

## AÇÃO DA ACUPUNTURA NO SINTOMA DE FOGACHOS EM MULHERES APÓS CÂNCER DE MAMA: REVISÃO INTEGRATIVA

### ACUPUNCTURE ACTION ON HOT FLASHES IN WOMEN AFTER BREAST CANCER: AN INTEGRATIVE REVIEW

### ACCIÓN DE LA ACUPUNTURA SOBRE LOS SÍNTOMAS DE SOFOCOS EN MUJERES DESPUÉS DE CÁNCER DE MAMA: REVISIÓN INTEGRATIVA

Nazir Felipe Gomes<sup>1</sup>, Bianca Bacelar de Assis<sup>2</sup>, Caroline de Castro Moura<sup>3</sup>, Cissa Azevedo<sup>4</sup>, Joloano Nasser Raydan Viana<sup>5</sup>, Tânia Couto Machado Chianca<sup>6</sup>

#### RESUMO

**Objetivo:** Investigar evidências, na literatura, acerca da ação da acupuntura no sintoma de fogachos em mulheres, após câncer de mama e estabelecer um protocolo para o tratamento dessa condição. **Método:** Revisão integrativa, conduzida em agosto de 2019. Utilizaram-se bases de dados nacionais e internacionais. **Resultados:** Foram encontradas 288 pesquisas e 11 foram incluídas no estudo. A acupuntura demonstrou resultados positivos sobre os sintomas de fogachos. Não há padronização no tratamento, porém um possível protocolo foi proposto: realização da acupuntura sistêmica ou eletroacupuntura nos acupontos Baço 6, Fígado 3, Rim 3, Circulação sexo 6, Vaso concepção 4, Bexiga 23 e Vaso Governador 20, agulhas sistêmicas que devem ser manipuladas até obter a sensação *De qi*, 10 sessões, uma ou duas vezes por semana, com retenção das agulhas nos acupontos em aproximadamente 25 minutos. **Conclusão:** a acupuntura parece ser uma intervenção efetiva para o tratamento e controle dos fogachos em mulheres, após câncer de mama e consiste em uma opção terapêutica a qual o enfermeiro pode executar de maneira autônoma e independente em todos os níveis de atenção. Torna-se necessária a realização de ensaios clínicos randomizados com a utilização do protocolo proposto a fim de validá-lo.

**Descritores:** Acupuntura; Câncer de Mama; Fogachos.

#### ABSTRACT

**Aim:** to investigate evidence in the literature about the action of acupuncture on hot flashes in women after breast cancer and to establish a protocol for the treatment of this condition. **Method:** an integrative review of national and international databases conducted in August 2019. **Results:** 288 studies were found and 11 were included in this study. Acupuncture has shown positive results on the symptoms of hot flashes. Even though there is no standardization in treatment, the following protocol was proposed: a) performing systemic acupuncture or electroacupuncture in acupoints Spleen 6, Liver 3, Kidney 3, Circulation sex 6, Conception vessel 4, Bladder 23 and Governor vessel 20, b) systemic needles should be manipulated until the patient gets the *De qi* sensation, c) 10 sessions, once or twice a week, with needles retained in the acupoints for approximately 25 minutes. **Conclusion:** acupuncture appears to be an effective intervention for the treatment and control of hot flashes in women after breast cancer. In addition, it is a qualified therapeutic option which nurses can perform autonomously and independently at all levels of care. Further randomized clinical trials are necessary to validate the proposed protocol.

