

# Perceptions of Women Undergoing Breast Cancer Treatment about the Impact of Belly Dancing on Optimism and Self-Esteem: Movemama Study

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*Percepções de Mulheres em Tratamento do Câncer de Mama acerca do Impacto da Dança do Ventre no Otimismo e na Autoestima: Estudo Movemama*

Percepciones de las Mujeres que se Someten a un Tratamiento contra el Cáncer de Mama Sobre el Impacto de la Danza del Vientre en el Optimismo y la Autoestima: Estudio Movemama

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## ABSTRACT

**Introduction:** There is a growing profusion of studies attempting to relate gains brought by physical activity to the adjuvant treatment of breast cancer. **Objective:** To investigate perceptions of optimism and self-esteem of women undergoing hormone therapy adjunctive treatment for breast cancer after belly dance interventions. **Method:** Randomized descriptive and exploratory design mixed approach (quali-quantitative) clinical trial where 14 women aged 40 to 71 years were randomized to belly dance intervention group in hormone therapy adjuvant clinical treatment at the Oncological Research Center in a Brazilian southern city. A questionnaire applied as individual interview divided in three parts was used: a) socioeconomic variables; b) optimism and c) self-esteem. Systematic and participatory observations during the belly dance intervention were completed and logged in a field diary and reviewed through discourse analysis. **Results:** It was possible to see an increase in women's self-esteem in the post-intervention period ( $p < 0.001$ ). On the other hand, for the five women who, in addition to finalizing the intervention, also participated of the interview (pre and post) the quantitative results have barely changed. The study shows a clinical improvement in optimism with standard deviation of 4.6 after the intervention, which can be interpreted as expressive, even though it has no statistical impact considering the use of a mixed methodology in the present study. **Conclusion:** Regarding self-esteem, women's perceptions confirmed qualitatively and quantitatively in this study are positive, however, despite this, the confirmation of quantitative results for optimism was modest. **Key words:** Breast Neoplasms; Self Concept; Dance Therapy; Optimism.

## RESUMO

**Introdução:** Há uma crescente profusão de estudos que buscam relacionar ganhos trazidos pela atividade física ao tratamento adjuvante do câncer de mama. **Objetivo:** Investigar as percepções de otimismo e autoestima de mulheres em tratamento adjuvante de hormonioterapia do câncer de mama após intervenções de dança do ventre. **Método:** Ensaio clínico randomizado, de abordagem mista (quali-quantitativo), com delineamento descritivo e exploratório, no qual foram randomizadas 14 mulheres para o grupo de intervenção da dança do ventre, com idade entre 40 e 71 anos, em tratamento clínico adjuvante de hormonioterapia no Centro de Pesquisas Oncológicas em uma cidade ao Sul do Brasil. Fez-se uso de um questionário aplicado em forma de entrevista individual, dividido em três partes: a) variáveis socioeconômicas; b) otimismo; c) autoestima. Também foram realizadas observações sistemáticas e participativas durante a intervenção de dança do ventre, registradas em diário de campo e analisadas por meio da análise de discurso. **Resultados:** Constatou-se aumento na autoestima das mulheres no período pós-intervenção ( $p < 0,001$ ). Por sua vez, nas cinco mulheres que, além de finalizar a intervenção, participaram também da entrevista (pré e pós), os resultados quantitativos pouco alteraram. O estudo apresenta uma melhora clínica no otimismo com desvio-padrão de 4,6 após a intervenção, que pode ser interpretado como expressivo, ainda que não tenha impacto estatístico, considerando a utilização de uma metodologia mista no presente estudo. **Conclusão:** As percepções das mulheres deste estudo são positivas em relação à autoestima, confirmadas quali e quantitativamente, porém, apesar disso, o otimismo encontrou uma confirmação discreta nos resultados quantitativos. **Palavras-chave:** Neoplasias da Mama; Autoimagem; Terapia através da Dança; Otimismo.

