduction: Breast cancer is responsible for 25% of all cancers and is the most prevalent in the female population. Due to treatment advances and early diagnoses, survival rates have improved, however this condition impacts work absenteeism due to the productive age of these women. The main factors responsible for work absenteeism are physical complications due to surgical treatment. Objective: The aim of this study is to investigate the effects of surgical breast cancer treatments on occupation, to characterize the degree of work absenteeism and to investigate the type of relation between surgical technique and absenteeism's main causes. Method: Cross-sectional study with 74 women diagnosed with breast cancer. A semi-structured interview was used to collect information regarding surgical and clinical aspects, sociodemographic data, work behavior and physical therapy treatments. The data was organized on *Microsoft Excel* and analyzed by frequency and chi-squared test. The significance level considered was $p \leq 0.05$. Results: Breast cancer was most common on the left side (51%), Madden modified radical mastectomy was the most common (50%) and lymph node resection was present in 93.2% of cases. The most frequent post-surgery complications were pain, problems with scarring, sensitivity alterations, ROM limitation, lymphedema and seroma. Only 58% of women were treated with physical therapy and 60% withdrew from professional activities, 23% abandoned work, 26% changed their work role and 14% retired due to the disease. Conclusion: The present study suggests the existence of a direct relation between treatment and work absenteeism.

Keywords: *Mastectomy, Employment, Breast Neoplasms, Return to Work.*

Implicações das cirurgias de câncer de mama nas atividades profissionais

Resumo: Introdução: O câncer de mama representa 25% de todos os tipos de câncer, sendo o de maior incidência na população feminina. Com o avanço dos tratamentos e diagnósticos precoces, as taxas de sobrevivência têm aumentado e tal contexto reflete nos afastamentos laborais, tendo em vista que a maioria das mulheres se encontra em idade produtiva. Os principais motivos responsáveis pelos afastamentos do trabalho são as complicações físicas decorrentes do tratamento cirúrgico. Objetivo: Objetivou-se investigar as implicações cirúrgicas do tratamento do câncer de mama na atividade profissional, caracterizar o número de afastamentos laborais e investigar a relação entre o tipo de cirurgia nos afastamentos do trabalho e seus principais motivos. Método: Estudo transversal envolvendo 74 mulheres diagnosticadas com câncer de mama. Para a coleta dos dados, foi utilizada uma entrevista semiestruturada, que abordou as questões clínico-cirúrgicas, os dados sociodemográficos, o comportamento laboral e o tratamento fisioterapêutico. Os dados foram organizados no *Microsoft Excel* mediante frequências e o teste de qui-quadrado, sendo considerado $p \leq 0,05$. Resultados: O lado esquerdo foi o mais acometido pela doença (51%), a cirurgia radical modificada do tipo Madden foi a mais comum (50%) e 93,2% submeteram-se à linfadenectomia axilar. As complicações operatórias mais frequentes foram dor, problemas cicatriciais, alteração da sensibilidade,

limitação da ADM, linfedema e seroma. Apenas 58% delas fizeram fisioterapia e 60% afastaram-se das atividades profissionais, 23% abandonaram o trabalho, 26% modificaram as funções do trabalho e 14% se aposentaram por motivo de doença. Conclusão: Este estudo sugere a existência de uma relação direta do tratamento sobre os afastamentos laborais.

Palavras-chave: *Mastectomia, Emprego, Neoplasias da Mama, Retorno ao Trabalho.*

1 Introduction

Breast cancer represents 25% of all types of cancer, being one of the largest public health problems in the female population (INTERNATIONAL..., 2012). According to the National Cancer Institute (INSTITUTO..., 2016), more than 55,000 cases of breast cancer have been confirmed, being more concentrated in the Southeast and South Regions, with 71.18/100 thousand and 70.98/100 thousand, respectively. Only in the State of Santa Catarina, 1,253 women with the disease were identified between January and June 2015 (INSTITUTO..., 2016).