**Descriptors:** Acupuncture; Breast Cancer; Hot Flashes.

#### RESUMEN

**Objetivo:** investigar la evidencia en la literatura sobre la acción de la acupuntura en los síntomas de sofocos en mujeres después del cáncer de mama y establecer un protocolo para el tratamiento de esta afección. **Método:** una revisión integradora realizada en agosto de 2019. Se utilizaron bases de datos nacionales e internacionales. **Resultados:** se encontraron 288 búsquedas y se incluyeron 11 en el estudio. La acupuntura ha mostrado resultados positivos en los síntomas de los sofocos. No hay estandarización, no hay tratamiento, un posible protocolo: realizar acupuntura sistémica o electroacupuntura en puntos de acupuntura Bazo 6, Hígado 3, Riñón 3, Circulación sexual 6, Vaso de concepción 4, Vejiga 23 y Vaso gobernador 20, agujas sistémicas que deberían ser manipuladas hasta obtener la sensación *De qi*, 10 sesiones, una o dos veces por semana, con agujas retenidas en los puntos de acupuntura durante aproximadamente 25 minutos. **Conclusión:** la acupuntura parece ser una intervención efectiva para el tratamiento y el control de los sofocos en mujeres después del cáncer de mama y es una opción terapéutica en la cual el enfermero puede actuar de forma autónoma e independiente en todos los niveles de atención. Fue necesario realizar ensayos clínicos aleatorios utilizando el protocolo propuesto con el fin de validarlo.

**Descriptores:** Acupuntura; Cáncer de Mama; Sofocos.

<sup>1</sup>Mestre em Patologia Geral. Diretor clínico da NF Fisioterapia e Coordenador do serviço de Fisioterapia Oncológica do Hospital Mater Dei. <sup>2</sup>Doutoranda em Enfermagem pelo Programa de Pós-Graduação em Enfermagem da Universidade Federal de Minas Gerais. <sup>3</sup>Doutora em Enfermagem. Professor Adjunto da Universidade Federal de Viçosa. <sup>4</sup>Doutoranda em Enfermagem pela Escola de Enfermagem da Universidade Federal de Minas Gerais. <sup>5</sup>Psicólogo. Pós-graduação em acupuntura pela Faculdade INCISA/IMAM. <sup>6</sup>Pós-Doutorado no Center for Nursing Classification do College of Nursing-The University of Iowa. Professor Titular do Departamento de Enfermagem Básica da Escola de Enfermagem da Universidade Federal de Minas Gerais.

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## INTRODUCTION

Cancer belongs to the group of non-communicable diseases (NCDs) and is currently one of the main causes of death in the world<sup>(1)</sup>. Breast cancer is responsible for most of the mortality in women and is the second most common type (11.6% of the total) only after lung cancer<sup>(2)</sup>.

The treatment of women with breast cancer includes modern types of approaches, highlighting the endocrine therapy. It is a common treatment for some cases of breast cancer and is accompanied by several side effects, such as intense hot flashes causing fatigue, changes in sleep quality and worsening quality of life<sup>(3-4)</sup>.

Hot flashes affect 64% to 85% of women treated for breast cancer<sup>(5)</sup>.

Facing the significant impact of this symptom in the lives of these women, it is essential to seek therapeutic resources for the improvement of life and health conditions in the long term<sup>(3)</sup>. In this scenario, acupuncture is an important non-pharmacological option for the treatment of hot flashes.

In the oncology field, we observe that acupuncture is a safe and effective therapy, acting as an adjunct in the management of the pathology and symptoms related to the treatment<sup>(6)</sup>. The systematic review showed that the technique acts as a complementary therapy to conventional treatment for the control of hot flashes in women with breast cancer during the menopause period<sup>(7)</sup>.

Given the relevance of the topic addressed, studies can more clearly clarify the effect of acupuncture on the relief and/or reduction of hot flashes in patients who have treated breast cancer. Also, the frequent increase of acupuncture as a treatment for hot flashes should be more rigorously evaluated for safe and efficient practice.

Therefore, this study aimed to investigate the evidence found in the literature regarding the use of acupuncture for hot flashes symptoms in women after breast cancer and to establish a protocol for the treatment of this clinical condition.

## METHOD

This is an integrative literature review conducted in five stages: problem identification, search for primary studies in the literature, evaluation, data analysis, and presentation of the review<sup>(8)</sup>.

The guiding questions for this review were: "What is the action of the acupuncture on the hot flushes symptoms in women after breast cancer? What is the acupuncture protocol used to treat this condition?"