## RESUMEN

**Introducción:** Existe una profusión creciente de estudios que buscan relacionar los beneficios aportados por la actividad física con el tratamiento adyuvante del cáncer de mama. **Objetivo:** Investigar cómo las percepciones de optimismo y autoestima de mujeres sometidas a un tratamiento adyuvante de la terapia hormonal del cáncer de mama después de las intervenciones de danza del vientre. **Método:** Ensayo clínico aleatorizado, de abordaje mixto (cuali-cuantitativo), con diseño descriptivo y exploratorio, en el que se aleatorizaron 14 mujeres al grupo de intervención de danza del vientre de 40 a 71 años, en tratamiento clínico adyuvante de hormonioterapia en el Centro de Investigaciones Oncológicas, en una ciudad del Sur de Brasil. Se utilizó un cuestionario aplicado en forma de entrevista individual, dividido en tres partes: a) variables socioeconómicas; b) optimismo; c) autoestima. De forma sistemática y participativa durante la intervención de la danza del vientre, también se revisaron y analizaron las funciones en un diario de campo a través del análisis del discurso. **Resultados:** Fue posible ver un aumento en la autoestima de las mujeres en el período pos-intervención ( $p < 0,001$ ). A su vez, en las cinco mujeres que, además de finalizar la intervención, también participaron de la entrevista (pre y post); los resultados cuantitativos han cambiado poco. El estudio muestra una mejoría clínica del optimismo con desviación estándar de 4,6 tras la intervención, lo que puede interpretarse como expresiva, aunque no tiene impacto estadístico considerando el uso de una metodología mixta en el presente estudio. **Conclusión:** Las percepciones de las mujeres en este estudio son positivas con relación a la autoestima, confirmadas cualitativa y cuantitativamente, sin embargo, a pesar de esto, el optimismo encontró una leve confirmación en los resultados cuantitativos. **Palabras clave:** Neoplasias de la Mama; Autoimagen; Terapia a través de la Danza; Optimismo.

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## INTRODUCTION

Breast cancer is one of the most common and one of the leading causes of death in women worldwide. In Brazil, is the most frequent type of cancer after non-melanoma skin cancer with estimate of 66,280 new cases for each year of the biennium 2020-2022 and estimated risk of 61.61 cases for each 100 thousand women<sup>1</sup>. With raising incidence in the last years, its morbidity and mutilation rate is high<sup>2</sup>. Based in data already published, the incidence of new cases of breast cancer in women in the world was 2.1 million in 2018, nearly one case at each four cases of cancer<sup>3</sup>.

Even with the progress of science, the uncertainties about the treatment and its side effects are still great. The possibility of total or partial mastectomy can cause innumerable psychological changes as the breast is an organ with strong symbolism<sup>4</sup> of femininity, motherhood and sensuality and to the own identification of the woman. The woman undergoes significant physical, emotional and social changes<sup>2,5</sup> while submitting to total or partial breast removal.

The diagnosis and treatment can bring devastating effects in the life of the person who suffers them, feelings of self-esteem, negative body image, fear of social and spousal rejection and a shock in the female identity are common. It is not only the disease in itself, but the fragility women tend to express because of the stigmatization of breast cancer and its psychosocial effects, having to cope with fear, frustrations, conflicts and emotional instability<sup>6,7</sup>.

These likely negative changes threaten the psychological balance<sup>8</sup>. Self-esteem is related to the lack of positive affection the individual has of itself, of worth, which consequently is relevant in the interaction with the other since its life condition is attached to this image of itself. Within this scenario of self-rejection, further to the traditional treatment, it is necessary to pursue new forms that encourage the woman to have a positive perception of herself consistent with the improvement of the quality of life, for a full emotional condition that, even destabilized, attempts to keep healthy, confident, affirming her positive value, expanding the capacity and human development to live with more optimism<sup>9</sup>.

In this perspective, it is believed that belly dance can help the perception of the woman's body that tends to low-esteem and lack of optimism in face of the life and the disease. Full of symbolism about femininity, body and dance create a dialogue. It is a constant process in the transformation of itself and around it because it gathers physical activity, artistic expression and social living beyond the anatomic and bio-mechanic configuration. Dance stimulates the understanding about the symbolic

body, seen here as feminine and cultural body, acting to rescue the femininity, beauty and gentleness through expressive movements and of body awareness, exploring still the patients' confidence and safety, broadening the contact with itself, intimately and fully<sup>10</sup>.

This study has the objective of investigating the perceptions of optimism and self-esteem of women in adjuvant treatment with hormone therapy for breast cancer after interventions of belly dance focused to the relation of breast cancer with biopsychosocial issues and the effects of non-drug treatment.

## METHOD

Randomized, mixed approach (qualitative-quantitative), descriptive and exploratory clinical trial, part of a larger project, MoveMama, a three-arms randomized clinical trial: a) belly dance intervention; b) intervention of Pilates solo; and c) control group. Specifically in this study, the belly dance intervention group was evaluated.

