Prevalence of Disability and Clinical Associations in Breast Cancer Women Survivors: a Pilot Study

Prevalência da Deficiência e Associações Clínicas em Mulheres Sobreviventes ao Câncer de Mama: um Estudo-Piloto
Prevalencia de Discapacidad y Asociaciones Clínicas en Mujeres que Sobreviven al Cáncer de Mama: un Estudio Piloto

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Abstract

Introduction: The treatment of breast cancer improves survival and reduces mortality, but brings functional limitations and side effects that compromise survival. **Objective**: To evaluate the prevalence of disability and its association with physical capacity, sleep, fatigue and quality of life in women surviving breast cancer. **Method**: Pilot study involving 32 women at least one year after clinical treatment. The study data were obtained through questionnaires and a six-minute walk test. **Results**: The prevalence of disability in the sample was >90%. The World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) revealed good internal consistency (α=0.874). Disability correlated strongly and positively with cognition (rs=0.758), mobility (rs=0.709), household/work activity (rs=0.718) and participation (r=0.701) and moderately and negatively with fatigue (r=-0.621) and Functional Assessment of Cancer Therapy-Fatigue (FACT-F) (r=-0.672) and positively with the Disabilities of the Arm and Shoulder (DASH) (r=0.639). Comparing the disability groups, a significant difference was observed with worse scores for DASH (d=1.62), FACT-F (d=1.47), fatigue (d=1.21) and the Pittsburgh Sleep Quality Index (PSQI) (d=0.98). **Conclusion**: Women who survived breast cancer had some level of disability associated to fatigue, poor sleep quality and quality of life, demonstrating important impacts on the health of these women.
Key words: Breast Neoplasms; Cancer Survivors; Cross-Sectional Studies; International Classification of Functioning, Disability and Health; Sickness Impact Profile.

Resumo

Introdução: O tratamento do câncer de mama proporciona aumento da sobrevida e reduz a mortalidade, mas traz limitações funcionais e efeitos colaterais que comprometem a sobrevida. **Objetivo**: Avaliar a prevalência da deficiência e sua associação com capacidade física, sono, fadiga e qualidade de vida em mulheres sobreviventes ao câncer de mama. **Método**: Trata-se de um estudo-piloto envolvendo 32 mulheres com, pelo menos, um ano após o tratamento clínico. Os dados da pesquisa foram obtidos por meio de questionários e um teste de caminhada de seis minutos. **Resultados**: A prevalência de deficiência na amostra foi >90%. O *World Health Organization Disability Assessment Schedule 2.0* (WHODAS 2.0) revelou boa consistência interna (α=0,874). A deficiência correlacionou-se forte e positivamente com cognição (rs=0,758), mobilidade (rs=0,709), atividade domésticas/trabalho (rs=0,718) e participação (r=0,701); e moderada e negativamente com fadiga (r=-0,621) e o *Functional Assessment of Cancer Therapy-Fatigue* (FACT-F) (r=-0,672); e positivamente com o *Disabilities of the Arm and Shoulder* (DASH) (r=0,639). Comparando-se os grupos de deficiência, observou-se diferença significativa com piores escores para o DASH (d=1,62), FACT-F (d=1,47), fadiga (d=1,21) e o *índice de qualidade do sono de* Pittsburgh (PSQI) (d=0,98). **Conclusão**: Mulheres sobreviventes ao câncer de mama apresentaram algum nível de deficiência associada à fadiga, à pior qualidade do sono e à qualidade de vida, demonstrando impactos importantes na saúde dessas mulheres.
Palavras-chave: Neoplasias da Mama; Sobreviventes de Câncer; Estudos Transversais; Classificação Internacional de Funcionalidade, Incapacidade e Saúde; Perfil de Impacto da Doença.