Two independent reviewers searched for the articles in August 2019, in the following databases: Medline via PUBMED, Web of Science, Physiotherapy Evidence Database (PEDro), Scopus, SCIELO, the Virtual Health Libraries (VHL) and Traditional, Complementary and Integrative Medicines (VHL-MTCI). The reference lists from other investigations were also explored to search for relevant studies related to the guiding question.

Controlled terms, extracted from the Health Sciences Descriptors (DECS) and Medical Subject Headings (MeSH) were combined through the Boolean operator AND as follows: ("Acupuncture" AND "breast neoplasms" AND "hot flashes"). The search strategy was adapted for each electronic database and the terms were searched in all fields (title/abstract/keywords/text).

The eligibility criteria for the selection of articles were randomized clinical trials or quasi-experimental studies, published in the last 10 years (2009 to 2019) in English, Portuguese, or Spanish. Studies that did not answer the guiding question or did not have a full online abstract for analysis or that were not located (online, via bibliographic switching - COMUT or direct contact with the authors), gray literature (books and monographs) and abstracts of annals of events were excluded.

The researchers adopted a form to extract the study data. They were: study identification (author (s)/year of publication); objectives; methodological characteristics (design, sample size, acupuncture modality in the experimental group, intervention in the control group); acupuncture application protocol based on the recommendations of the Revised Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA)<sup>(9)</sup>; main results; and conclusions.

All studies in the review were classified by level of evidence using the Evidence-based practice classification<sup>(10)</sup>. Two independent reviewers performed this analysis with 100% agreement.