The Institutional Review Board of Santa Catarina State University approved the study number 2.252.288, and of the "*Centro de Pesquisas Oncológicas*" (Cepon) number. 2.319.138, registered in the international clinical trial platform "Clinical Trials.gov" (n. NCT03194997) and in the national platform "Brazilian Registry of Clinical Trials" (identification RBR-2trf8m).

The study participants had between 40 and 71 years of age and were diagnosed with breast cancer in the period of adjuvant clinical treatment with hormone therapy at Cepon in Florianópolis (SC), a Southern Brazilian city. The study population consisted of fourteen women randomized for the belly dance intervention group who participated of the pre and post-intervention collection and responded to the questionnaires. Of these, only five participated of the interviews in addition to responding to the questionnaires. Those remaining were unable to continue in the study due to worsening of the disease, physical exams, physiotherapy, family problems, among other.

The women selected to participate of this study met the inclusion criteria: (1) older than 18 years; (2) clinical staging I to III of breast cancer; (3) in adjuvant treatment with hormone therapy, and (4) responsible oncologist's and Cepon's Physiotherapy Sector clearance to practice physical activity. The exclusion criterion was any orthopedic or neurologic limitation precluding the practice of physical activity. Those who voluntarily accepted to join the study signed the Informed Consent Form (ICF) and the Informed Consent for photos, videos and tape recording.

The collection instruments shown in Figure 1 were: one questionnaire (sociodemographic and clinical questions) and two validated instruments which were applied as individual interview. A script of participant observation, practical and relational moment was utilized, creating a link of interaction between the investigator and the investigated<sup>11</sup>. The observation was systemic in order to understand how belly dance was developed, its characteristics (duration, resources utilized, methodology), the instructor, the implicit and explicit expressions, the language the women utilized, the emotions perceived before, during and after the intervention and their relation with the instructor, with the environment and those who did not join the study.

At last, a field diary<sup>11</sup> was utilized to register the issues observed in the practical interventions and tape-recording of the interviews. Because it is a semi-structured interview, there was the possibility of the participant to speak openly about the theme in question without limiting to the basic questions the investigator presented<sup>11</sup>, which also allowed the interviewer to pull away from the previously established script. The variables of the study were: (1) sociodemographic: age, education, marital status and economic level according to “*Instituto Brasileiro de Geografia e Estatística (IBGE)*”<sup>12</sup> which classifies the population by the mean family month income. The classes were: class A (above 20 minimum wages); class B (10 to 20 minimum wages); class C (4 to 10 minimum wages); class D (2 to 4 minimum wages); and class E (until 2 minimum wages). The base was the 2018 minimum wage of R\$ 954,00; (2) clinical variables: current treatment,

type of protocol of treatment, characteristics of the surgical intervention, if conservative/radical, immediate/late/not performed mammary reconstruction, presence of lymphedema (self-report), physiotherapy treatment.

The Rosenberg Self-esteem Scale (RSE) was utilized to evaluate self-esteem<sup>13</sup>. It was validated for the population with cancer<sup>14</sup> and validated<sup>15</sup> and revised<sup>16</sup> in Brazil. It is a 10 affirmations unidimensional measurement addressing a set of feelings of self-esteem and self-acceptance that determine the global self-esteem. The grading varies from ten to 40 points, according to the pattern: (A1) high or satisfactory self-esteem: score higher than 31 points; (A2) average self-esteem: score between 21 and 30 points; (A3) unsatisfactory or low self-esteem: score lower than 20 points. As high the value the woman reaches in the scale, better is her self-esteem<sup>13</sup>.

The optimism was classified through the 10-items Life Orientation Test (LOT) validated in Brazil. It investigates the conception of optimism and understanding of the patients about the expectations of future events and determines that as high the score, higher is their dispositional optimism<sup>17</sup>.