With advances in treatment techniques and increasingly early diagnosed, survival rates in developed countries have risen to as high as 85% in the first five years after diagnosis. In developing countries, such as Brazil, these values range between 50 and 60% (INSTITUTO..., 2014). The increase in survival may reflect labor distances, given that most of these women are in full productive age.

The literature identifies lymphedema, surgical incision pain, and upper limb (UL) strength/range of motion (ROM) as chronic complications of both radical and conservative surgical approaches. Such complications impair short-term and long-term activities of daily living (ADLs), professional performance, and the ability to perform different roles and tasks (RHIE; JEONG; WON, 2013).

The chronicity of these complications may compromise the professional activity given the delay in returning to work. Evidence shows that women take about 340 days on average to return to work, considering, in these cases, two years after the end of treatments (ROELEN et al., 2011). In the same period, 13% remain distant from the disease, and 11% retire earlier, due to the presence of pain and fatigue (CARLSEN et al., 2014; LINDBOHM et al., 2014).

For some women, the return to professional activity is sometimes interpreted as a situation of stress, due to the need to reconcile the new condition with work life. In the international literature, the barriers are in the physical-emotional overload of the treatment, in the therapy of an advanced stage

cancer, and also in the difficulties of the relationship between colleagues and superiors (ISLAM et al., 2014; FANTONI et al., 2010; SALONEN et al., 2011). However, some studies suggest that the maintenance of professional activity during the diagnosis and treatment of the disease promotes a better quality of life throughout the therapeutic process (SALONEN et al., 2011; TIMPERI et al., 2013; DORLAND et al., 2016).

The literature reports the need to carry out studies that characterize the way in which these women, survivors of breast cancer, behave professionally since such information is widely explored in global settings (BARNES et al., 2014; BLINDER et al., 2012; COOPER et al., 2012). Finally, it is considered appropriate to reflect on the national conduct and preventive actions in the current conjuncture of health actions. The studies aim to reduce the physical, psychological and labor impact, so the labor return of this collective is fast and safe (ISLAM et al., 2014).

In view of the above, the objective of this study is to investigate the implications of surgeries in the treatment of breast cancer in the professional activity of women, to characterize this population as to the number of work leave, and finally to investigate the relationship between the type of surgery in the removals and the main complaints identified by them.

2 Method

This is a cross-sectional and descriptive study, involving 74 female residents of the city of Florianópolis-SC, diagnosed with breast cancer and who underwent their first consultation at CEPON (Center for Studies and Oncology Research, Santa Catarina). The research was approved by the Ethics Committee of Research on Human Beings of the Federal University of Santa Catarina and the Center for Studies and Oncology Research, under Resolution 196/96 and 251/97 of the CNS, approved at the Federal University of Santa Catarina - UFSC, under protocol nº 088/2004. The study was conducted with the express consent

of the patients, obtained from the reading and signing the Free and Informed Consent Term.

The sample was obtained for convenience, during the afternoon shift, with CEPON's register of consultations. The data collections were carried out by the same researcher in one of the outpatient clinics of this institution and, when necessary, at the participants' home. The inclusion criteria for the participants of this study were: to be over 18 years old; being outpatient; without metastases; having undergone some surgical intervention to remove the breast neoplasm, and performing some professional activity, whether paid or not, before the treatment.

A semi-structured interview was used for the data collection, involving open and multiple choice questions previously tested with five women, who were in consultation with one of the oncologists in the sector. For the description of the socio-demographic profile, the date of birth, age, address, telephone number, marital status, and education were considered. The information on the clinical-surgical data was obtained through an interview or in consultation with routinely used medical records. Therefore, we opted for analysis of the type of surgery performed (radical or conservative), the presence of postoperative complaints (decreased

movement, lymphedema, decreased pain sensitivity), postoperative physical therapy, behavior in labor activity and their respective reasons, an analysis based on a previous study by Fantoni et al. (2010).

Interview records were stored in a database in the Microsoft Excel® program. Subsequently, the organized data were analyzed with the program SPSS® statistical package for social sciences version 19.0. In the inferential analysis of the 'removal from the professional activity, the verification of the relationship with other qualitative variables was measured by the Chi-square test statistic considering $p \leq 0.05$.