Resumen

Introducción: El tratamiento del cáncer de seno mejora la supervivencia y reduce la mortalidad, pero aún conlleva limitaciones funcionales y efectos secundarios que comprometen la supervivencia. **Objetivo**: Evaluar la prevalencia de discapacidad y su asociación con la capacidad física, el sueño, la fatiga y la calidad de vida en mujeres sobrevivientes de cáncer de seno. **Método**: Este es un estudio piloto con 32 mujeres al menos un año después del tratamiento clínico. Los datos de la encuesta se obtuvieron mediante cuestionarios y una prueba de caminata de seis minutos. **Resultados**: La prevalencia de discapacidad en la muestra fue >90%. El Programa de Evaluación de Discapacidad de la Organización Mundial de la Salud 2.0 (WHODAS 2.0) reveló una buena consistencia interna (α=0,874). La discapacidad se correlacionó fuertemente y positivamente con la cognición (rs=0,758), la movilidad (rs=0,709), la actividad del hogar/trabajo (rs=0,718) y la participación (r=0,701) y moderada y negativamente con la fatiga (r=-0,621) y lo *Functional Assessment of Cancer Therapy-Fatigue* (FACT-F) (r=-0,672) y positivamente con lo *Disabilities of the Arm and Shoulder* (DASH) (r=0,639). Comparando los grupos de discapacidad, se observó una diferencia significativa con peores puntajes para DASH (d=1,62), FACT-F (d=1,47), fatiga (d=1,21) y el índice de calidad del sueño de Pittsburgh (PSQI) (d=0,98). **Conclusión**: Las mujeres que sobrevivieron al cáncer de seno tenían algún nivel de discapacidad asociada con la fatiga y la mala calidad del sueño y la calidad de vida, lo que demuestra importantes impactos en la salud de estas mujeres.
Palabra clave: Neoplasias de la Mama; Supervivientes de Cáncer; Estudios Transversales; Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud; Perfil de Impacto de Enfermedad.

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INTRODUCTION

Breast cancer treatment, despite increasing the survival rate and reduction of the tendencies of mortality[1,2], because of therapeutic advances with effective and less aggressive interventions[1,3], causes several functional limitations that provoke severe compromise along the disease-free survival[4].

Current evidences indicate that the causes that provoke functional, behavioral and psychologic limitations during the whole life of patients with breast cancer are multifaceted and are associated with damages to the quality of life and other clinical associations that affect the health of these women[5,6].

The functional damages limiting the performance of activities and restricting the social participation of these women according to the International Classification of Functioning, Disability and Health (ICF)[7], can be understood as disabilities, representing negative aspects of the interaction between the biological structures and functions, activity and participation. Understand this disability must involve the relation of the individual with the contextual factors (environmental and personal)[7].

In this perspective, it is important to notice that breast cancer treatment still impacts the functioning in short and long term negatively and when associated to other problems, can trigger severe health damages[5,8].

Studies about functioning/disability indicate that the questionnaire World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) is a reliable and valid instrument to be used in patients with breast cancer being utilized in different countries of the world, and it is useful to measure the prevalence of the disability evaluated by the limitation of activities and restriction of participation[9,10]. Therefore, the utilization of an ICF-based standard questionnaire can generate important and comparable data with other populations for the development and planning of therapeutic conducts according to the patient heath status[9,10]. However, data are still scarce about women survivors of breast cancer and along the disease-free survival.

Based in these evidences, it is clear the necessity of drawing attention to the disabilities and its associated consequences in women survivors of breast cancer. These disabilities indicate compromises to execute specific activities and participation and, consequently, interfere in the biopsychosocial well-being of this population negatively. The lack of knowledge of these manifestations provoke difficulties in the evaluations and therapeutic conducts targeted to these women[6,11].

Therefore, this study had the objective of evaluating the disability and its association with physical capacity, fatigue, sleep and quality of life in women survivors of breast cancer.

METHOD

Pilot study with women survivors of breast cancer conducted between January and September 2018. It was developed pursuant to the Declaration of Helsinki and approved by the local Institutional Review Board, number CAAE: 67839617.9.0000.5568.