Data collection took place in three moments. The first stage was held in the facilities of “*Centro de Educação Física, Fisioterapia e Desportos*” (Cefid) of the State University of Santa Catarina (Udesc), in May 2018 with the application of the questionnaires RSE, LOT and socioeconomic variables after appointment with the team of investigators of “*Laboratório de Pesquisa em Lazer e Atividade Física*” (LAPLAF) of the National Council for Technological and Scientific Development (CNPq) (pre-

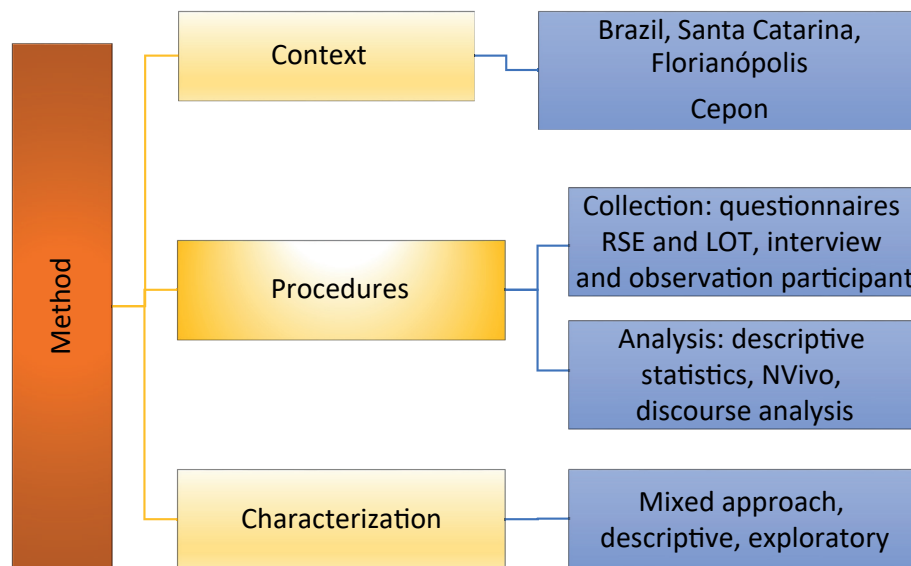


Figure 1. Flowchart of methods details

intervention collection). From July to September 2018, the semi-structured interview was applied individually upon previous scheduling for every participant at Cepon. In the third moment, after the end of the belly dance intervention, a novel individual semi-structured interview with previous scheduling was held for the second application of the questionnaires RSE, LOT and socioeconomic variables (post-intervention collection).

During the intervention period, the observations occurred in systematic and participative way. At the first moment, with the variables defined (self-esteem and optimism) the principal investigator introduced herself to the group, informing she would write down the facts extracted from the interventions. At the second moment, the principal investigator joined the group and participated actively of the belly dance interventions which ensured the approach to the study participants, strengthening the bonds of trustworthiness. With her effective presence in the interventions it was possible to note that the women's behavior became more spontaneous allowing her to transit through the two formats of observation, systemic and participative more naturally.

### PROTOCOL OF BELLY DANCE INTERVENTION

The belly dance intervention was performed in 60-minutes morning 48 sessions organized in three times a week per sixteen weeks according to the protocol<sup>18</sup>. Two healthcare professionals, one for Physical Education and other, a Physiotherapist both associated with LAPLAF/CNPq conducted the classes in the outdoor social living space in the first floor of Cepon's Admission Area. The minimum required frequency was 75% during the period of intervention for this group, given the importance of continuity to achieve the benefits the regular practice of exercises ensures. Therefore, the patients participated at least of 36 sessions of the 48 offered to be enrolled in the study. At the end of the 16 weeks of intervention, the women received an educative leaflet about breast cancer, light intensity physical activity and prevention of lymphedema in order to stimulate the continuity of the practice of physical activity after the end of the intervention.

SPSS – IMB version 20.0 was utilized. Firstly, the descriptive statistics was performed (simple frequency, mean, standard-deviation) and later, the Kolmogorov-Smirnov for the calculation of normality to select the statistical tests. To compare the pre and post-intervention periods for the variable self-esteem, the paired t test was used and for optimism, the Wilcoxon test. The level of significance was 5%.

The Software NVivo 12.0 was utilized to organize the qualitative data generating the categories of analysis.

Later, the data were analyzed following the elements of the Discourse Analysis<sup>19</sup> technique, which belongs to a linguistic area whose object is the word in movement which produces meaning as practice. It is also attempted to understand not only the word but the social context, the space where the discourse happens and its effects of meanings understanding this analysis as “[...] a process of signification where language and history are present in their materialities and the subject, dully questioned by the ideology<sup>19</sup>”. Therefore, the discourse cannot be qualified as a mere diffuser of information because the social-historical context and the conversational-partner are decisive to produce meanings.