3 Results

From the 137 women diagnosed with breast cancer registered at CEPON, the final sample consisted of 54% of the initial sample. Death was recorded in 29%, and 13% of them did not live in Florianópolis, and 4% of women did not accept to participate in the study (Figure 1).

As for the socio-demographic characteristics, the interviewees' age showed great variability. They were in the range of 20 to 92 years old (± 56.5). Most of the sample consisted of Caucasian women (95%), married (53%) and with incomplete elementary

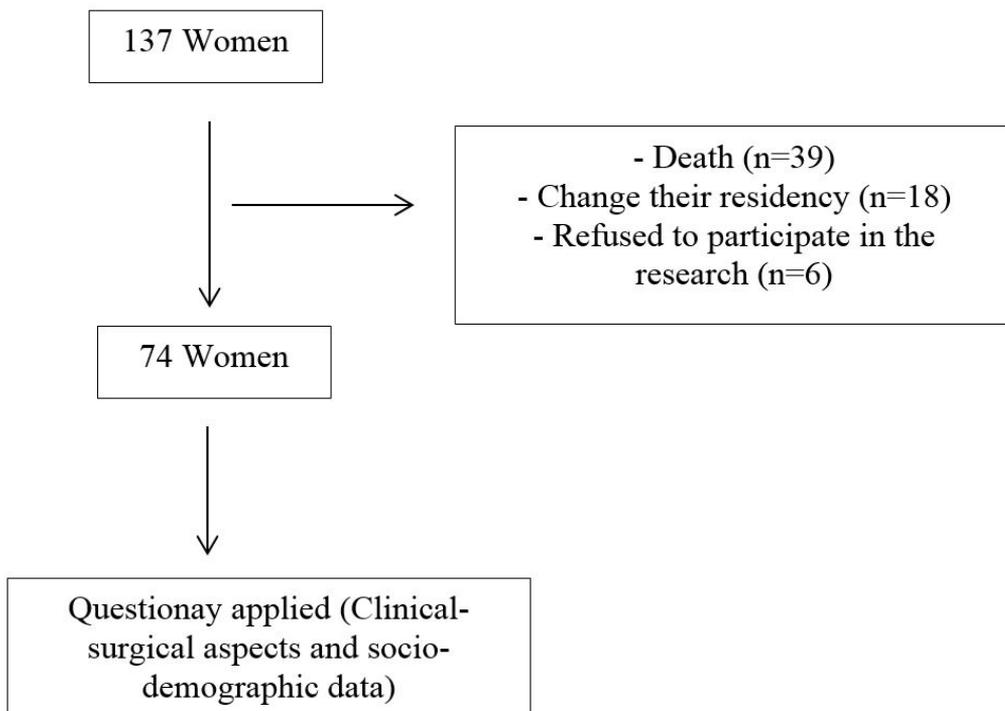


Figure 1. Schematization of the initial sample and the reasons for the sample loss.

school (32%). Regarding surgery for the treatment of breast cancer, the left side was the most affected (51%), and half of the sample was treated with Madden-type modified radical mastectomy, and almost all women in this study underwent axillary lymphadenectomy (93%) (Table 1).

Regarding the complications reported by them, the most frequent were: pain, scarring, sensitivity changes, limitation in ROM, lymphedema, and seroma. Relating to the number of complaints, around 38% of the women in this study reported having no complaints, followed by 33% who reported at least one complaint. Also, about 17% of them mentioned three concomitant complications, while 13% of these women cited only two complaints.

Table 1. Surgical characteristics of the patients evaluated.

Characteristics	Frequencies (%)
Operated side	
Left	51.38
Right	45.83
Bilateral	2.79
Type of Surgery	
Pattey	8.33
Madden	50
Halsted	2.79
Tumorectomy	5.55
Quadrantctomy	33.33
Axillary lymphadenectomy	93.24

During the analysis of the questionnaires, it was verified that only 58% of the interviewed women underwent postoperative physiotherapeutic treatment and 60% had to move away from their professional activities after surgery. It was observed that 26% of the women reduced their activities in work at home. Among those who could return to work, about 26% had to adjust to their jobs, and 23% abandoned their jobs to engage in domestic activities. Handicrafts had participation by 9% of women, and only one was bedridden (2.3%). Besides to removals and changes in professional activity, the retirement, due to breast cancer, was verified in 14% of the women.