Women older than 18 years diagnosed with breast cancer, clinical stages I to III (tumor limited to breast and lymph nodes) who completed the clinical treatment for at least one year were included in the study. The exclusion criteria were: a) women with bilateral breast cancer; b) locoregional relapse or metastasis; c) neurologic or cognitive alteration hampering the application of the questionnaires and physical test; and d) hemodynamic instability counter-indicating the physical test[12].

The selection of these patients was conducted in the community adjacent to the basic attention health services of the municipality of Santa Cruz and Currais Novos with population of 35,797 and 42,652 inhabitants and human development index (HDI) of 0.635 and 0.691, respectively[13].

All the study participants were informed about the objectives of the research, benefits for joining the study, anonymity and consented to participate by signing the Informed Consent Form.

The participants underwent an evaluation consisting of general identification, health history, validated questionnaires, anthropometric measures and physical tests. All the evaluations were performed by two skilled and previous trained evaluators, the instruments and tests applied were calibrated.

Measures utilized

The sociodemographic variables included: age (between 32-59 years, ≥60 years), race/ethnicity (Caucasian, Brown, Black, Asian), marital status (with, without spouse), education (up to 8 years, between 8-11 years, >11 years), occupation before and after the treatment, family income (until 1 minimum wage) >1 minimum wage). The clinical variables investigated were: categorized (normal, overweight, obese) body mass index (BMI), stage of the disease (I, II or III), local adjuvant treatment, systemic treatment in some moment, systemic adjuvant treatment, surgical procedure (radical mastectomy, quadrantectomy/setorectomy), lymphadenectomy, lymphedema, cancer family history, multi-disciplinary team, *diabetes mellitus*, systemic arterial hypertension (SAH), arthritis/arthrosis and other comorbidities.

Height and body weight of the patient were measured with stadiometer brand Heigth and digital scale brand Cadence, respectively, BMI was calculated through the ratio between body weight and square of the height (BMI = weight/height^2).

The variables analyzed were disability, impairment of the homolateral upper limb to the surgery, fatigue, quality of life, sleep quality and physical capacity.

The level of disability was evaluated through WHODAS 2.0 with 36 questions, validated to Portuguese and applied in an interview. It was developed based in the ICF[14]. The instrument establishes the level of disability through six domains: cognition, mobility, self-care, getting along, life activities and participation. The total score of the instrument varies from 0 (no disability) to 100 (complete disability)[10,15].

The disability of the upper limbs was measured through the questionnaire Disabilities of the Arm and Shoulder (DASH) with 30 questions that evaluated activities performed in the previous week to measure the disability level of physical, social and occupational functions and with symptoms. The total score varies from 0 (no disability) to 100 (severe disability)[16,17].

The quality of life and fatigue of the patients were evaluated through the questionnaire Functional Assessment of Cancer Therapy-Fatigue (FACT-F), consisting of 40 questions with five domains scoring separately: physical well-being (0-28 points); social/family well-being (0-28 points); emotional well-being (0-24 points); functional well-being (0-28 points) and the subscale of fatigue (0-52 points). Each item has points ranging from 0 to 4. The total score ranges from 0 to 160 and high scores indicate better quality of life and less fatigue[18,19].

Quality of sleep was evaluated through the Pittsburgh Sleep Quality Index (PSQI), formed by seven components that evaluate the sleep separately in subjective quality, disturbance, latency, duration, efficiency, use of sleep medication, daytime somnolence and daytime dysfunction with scores ranging from 0 to 3 points and the sum of the components provides a total score of 21 points where lower points indicate better sleep quality[20,21].