### RESULTS

The study participants, mostly, have the following sociodemographic and clinical characteristics: complete high school (57%), single (50%), occupation before the surgery (92%), post-surgery, retired (35,7%), social class E (42.9%); in addition, urinary incontinence (57.1%), menopause (71.4%), conservative mastectomy (78.6%), surgery at the right side (57.1%), axillary emptying (42.95), no lymphedema (87.5%), no reconstruction surgery (78.6%), current treatment with hormone therapy (85.7%) and no physiotherapy (71.4%).

In Table 1, variables of self-esteem and optimism in the pre and post-intervention periods of the 14 participants can be observed, showing significant difference in self-esteem ( $p < 0.001$ ) in the post-intervention period.

In Table 2, the variables of self-esteem and optimism of the five women who participated of the belly dance intervention, of the pre and post collection and of the pre and post intervention qualitative interview are presented. The data show little variation between the pre and post intervention period of these five women.

Chart 1 shows the categories, subcategories, indicators and units of context extracted from the participants narratives who attended the pre and post collection interviews ( $n=5$ ) organized with Software NVivo, version 12.0.

### RELATION AND EXPERIENCE WITH BELLY DANCE

Some of the study women have already had previous contact with the practice of physical activity before the diagnosis of breast cancer through the modalities of fights, bodybuilding, cycling, handball and jogging but for most of them belly dance was the first time. This experience brought changes as the participants narratives show:

I was very withdrawn and now I'm blooming. Dance stirs our pieces, doesn't it? It opens us, both

**Table 1.** Comparison between pre and post-intervention among the study participants regarding self-esteem and optimism (n=14)

Variables	Pre-intervention period x̄ (standard-deviation)	Post-intervention period x̄ (standard-deviation)	Value of p
Sel-esteem	29.5 (4.2)	36.0 (3.7)	<0.001*
Optimism	17.7 (2.5)	17.6 (2.9)	0.691**

Note: n=14, one of the participants missed the post-intervention collection.

(\*) paired t test.

(\*\*) Wilcoxon test.

**Table 2.** Comparison between pre and post intervention regarding self-esteem and optimism of the study participants (n=5)

Variables	Pre-intervention period x̄ (standard-deviation)	Post-intervention period x̄ (standard-deviation)	Value of p
Self-esteem	32.0 (1.8)	36.6 (4.0)	0.017*
Optimism	17.0 (1.8)	18.0 (4.6)	0.684**

(\*) paired t test.

(\*\*) Wilcoxon test.

**Chart 1.** Organization of the categories, subcategories, indicators and units of context based in the analysis of the participants narratives (n=5)

Categories	Subcategories	Indicators	Units of context
<b>Relation and experience with belly dance</b>	Changes through dance Relation of pleasure with dance	Decrease of the pain Positive perception of itself	I feel better Happier
<b>Perception of physical and psychological changes through belly dance</b>	Dance Movement Lightness	Emotional status Acceptance Understanding Sexy Beautiful Gorgeous	Joy Life Painless Light
<b>Social living and identification</b>	Family Collective	Identification Belonging	Family Group

the mind and the body. I like it better this way (Participant B).

The relation with the reduction of the body pains is clear from the participant B speech when she suggests that the regular practice of belly dance was a key ally in restructuring her way of thinking and act with the body:

It's amazing, I was unable to grab a glass, it seemed it was very heavy, I couldn't and with the dance, I'm taking care of myself and doing many things with the left hand and even forgetting the pain. Dance came into my life and improved it wonderfully, it is swell. It made the whole difference, it is amazing, it freed me up, brought me peace and my body started to restructure itself (Participant B).

Pain is recalled in the narrative of participant C too when she infers that the regular practice of belly dance has contributed significantly to diminish the body pains,

allowing the reduction of specific drugs for that purpose. Additionally, the participant emphasizes the contribution of belly dance for the improvement of her self-esteem:

The pains are nearly gone and I'm taking less medications too. Of the four pills a day, now it's only two per week, the difference is big. This period [belly dance classes] helped me with my self-esteem. Now, I'm no longer stuck to a certain size of clothes, I can be sexy (Participant C).

Participant A points out the role belly dance had in keeping her mental health, most of all in the construction of a stronger and more positive emotional structure:

Was it not for the dance, I would have gone down with depression. Dance helped me a lot and I held my ground, dance changes our life. Today, I'm stronger, have strength, I'm much better (Participant A).