The main reasons that led to the removal of women from their professional activities were the need to use the UL, specifically the hand, and emotional complaints arising from the demand for clinical exams and consultations. About 56% of them reported three or more reasons, 30% of them reported a single reason and two reasons were mentioned in 14% of the cases.

When analyzing Table 2, it was observed that there were no statistically significant differences ($p = 0.72$ and $p = 0.15$) in the distribution of the retired professional activity when they were related to the surgical technique and postoperative physiotherapy. Regarding lymphedema, in the distribution of removal from the professional activity, the statistical significance was marginal ($p = 0.052$).

Table 2. Distribution of the removal of the professional activity related to surgical technique, postoperative physiotherapy and existence of lymphedema, and Chi-square test results.

Removal	(n / %)		Total	X ²	p*
	No	Yes			
Surgical technique					
Radicals	17 38.6%	27 61.4%	44 100%		0.13
Conservative	12 42.9%	16 57.1%	28 100%		
Post-operative Physiotherapy					
No	16 51.6%	15 48.4%	31 100%	2.07	0.15
Yes	15 34.9%	28 65.1%	43 100%		
Lymphedema					
No	27 48.2%	29 51.8%	56 100%	3.78	0.052
Yes	4 41.9%	14 58.1%	18 100%		

* $p < 0.05$.

4 Discussion

The aim of this study was to investigate the implications of breast cancer surgeries on women's professional activity, as more than half of them moved away from their professional activity after surgical treatment. The reduction of activities in domestic work was also reported, and some of the women who were able to return to work had to adapt work functions to their new health condition. The abandonment of their professional activity gave way to the dedication to the household tasks, and a part of them retired for the breast cancer, reinforcing the commitment to the improvement of their health and the complex security required.

In this study, there were no statistically significant differences in the withdrawal of the professional activity and the surgical technique adopted. However, when analyzed individually, it is observed that the techniques used have brought physical limitations to women who have moved away from their jobs to a greater or lesser degree, reinforcing the need to monitor this relationship: occupational health and oncology.

This research presented a relatively high rate of removals from the professional activity, related to the greater number of physical complaints. Among the reasons they reported on the decision to move away from work, the fear of injury, the decrease in strength in the UL, the less agility, the unwillingness to work, the feeling of the heavy arm, the loss of movement, the pain and the high frequency of examinations contributed to this behavior. These findings are corroborated by studies by Fantoni et al. (2010), Lilliehorn et al. (2013) and Lindbohm et al. (2014).

Most women interviewed were separated from the professional activity (60%), and radical surgery was observed in 63% of them. The purpose of the surgeries performed for the treatment of breast cancer is to remove the malignant tissue, whose main difference lies in the extent of the removal of adjacent tissues (VERONESI et al., 2002). Currently, there is sufficient scientific evidence that conservative surgeries can be performed with the same safety as radical surgeries (COWHER et al., 2014; CHEN et al., 2014). We cannot disregard the fact that the use of conservative surgeries reduces the postoperative complications because they are less invasive and have reduced negative effects on the quality of life of these women, since they preserve adjacent tissues and contribute to

the functional impairment of UL (PYFER et al., 2015; CHEN et al., 2014).

When investigating the relationship between the type of surgery and the removal of the work, the main complaints identified were the physical complications, such as lymphedema, pain, healing changes, seroma, restrictions on ROM scapular changes and sensitivity. These results have challenges to the interdisciplinary team insofar as pain in the surgical incision. The consequent postoperative healing problems are physical alterations, equally compromising, and well documented in previous studies (EDWARDS et al., 2013). This pain, if persistent, suggests the development of alterations in pain-modulating processes at the level of the central nervous system (EDWARDS et al., 2013).