Physical capacity was measured through the six minutes-walk test (6MWT) that consists of a low cost, easy performance, safe and reproducible sub-maximal test capacity with validation for the population of women with breast cancer[22,23]. The test was based in the precepts of the American Thoracic Society (ATS), where the participants were instructed to walk through a 30-metre stretch of unimpeded walkway for six minutes at sustained maximum speed. In the beginning, during and in the end of the test the cardiac frequency and peripheral oxygen saturation (SpO$_2$) were measured through pulse oximeter (model CMS50N – Contec, São Paulo, Brazil), and during the test, the subjective perception of the effort for dyspnea (Borg-D) and lower limbs fatigue (Borg-F) were measured through the modified Borg scale. The measurement of the distance in the 6MWT was through the equation of the standard deviation (2.11*height cm) - (2.29*weight kg) - (5.78*age) + 667 m, and the functional capacity was estimated from the relation of the distance obtained in the test by the estimated distance[24].

STATISTICAL ANALYSIS

Descriptive and inferential statistic was utilized to analyze the data, using the software SPSS 20.0 (Statistical Package for Social Science). The categorical variables were shown in absolute and relative frequencies and the continuous variables were expressed as mean and standard deviation, median, interquartile interval. The normality of the continuous data was done with the test Shapiro-Wilk.

To analyze the internal consistency of the instrument WHODAS 2.O, it was utilized alpha of Cronbach ( ), that can vary from 0 to 1 so as, as nearer to one, stronger and more consistent will be the correlation between the items. The correlation among the quantitative variables generated by WHODAS 2.0, DASH and FACT-F was calculated using the Spearman and/or Pearson correlation coefficient.

For comparative analyses, women were divided in two groups: mild disability and moderate disability. Tests t of Student and Mann-Whitney were used to compare means and medians between groups when the data were parametric and non-parametric, respectively. The confidence interval 95% for the difference between groups was calculated.

The clinical significance of the results was analyzed through the test d of Cohen. The size of the effect was interpreted as follows: values ≥0.2 were classified as low clinical effect, ≥0.5 moderate and ≥0.8 high[25]. The level of significance of p<0.05 was adopted for all the tests.

RESULTS

Initially, 101 women with diagnosis of cancer were identified. Of these, 36 were not eligible because had other types of cancer (ovary, skin, head and neck). Of the 65 eligible women, 28 were excluded, five refused to join the study and the final sample consisted of 32 women. The social and clinical characterization of the sample is presented in Tables 1 and 2, respectively.

Most of the women included were in the age-range of 32-59 years (78%), claimed they were Brown (50%) and lived with spouse (53%). For clinical profile, participants

were diagnosed mostly in stages II and III (62%), had overweight at the evaluation (44%) and had cancer family history (75%). The main surgical procedure performed was radical mastectomy (53%) and 81% were submitted to surgery-associated axillary emptying.

Of the 32 women evaluated, 21 presented moderate disability (72%), eight, mild disability (25%), one, had severe disability (3%) and two had no disability (6.25%).

WHODAS 2.0 with 36 questions demonstrated good internal consistency for patients with breast cancer (α=0.874). WHODAS scores, total and per domain as well as the correlation of coefficients between the domains of the questionnaire with total score are presented in Table 3.

Table 1. Sociodemographic data of women survivals of breast cancer from January to September 2018

Variables	n	%
Age		
32-59 years	25	78.1
≥60 years	7	21.9
Race/ethnicity		
Caucasian	10	31.3
Brown	16	50.0
Black	2	6.3
Asian	4	12.5
Marital status		
Without spouse	15	46.9
With spouse	17	53.1
Education		
Up to 8 years	9	28.4
Between 8-11 years	13	40.3
>11 years	10	31.3
Occupation before the treatment	24	75.0
Occupation after the treatment	9	28.1
Family Income		
Until 1 minimum wage	12	37.5
>1 minimum wage	20	62.5

Table 2. Clinical characterization of women survivals of breast cancer from January to September 2018