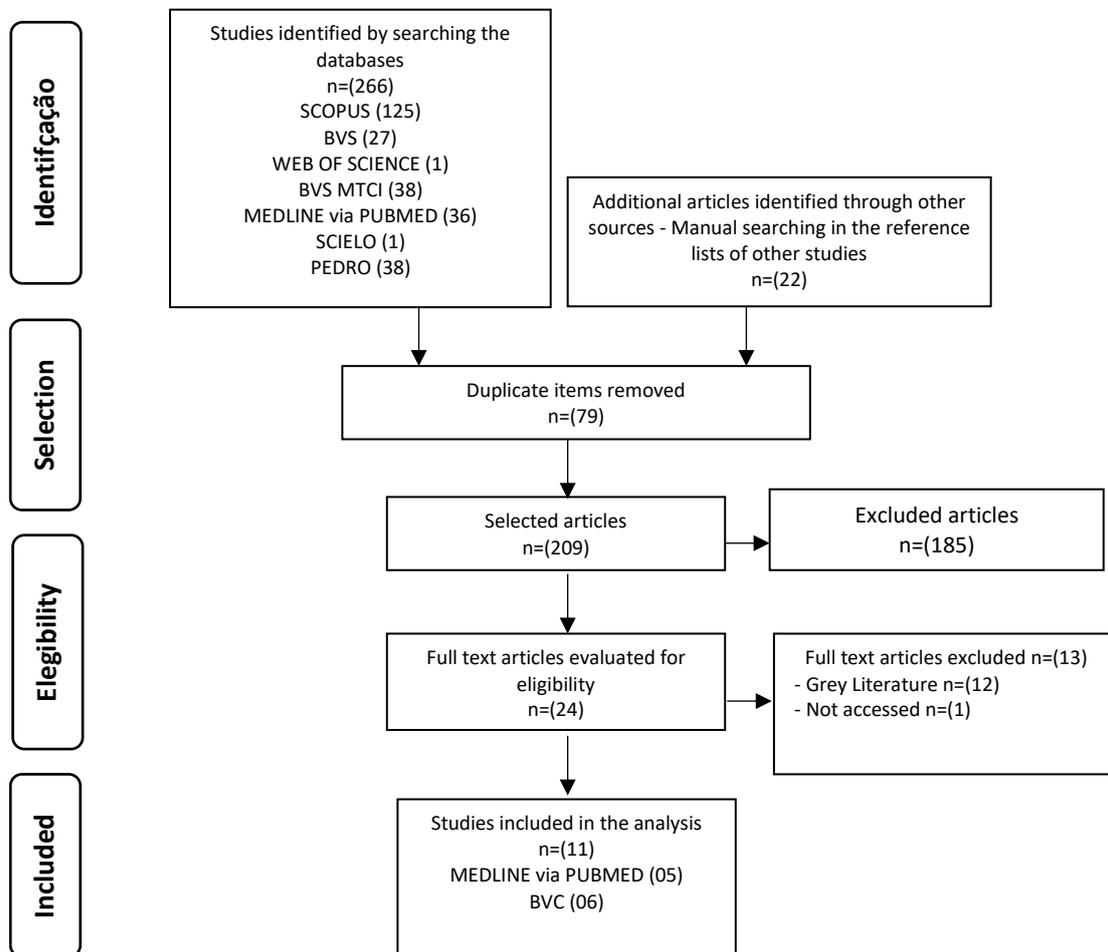
## RESULTS AND DISCUSSION

The researchers found 288 studies in electronic and manual searches. Because they

were duplicates, 79 articles were removed from the list. After reviewing the titles and abstracts, 197 articles were excluded, so that 12 articles remained for the analysis of the full text. Of these 12, a study was not found (online, via bibliographic

switching, or direct contact with the authors). Thus, 11 articles were included in the synthesis of the qualitative analysis (Figure 1).

Figure 1 – Flowchart for selecting articles from the Integrative Review. Belo Horizonte, MG, Brazil, 2019.



Source: The author.

All publications were written in English. Two studies were carried out in Sweden<sup>(4,11)</sup>, four in the United States<sup>(12-15)</sup>, one in Denmark<sup>(16)</sup>, one in Norway<sup>(17)</sup>, one in South Korea<sup>(18)</sup>, one in England<sup>(19)</sup> and one in Italy<sup>(20)</sup>.

Eight journals in which the studies were published are in the specific area of oncology<sup>(4,11-14,16-17,20)</sup>, two of them belong to the theme of Complementary and Alternative Medicine<sup>(18-19)</sup>, and one of nursing area<sup>(15)</sup>.

A total of 763 women who had breast cancer participated in the selected studies and the age ranged from 30<sup>(12)</sup> to 85<sup>(13)</sup> years old.

Figure 2 shows the characteristics of the studies included in the review.

Figure 2 – Characterization of the studies. Belo Horizonte, 2020. (n=11)

Study identification	Objective	Sample	Intervention in the experimental group	Control group intervention	Evaluated outcomes	Number of evaluations	Main findings
LESI <i>et al.</i> 2016 <sup>(20)</sup>	To determine the effectiveness of acupuncture for the management of hot flashes in women with breast cancer	190 women	Systemic acupuncture + self-care	Self-care (a booklet with information on hot flashes and cancer; and recommendations on diet, physical exercise, and psychological support)	The average score for daily hot flashes, climacteric symptoms (Greene Climacteric Scale) and quality of life (Menopause Quality of Life - MenQol)	04 (1 week before randomization, week 12, follow up of 03 and 06 months)	Acupuncture associated with self-care is an effective intervention for managing hot flashes and improving the quality of life in women with breast cancer.
MAO <i>et al.</i> 2015 <sup>(12)</sup>	To evaluate the effects of electroacupuncture versus gabapentin for hot flashes in women with breast cancer	120 women	Systemic electroacupuncture	3 control groups: Acupuncture Sham (SA) - modified puncture without electrostimulation ; Gabapentin (GP) - 300 mg pills; Gabapentin placebo (PP) - placebo capsules	Hot Flash Composite Score (HFCS) once a week measured by the Daily Hot Flash Diary. The research team blinded to monitored adverse events (AEs) from treatment assignments using a standard AE case report form every week during the intervention phase.	4 (initial, in the 8 <sup>th</sup> week - final evaluation and follow-up of 12 and 24 weeks)	Acupuncture produced greater placebo and fewer nocebo effects than pills for treating hot flashes. Electroacupuncture may be more effective than Gabapentin, with less adverse effects on the management of hot flashes in breast cancer survivors.
BAO <i>et al.</i> 2014 <sup>(13)</sup>	To evaluate whether real acupuncture, when compared to sham acupuncture, improves the results reported by breast cancer patients using adjuvant aromatase inhibitors	51 women	Systemic acupuncture	Retractable and non-penetrating needles, placed in 14 sham acupuncture points, located at the midpoint of the line connecting two real acupoints.	Surgical Breast and Intestine Adjuvant Menopausal Symptoms Questionnaire, Epidemiological Studies Depression Scale, Hospital Anxiety and Depression Scale, Pittsburgh Sleep Quality Index, Hot Flashes Diary, Hot flashes Related Daily Interference Scale, European Quality of Life Survey	4 (initial, after 4 weeks during treatment; 8 weeks and 12-week follow-up)	Real acupuncture and sham acupuncture were associated with improvement in breast cancer patients using aromatase inhibitors, and no significant differences were detected between the groups.