Another common complication was lymphedema, present in 78% of the women in the sample. Lymphedema was associated with breast surgery and not with other breast cancer treatment modalities, such as axillary emptying or radiotherapy, which may promote this condition (TSAI et al., 2009). Also, the literature describes that lymphedema occurs within the first year and its appearance may occur at different time points (TSAI et al., 2009; MONLEON et al., 2015; TOGAWA et al., 2014). Recently, Cowher et al. (2014) have suggested that every eight lymph nodes removed, there is 1.5 times greater chance of developing this condition. Therefore, further investigations on the process of lymphedema onset and the possible effects on the work dynamics at different moments of the rehabilitation process are suggested.

It is worth considering that the physical complications hinder to perform the ADLs. This condition is related to the surgical technique used, with radical surgery being the main responsible for the development of physical steroids (DEVOOGDT et al., 2011a). On the other hand, a recent study in women with a mastectomy described the moderate performance after radical breast surgery in such activities, which reflected a moderate or moderately good satisfaction in their performance, and these could also influence the emotional response (BRITO; FONSÊCA, 2014). Surgeries for breast cancer treatment usually change the function of the rotator cuff by reducing its ROM, and this reduction may be considered a predictor of disability of the movement of the UL (EBAUGH; SPINELLI; SCHMITZ, 2011). These results corroborate with the findings of this study, which, although it did not directly evaluate

this activity, it verified the impairment of work activities and daily life due to the symptoms this body segment.

In the study by Smoot et al. (2010), the authors found that UL dysfunctions are identified in women after breast cancer treatment and found that the greater the degree of lymphedema, the greater the limitations and repercussions in ADLs. Other complications found in women who survived breast cancer were the structure of the scar, pain and protective shoulder posture, with consequent atrophy of the muscles that make up the shoulder girdle. In general, these changes may be visible within six months after the surgical treatment, indicating the need for monitoring and preventive actions to minimize the evolution of the possible disability picture (EBAUGH; SPINELLI; SCHMITZ, 2011).

These previously described dysfunctions hinder to maintain professional activity, which may have a negative effect on quality of life, as well as on the economic and social spheres (BRITO; FONSÊCA, 2014). In this way, the increasing need for an interdisciplinary action is perceived, since the UL and especially the hand are responsible for the physical-functional independence of the UL (DEVOOGDT et al., 2011b; CUESTA-VARGAS; BUCHAN; ARROYO-MORALES, 2014; TESTA et al., 2014).

Occupational therapy can particularly provide them with better performance and the earliest possible return to work, leisure and educational activities (HWANG et al., 2015).

4.1 Limitations of the study

The absence of statistically significant data is due to the reduced number of the sample, explained by the losses related to death, the change of the residential address and the non-acceptance of being part of the study. Thus, the results found should be interpreted with caution, avoiding generalizations.

4.2 Suggestion for future studies

It is suggested the follow-up studies be done to better characterize this population and its physical limitations. Such reflection will allow finding answers for a better fit and/or management in the different occupational types (manual and non-manual workers). Also, tools can be offered to employers in the process of adapting to work functions, based on health, comfort and safety

conditions, without affecting the quality of the production process.

5 Conclusion

This study enabled to verify different behaviors after treatment, such as some of these women moved away from their occupational activities, referred to retirement or even had to leave the professional activity, after the time of health leave. Regarding the type of surgery, most of the women performed some radical breast surgery, and almost all of them underwent lymphadenectomy. The most frequent physical complaints were a pain, lymphedema, seroma, altered ROM, decreased sensitivity and scarring problems. These complications, added to the occupational demands, contributed to the development of the modifications of the labor behavior reported by them. It is believed that an early post-operative multidisciplinary follow-up is essential in the alleviation of physical symptoms and, consequently, it helps to return to work.

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Author's Contributions

Mirella Dias was responsible for data collecting and analyzing, discussing the results, and writing the text. Kamilla Zomkowski was responsible for writing the text, preparation for submission to the publication. Fernanda Alessandra Silva Michels was responsible for the preparation of the project, and data analysis. Fabiana Flores Sperandio was responsible for data analysis, discussion of results, and final review of the article. All authors approved the final version of the text.