Variables	n	%
BMI categorized		
Normal weight	6	18.8
Overweight	14	43.8
Obese	12	37.5
Stage of the disease		
Stage I	12	37.5
Stages II or III	20	62.5
Local treatment		
Adjuvant radiotherapy	29	90.6
Systemic Treatment		
Chemotherapy in any moment	30	93.8
Adjuvant hormone therapy	12	37.5
Surgical procedure		
Radical mastectomy	17	53.1
Quadrantectomy/setorectomy	15	46.9
Lymphadenectomy	26	81.3
Lymphedema	18	56.3
Cancer family history	24	75.0
Multidisciplinary team	24	75.0
Diabetes mellitus	6	18.8
Systemic arterial hypertension	10	31.3
Arthritis/arthrosis	3	9.4
Other comorbidities	18	56.3

Table 3. Characterization of the sample according to WHODAS 2.0 (n=32)

WHODAS 2.0	Values minimum-maximum	Mean ± standard deviation	Median (interquartile interval)	Correlation with total score	p value
Total score	0-58.7	27.07±13.83	28.80	1.00	-
Cognition	0-60.0	23.28±18.08	20.00 (32.50)	rs=0.758	<0.001
Mobility	0-81.2	25.98±22.46	18.75 (37.50)	rs=0.709	<0.001
Selfcare	0-50.0	11.25±14.53	10.00 (20.00)	rs=0.558	0.001
Daily life activities	0-100.0	46.56±34.70	40.00 (60.00)	rs=0.718	<0.001
Getting along	0-75.0	19.01±18.35	16.67 (14.59)	rs=0.555	0.001
Participation	0-83.3	33.46±19.50	33.33 (29.16)	r=0.701	<0.001

Captions: r=Correlation of Pearson; rs=Correlation of Spearman.
Note: The value of p refers to correlation tests. Total score and per domain vary from 0 to 100.

When compared with other questionnaires, a moderate and negative correlation was observed between the total score WHODAS and the total score of FACT-F (r=-0.672) and the domains subscale of fatigue (r = 0.621) and physically well-being (rs = 0.684). The domains emotional well-being (r = 0.374) and functional well-being (r = 0.372) presented significant correlation, poor and negative. The domain social/family well-being did not reveal statistical significance. The correlation between WHODAS total score and DASH total score was r = 0.639 indicating moderate and positive correlation.

In order to evaluate the association of disability in performing specific tests and validated questionnaires, the women's sample with disability was divided in two groups: mild and moderate disability according to the total score of WHODAS 2.0. Of this statistical analysis it was excluded the case of severe disability. The comparisons are presented in Table 4.

It is observed in Table 4 significative difference with worse total scores for all scales applied (p<0.05). Only the domain of social/family well-being and the components of subjective quality of sleep disturbances, latency and

Table 4. Comparison of the scores obtained in the questionnaires and 6MW among women with mild and moderate disability