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Study identification	Objective	Sample	Intervention in the experimental group	Control group intervention	Evaluated outcomes	Number of evaluations	Main findings
BOKMAND; FLYGER, 2013 <sup>(16)</sup>	To evaluate the effect of acupuncture on hot flashes and disturbed sleep in patients treated for breast cancer, the possible side effects of this treatment, and the effect on plasma estradiol levels.	94 women	Systemic acupuncture	2 control groups: without intervention; Sham acupuncture - four bilateral points outside the meridians, but in the same region as the true points. The same needles were used as true acupuncture and inserted superficially into the skin.	Symptom intensity using a visual analog scale graded from zero to ten; sleep disorders were classified as "yes" or "no"; and plasma estradiol level	8 evaluations (2 weeks before treatment; 5x during treatment; 6 and 12 weeks after starting treatment). The estradiol level was evaluated 3 times: before the 1 <sup>st</sup> treatment, 30 minutes later and after 5 weeks.	Acupuncture significantly relieves hot flashes and sleep disorders and is a good and safe treatment for women treated for breast cancer.
JEONG <i>et al.</i> 2013 <sup>(18)</sup>	To evaluate feasibility and safety of acupuncture to treat hot flashes in breast cancer patients receiving antiestrogenic therapy	10 women	Systemic acupuncture	//	The severity of hot flashes evaluated by the visual analog scale and total hot flare score.	06 (1 week before treatment starts, 1 x week during treatment and 4 weeks after the final acupuncture session)	Acupuncture appeared to provide effective relief from hot flashes and the effects lasted for at least a month after the end of the treatment.
FRISK <i>et al.</i> 2012 <sup>(4)</sup>	To evaluate the effects of electroacupuncture (EA) and hormonal therapy (HT) on quality of life and sleep in breast cancer survivors with vasomotor symptoms.	45 women	Systemic electroacupuncture	Estrogen/progestone combination therapy	Hot flashes scores; Health-related quality of life; Diaries with the numbers of hot flashes per day and night and anguish caused due to hot flashes; Women's Health Questionnaire; Psychological and General Well-Being Index.	7 (Initial, 12 <sup>th</sup> week - final evaluation and Follow-up: 6, 9, 12, 18 and 24 months)	Both EA and HT improved the quality of life and sleep. Although hot flashes decreased less in the EA group than in the HT group, quality of life improved at least to the same extent.