The same positiveness can be found in the speech of the participant D, when she said she felt more joyful and cheered up when she began the exercises routine. Nevertheless, a feeling of “hope” and “future expectations” can be pointed out in the narratives of participants D and E. For both, the experience of joining regular belly dance classes pushed them to “move on”, feeding a positive view of themselves, their bodies and their lives:

Dance makes me happier, I feel I am a princess, I feel very well, I had no energy to do anything, now I have life plans, of resuming my life (...) (Participant D).

Only happiness and joy when I saw my body different, I feel more enthusiastic, lively, it is a great incentive, I'm happier, willing to do things, when classes end, I'm exhilarated, happy in my heart, I feel more at ease (Participant E).

#### PERCEPTION OF THE PHYSICAL AND PSYCHOLOGICAL CHANGES (SELF-ESTEEM AND OPTIMISM) THROUGH BELLY DANCE

Sometimes, pain, happiness, self-esteem, satisfaction and optimism were reported. Mood and feelings swings become common and most of all, constant, since the changes were coped with differently. However, the initial awareness of the cancer was the most challenging change for most of them. This narrative of participant D shows this reality:

When I knew, I was pretty devastated, to me, the world collapsed (Participant D).

In despite of the pains and restrictive physical capacities, the narratives show an attempt to maintain the normality, with great personal endeavor of adjusting into the moment of difficulty:

Life moved on just like before, no changes at all, despite hair loss, dryness in the nose and loss of the nails, I pretend it's not happening with me (Participant E).

Confidence boosts feelings of happiness which can trigger the wish to act: “I wanted to set myself in motion...” (Participant B). And because of the impact in the organism, in a sensitive way perceives that:

With the dance, I was able to stretch naturally, which blew my mind away, with the movements of the belly dance my body, that was paralyzed, was returning to its normal, I feel I'm improving, you see?, my self-esteem increased (Participant D).

In this sense, it is perceived a positive feeling in relation to the perception of itself, of the body and attitude. The same purpose, positiveness and resilience can be found in the speech of participant B:

Belly dance is cool, stirs our parts and opens us, both the mind and parts of our body. Hips, arm, hand, it takes them all... I like it very much, the teacher always says we are gorgeous, and she says: very good, gorgeous, this is good ... and we are there, doing it all wrong, you see? But she says so fondly, we think we are beautiful and gorgeous.

The participant D reports that belly dance classes have promoted a significant improvement in her body, specifically for the arm mobility. She says that after the intervention, she was able to perform tasks she didn't before:

I was unable to raise the arm, did everything with only one hand, I was very tired eventually and overburdened the other side, couldn't sleep too, felt very bad [with the intervention of belly dance], my arm is reaching out more, pain is subsiding, I can even mop the floor I couldn't before, I'm feeling everything is improving for the better.

#### SOCIAL LIVING AND IDENTIFICATION

This category of analysis shows the importance of living together, recognition and welcoming among the participants and the positive impact caused in emotional restructuring. The following narrative brings up these issues in a brief and well featured way:

[...] I like the collective, be together, we are a family and we help one another, we see that our difficulties are alike, and this helps to move on (Participant C).

The feeling of belonging and support can be perceived too in the narrative of some of the participants. The dance group appears to have become an environment with meanings beyond the act of practicing exercises, nearly a family gathering:

[...] in addition to my walks, I do my exercises by myself, but it is a family, I gained a family so big that when we sort of give up, they are there to hold you (Participant E).

[...] I liked it all, very happy to get to know the whole group, all the colleagues, we became a family, and this is great (Participant A).

Human relations are transformative; the affective bonds, fondness, empathy and emotional support created

are fundamental for the treatment process. These relations built up in the dance group can be seen in this narrative:

When I was alone, I felt depressive, didn't talk with anyone, didn't want to go out, wanted to keep myself in my room ... but not now, I see people, talk, that anguish inside me is gone. I just wanted to cry, and this is over, just happiness, I'm glad, my sleeping improved... (Participant D).

To share the moment, to exchange what is common in women of the dance group appears to make the process of coping with the disease lighter:

We created a family and we help one another, we see that our difficulties are alike, and this helps to move on (Participant C).

Another narrative in complementation:

I gained a big family; in the group, when we give up or pull away a little, or we get sad, I move on because the whole group is there to hold you. We become more cheerful, willing to do things, it is a great incentive (Participant E).

Table 3 shows that it is possible to find a relation between the quali and quantitative results encountered regarding the variables analyzed.