Variable	Total sample (n=29)	Mild disability (n=8)	Moderate disability (n=21)	CI 95%	Cohen's d	p
6MW`						
Distance estimated[2]	545.01±61.82	550.75±44.40	534.50±78.16	-44.25 to 76.75	0.26	0.586
Distance obtained[1]	436.50 (66.75)	450.75 (46.25)	410.38 (134.00)	-20.00 to 99.00	0.64	0.354
Number of steps[2]	855.90±236.65	985.25±158.75	793.90±257.98	-10.09 to 392.78	0.89	0.062
Functional Capacity (%)[2]	78.94±10.19	82.52±10.09	76.55±11.07	-3.26 to 15.19	0.56	0.196
DASH total score[2]	33.02±17.46	16.56±12.41	39.01±15.19	-34.83 to -10.07)	1.62	0.001*
FACT-F						
Total score[2]	111.24±20.28	129.15±11.85	106.23±18.57	8.35 to 37.48	1.47	0.003*
Physical well-being[1]	18.00 (7.00)	22.00 (3.25)	16.00 (7.00)	2.00 to 8.00	1.54	0.002*
Social/family well-being[1]	21.00 (7.68)	21.50 (1.88)	21.00 (8.59)	-1.83 to 6.00	0.52	0.432
Emotional well-being[1]	22.00 (5.00)	22.00 (1.00)	19.00 (5.50)	0.00 to 5.00	0.98	0.048*
Functional well-being[2]	18.00±4.47	20.88±3.72	16.71±4.06	0.77 to 7.55	1.07	0.018*
Subscale fatigue[2]	36.79±9.24	43.63±5.29	35.52±7.87	1.89 to 14.32	1.21	0.013*
PSQI						
Total score[2]	7.72±3.22	5.50±1.93	8.33±3.60	-5.60 to -0.07)	0.98	0.045*
Subjective sleep quality[1]	1.00 (1.00)	1.00 (0.75)	1.00 (1.00)	-1.00 to 0.00	0.88	0.055
Sleep disturbances[1]	2.00 (1.00)	1.00 (1.00)	2.00 (1.00)	-1.00 to 0.00	0.45	0.261
Sleep latency[1]	2.00 (1.75)	2.00 (1.75)	2.00 (1.50)	0.00 to 1.00	0.31	0.516
Sleep duration[1]	0.00 (2.00)	0.00 (1.75)	0.00 (2.00)	-1.0 to 0.00	0.33	0.527
Sleep efficiency[1]	0.00 (0.00)	0.00 (0.75)	0.00 (0.00)	0.00 to 0.00	0.27	0.502
Use of sleep medication and daytime somnolence[1]	0.00 (2.75)	0.00 (0.00)	0.00 (3.00)	-3.00 to 0.00	0.00	0.043*
Daytime dysfunction[1]	1.00 (1.00)	0.00 (0.75)	1.00 (1.50)	-1.00 to 0.00	1.11	0.020*

Captions: [1]Variable with non-parametric distribution. Data expressed in median and interquartile interval. It was used the Mann Whitney test to compare the median among the groups; [2] Variable with parametric distribution. Data expressed in median and standard deviation. Test t of Student compared the means. *p value < 0,.5.

DASH=*Disabilities of the Arm and Shoulder*; FACT-F=*Functional Assessment of Cancer Therapy-Fatigue;* PSQI= *Pittsburgh Sleep Quality Index*; CI 95%= Confidence Interval and p valor.

Note: Higher values of FACT-F represent better well-being while higher scores of DASH and PSQUI represent negative outcome.

efficiency did not present significative difference between the groups. Through d of Cohen it was possible to prove the strong negative effect of disability of the functional performance of the upper limb (d = 1.62), quality of life (d = 1.47), fatigue (d = 1.21) and quality of sleep (d =0.98). Like the domains of physical well-being (d = 1.54), emotional (d = 0.98) and functional (d = 1.07) and in the component of sleep daytime dysfunction (d=1.11). The comparison of the variables associated through 6WT did not present significative difference between the groups.

DISCUSSION

The present study verified that 94% of the women presented some degree of disability in the disease-free survival period with higher scores of difficulty for the life activities and participation. The WHODAS score was associated to minor physical well-being and functional performance of the ipsilateral upper limb, more intensity of fatigue and low quality of life in general.

Although there is a gap of knowledge in studies evaluating the prevalence and effects of disability in patients survivors of cancer with WHODAS 2.0, previous studies with other measurement instruments report that the difficulty in executing daily life activities impacts negatively the well-being of these women[3,6,11,26-28].

Studies indicate that women survivors of breast cancer tend to express damages in the physical and cognitive health in short- and long-term, psychological well-being and getting along[5]. Said damages arise in part from the late effects of the clinical and surgical treatments[6,29].

Among the surgery-related functional damages, the main is loss of functional performance of the upper limb. And can trigger in the short-and-long-term other functional deficits as pain, lymphedema, limitation of articular movements, paresthesia and muscle weakness, hampering these women to execute their habitual activities satisfactorily[3,6,16,17].