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Study identification	Objective	Sample	Intervention in the experimental group	Control group intervention	Evaluated outcomes	Number of evaluations	Main findings
LILJEGREN <i>et al.</i> 2012 <sup>(11)</sup>	To evaluate the action of true acupuncture compared to noninvasive stimulation on false points on hot flashes and sweating in women with breast cancer treated with adjuvant tamoxifen.	84 women	Systemic acupuncture	Sham needles - needles were applied 1 cm away from the points used in the true acupuncture group, without placing them on a different meridian or point. The needles were placed but did not penetrate the skin. The needles were rotated until the patient felt a superficial skin sensation, after 10 minutes and before the needles were removed.	Vasomotor symptoms (hot flashes and sweating frequencies), evaluated by a verbal scale graded in 'no problems, mild, moderate, severe or very severe'. Daily - incidence and severity of hot flashes and sweat during the day and night. Circulating levels of estradiol, progesterone, testosterone, prolactin, follicle hormone stimulant, luteinizing hormone, and sex hormone-binding globulin.	4 (Initial; 3 <sup>rd</sup> week during treatment; 6 <sup>th</sup> week - final evaluation and follow-up at 18 <sup>th</sup> week)	True acupuncture is more effective than sham acupuncture in reducing vasomotor symptoms.
OTTE <i>et al.</i> 2011 <sup>(15)</sup>	To analyze the viability of acupuncture in postmenopausal breast cancer survivors who report sleep disorders and hot flashes. The objectives were: to describe patterns in the use of the acupuncture point; to evaluate expected results, credibility, and acceptability in the intervention; and to evaluate patterns of symptom change over time.	10 women	Systemic acupuncture	//	Expectation and credibility of the results; acceptance in the intervention; physiological monitoring using pulse actigraphy (measures sleep and wake activity through pulse movement); Sleep diary (time to sleep, time out of bed and naps); sleep quality and disorders - Pittsburgh Sleep Quality Index; Monitoring of Skin Conductance (physiological frequency of hot flashes); Perceived interference from hot flashes (The Hot Flash Related Daily Interference Scale).	05 (before treatment starts, during treatment (weeks 3, 4) and after treatment (weeks 5, 8))	Acupuncture treatment appears to be a viable treatment option for women with postmenopausal breast cancer, with sleep disorders and hot flashes.

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Study identification	Objective	Sample	Intervention in the experimental group	Control group intervention	Evaluated outcomes	Number of evaluations	Main findings
WALKER <i>et al.</i> 2010 <sup>(14)</sup>	To evaluate the effect of acupuncture on the reduction/elimination of vasomotor symptoms in patients with breast cancer who received therapy with anti-estrogen hormone compared to venlafaxine; to determine whether acupuncture has fewer adverse effects.	50 women	Systemic acupuncture	Uso de venlafaxina 37,5 mg por via oral à noite por 1 semana, depois 75 mg à noite pelas 11 semanas restantes.	Hot flashes diary - measured the number and severity of hot flashes; Menopause Specific Quality of Life Questionnaire; Short Form 12 - Item Survey - measured the general health status; Beck Depression Inventory; The National Cancer Institute's common toxicity rating scale measured the adverse effects of treatment.	6 (1 week before treatment; 6th week - final evaluation and follow up in 3,6,9,12 months)	Acupuncture appears to be as effective as drug therapy in breast cancer patients who experience vasomotor symptoms and can provide additional, long-term benefits without adverse effects.
de VALOIS <i>et al.</i> 2010 <sup>(19)</sup>	To explore whether acupuncture could reduce the frequency of hot flashes and night sweats, to improve physical and emotional well-being, and to improve perceptions of hot flashes and night sweats.	50 women	Systemic acupuncture	//	Hot flashes diaries - hot flashes frequencies and night sweat; Women's Health Questionnaire - physical and emotional well-being; Hot Flashes and Night Sweats Questionnaire - hot flashes and night sweats as a problem.	05 (baseline, in the middle of treatment, at the end of treatment and 4 and 18 weeks of follow up)	In addition to reducing the frequency of hot flashes and night sweats, women improved their physical and emotional well-being, and few side effects were reported.
HERVIK; MJÅLAND, 2009 <sup>(17)</sup>	To investigate the effectiveness of acupuncture in women with hot flashes breast cancer as a result of anti-estrogen medication.	59 women	Systemic acupuncture	Sham acupuncture (was performed with identical needles, inserted only 2-3 mm deep in 8 points, away from the acupuncture points and trigger points.	Número de ondas de calor; Kupperman Index – ondas de calor, sudorese, problemas de sono, depressão, cansaço, tonturas, palpitações, dor nas articulações, dor de cabeça, secura vaginal e outros problemas (os pacientes devem especificar).	03 (baseline, at the end of treatment, 3 months of follow up)	Acupuncture appears to provide effective relief from hot flashes in women operated of breast cancer treated with tamoxifen. This effect seems to be similar to an overall health improvement measured with the Kupperman index.