## DISCUSSION

The main objective of this study was to investigate through interventions of belly dance the perceptions of optimism and self-esteem of women in adjuvant

treatment with hormone therapy for breast cancer. After the intervention period, it was possible to prove that, for the 14 participant women, self-esteem increased post-intervention. For the five women who participated of the two interviews (pre and post) the quantitative results improved slightly. However, while comparing the narrative and the quantification, it was possible to notice the positive result of both measurements, that is, the complementation of the quanti and quali approaches to evaluate the impact of the intervention.

The results of the second group (quali-quantitative) were quite expressive and valuable with figures and perceptions even in a small sample. According to the narratives, a pleasurable and spontaneous, ludic experience was lived with important psychological and physical stimuli. These characteristics perceived contribute for the positive perception of the practice of the belly dance, reflecting directly in the self-esteem as a fun and motivational form for women. This aspect concurs with the definition of self-esteem as a positive or negative attitude towards itself, the set of thoughts and emotions of a person while perceiving its own personal worth<sup>13</sup>.

In a 12-weeks study with similar sample with 13 participants in the intervention group and ten in the control group<sup>20</sup>, a series of exercises adjusted to women with cancer and mastectomized was applied and it was noticed a 8% significant increase of the post-intervention self-esteem with the Rosenberg questionnaire. Other studies indicate that the increase of self-esteem was crucial in the psychological intervention because of the symptoms of depression of the women with cancer, reflecting in improvement of the patients' quality of life, suggesting that optimism was vital to fight the same symptoms<sup>21</sup>, encouraging social living and allowing affective bonds<sup>22</sup>.

Table 3. Qualitative and quantitative results of the participants

Variables	Quantitative		Qualitative		Value of p
	Pre-intervention period $\bar{x}$ (standard-deviation)	Post-intervention period $\bar{x}$ (standard-deviation)	Pre-intervention period	Post-intervention period	
<b>Self-esteem</b>	32.0 (1.8)	36.6 (4.0)	Pain Discomfort Not looking the body, not recognizing the body	Increase of self-esteem Feeling of being sexy Wear nice clothes Feel well	<b>0.017*</b>
<b>Optimism</b>	17.0 (1.8)	18.0 (4.6)	Devastated The world ended Despair	Restart Freedom Hope	<b>0.684**</b>

(\*)Paired t test.

(\*\*)Wilcoxon test.

On the other hand, the perception of the optimism did not vary in a positive way quantitatively, but qualitatively. It can hold direct association with the understanding the participants have of the variable and how they manifest in everyone, it is a behavioral strategy that allows the individuals to ensure they are physically and mentally healthy and commit themselves to keep this status<sup>23</sup>. Social support reduces the effects of the stress the disease causes<sup>24</sup>, and this helps to promote and create strategies to cope with it. Both variables, optimism and social support reduce the emotional suffering of the cancer diagnosis and treatment significantly and contribute for better attention to health<sup>25</sup>.

Optimistic individuals, it is accepted, believe good things happen to them, while pessimistic think bad things happen<sup>26</sup>. This small difference explains the individual's behavior in face of the disease, the treatment and the future. To transition between trust and strength for the optimistic with a positive and persistent relation in their endeavors and disbelief and defeatism for the pessimistic with negative and narrow expectations with more withdrawal and less obstinacy impacts the way of coping with adversities and stress<sup>27</sup>. For the ill individual, it is a tough process to pull through, mainly with a chronic disease as cancer.

Pursuant to Santos and Souza<sup>28</sup>, it is possible to develop non-drug programs and interventions while observing the psychosocial process and not only the disease *per se*, facilitating experience changing. The group support contributed for coping with breast cancer, favoring the participants<sup>29</sup> personal development.

## CONCLUSION

The women's pre and post-intervention perceptions of self-esteem and optimism were positive in this study. The evidences of self-esteem were confirmed qualitative and quantitatively, but for optimism, regardless of positive perception, the result is not confirmed in the quantitative data at the same proportion, suggesting a discreet clinical improvement. The small number of participants is a limitation of the study, which shows the necessity of more studies with larger samples. The postintervention sample loss is also a limitation because the overall perception of the group of participants fails to be fulfilled.

## CONTRIBUTIONS

All the authors contributed for the study conception and/or design, collection, analysis and interpretation of data, wording, critical review and approved the final version to be published.

## DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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