Of the negative repercussions resulting from the clinical treatment of breast cancer, fatigue is one of the most reported symptoms by women and is a chronic and wearing symptom that provokes intense tiredness and low functional performance because of lack of disposition[27]. Sleep disorders and fatigue tend to aggravate reported functional damages[5]. And these damages can become chronic with time because according to Devoogdt et al.[30], women after surgical and clinical treatment and along survival do not recover satisfactorily their physical capacity and functioning.

In relation to sleep disorders, the results related to higher level of disability concur with Schmidt et al.[28], who observed that the biggest problems of cognition, interpersonal and behavioral relations, domestic/labor activities and social participation, domains of WHODAS 2.0, trigger sleep difficulty. The results presented in this study corroborate other studies demonstrating that sleep difficulty is associated to disability of women survivors of breast cancer[31,32].

In relation to quality of life, it was observed that women with higher level of disability present low scores of quality of life (FACT-F), with worse scores for physical, functional, emotional well-being and fatigue, concurring with the results of other studies[28,33,34]. However, it needs to be highlighted that in this study it was not observed statistical significance among worse levels of disability and social well-being evaluated by FACT-F, maybe this event is explained by the fact that 78.1% of the study participants belong to a support group of women with cancer, revealing the great relevance of social support for these women.

While analyzing the values found in 6MWT, it was observed that the higher levels of disability did not cause hemodynamics alterations. Although the sample have yielded an acceptable percentage of physical capacity (over 70%), a significant portion of women was categorized with overweight (43.8%) and obesity (37.5%), and it is common weight gain during and/or after cancer treatment[35], characterized by low level of physical activity. Scientific evidences demonstrated that cancer treatment and its disabilities in the long term provoke low levels of physical capacity and activity[6,36].

However, in this study, it was not observed statistical significance between the level of disability and physical capacity, and this can be explained because the test requires submaximal capacity of the lower limbs and cardiorespiratory conditioning. It was also observed correlation between worse scores of disability and mobility, diverging from the results obtained in the 6MWT. Maybe this discrepancy can be explained by the fact that WHODAS 2.0 includes questions demanding more physical capacity in the domain mobility such as standing for more than 30 minutes, getting out of the house and face obstacles in the route and walk long distances.

Because of the significant repercussion of the long-term oncologic treatment in the life of these women, the importance and necessity of integrating information related to symptoms resulting from the treatment conducted and the disability in the clinical evaluations and therapeutic conducts performed with this population is emphasized. The record of information about functioning and disability must be made in the standardized language through ICD-based valid measures and widely used as WHODAS in order to generate relevant, reproducible and comparable data with patients from different places and clinical contexts[37].

The cross-sectional design that limits the interpretation of the data and associations, tending to cause reverse causality, hindering the causality inference is a limitation of this article. In addition, it is observed that, because is a pilot study with small sample, it was not feasible to perform more robust models as multivariate regressions with the inclusion of variables of adjustments for the associations verified. The small sample highlights the difficulty of identification and access to these women in the community, after the conclusion of the oncologic treatment.

CONCLUSION

Based in this pilot-study, it is possible to conclude that women survivors of breast cancer, even after the end of the clinical treatment, presented some level of disability. It was also identified that the disability is associated to worse scores for the performance of the upper ipsilateral limbs to the surgery, more fatigue, worse sleep quality and quality of life, demonstrating important impacts in the health of these women.

This study contributes to reveal secondary issues that can aggravate the level of disability and expose the relevance and the necessity of integrating information related to negative repercussions associated to the functioning in clinical evaluations and therapeutic conducts targeted to women survivors of breast cancer.

CONTRIBUTIONS

Adriano Lourenço contributed to collect data, elaboration of the database and critical review. Amanda Almeida Gomes Dantas collaborated in data collection. Diego Neves Araújo collaborated with critical review of the manuscript. Diego de Sousa Dantas contributed for the conception and planning of the research project and interpretation of the data and critical review. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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