Figure 3 shows information related to the acupuncture application protocol for hot flashes, according to the recommendations of the Revised Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA).

Among the selected studies, 27.3% (n = 3) had evidence level III<sup>(15,18-19)</sup> and 72.7% (n = 8) had evidence level II<sup>(4,111-14,16-17,20)</sup>.

Figure 3 – Intervention protocol according to STRICTA. Belo Horizonte, 2019. (n=11)

Study Identification	Acupoints used	Reference that guided the choice of points	Application device	Needle details	Number of sessions	Session length	Treatment frequency	Professional who performed the intervention and years of experience
LESI <i>et al.</i> 2016 <sup>(20)</sup>	SP6, CV4, IG 11/In some cases, supplementary points were scored, up to a maximum of 11 points for each session/if necessary, moxibustion was also applied	MTC	Sterile and disposable needles 0.30x0.40mm (Suzhou Huanqiu Acupuncture Medical Appliance, Suzhou, People's Republic of China)	Needles were inserted bilaterally to a depth of 0.5 to 1 cm in most areas, except the hip, where the depth was 1 to 2 cm. They were manipulated manually to create a feeling of Qi. No stimulus or rotation of the needle occurred once it was inserted.	10	20 minutes	1 x week	Acupuncturists who were trained and had at least 20 years of clinical experience.
MAO <i>et al.</i> 2015 <sup>(12)</sup>	For EA, the acupuncturist chose standard points depending on the individuals' preferred positions. Up to 4 points were chosen based on other symptoms presented by the individuals.	//	0.25x30mm or 0.25x40mm needles (Seirin-America, Weymouth, MA)/2 Hz bilateral current connected between 2 acupuncture points using a transcutaneous electrical nerve stimulation unit.	The needles were inserted and manipulated until De qi	10	30 minutes	2 x week for 2 weeks. Thereafter, 1 x week for 6 weeks.	2 licensed non-medical acupuncturists with 8 and 20 years of experience.
BAO <i>et al.</i> 2014 <sup>(13)</sup>	CV4, CV6, CV12, IG4, CS6, GB34, S36, K3, B65.	//	//	//	//	//	8 semanas	//
BOKMAND; FLYGER, 2013 <sup>(16)</sup>	CS6, K3, SP6, L3	The points were selected in the Practice of Acupuncture book.	Acupuncture Needles	//	5	15-20 minutes	1 x week	2 experienced acupuncturists.

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Study Identification	Acupoints used	Reference that guided the choice of points	Application device	Needle details	Number of sessions	Session length	Treatment frequency	Professional who performed the intervention and years of experience
JEONG <i>et al.</i> 2013 <sup>(18)</sup>	GV20, Yintang, H8, K10, L2	The points were selected according to the recommendations of clinical specialists in Traditional Korean Medicine and standard acupuncture books.	0.25x30 mm sterile disposable stainless-steel needles (Dong bang Acupuncture Inc., Chung cheongna-do, Korea)	A total of eight needles were used. Depending on the points selected, the needles were inserted 10-20mm deep into the skin and were gently manipulated to obtain De qi. After 10 minutes, the needle positions were controlled by gentle rotation without evoking the feeling of De qi.	12	20 ± 5 minutes	3 x week	Korean traditional doctor with at least 3 years of clinical experience in acupuncture treatment.
FRISK <i>et al.</i> 2012 <sup>(4)</sup>	B15; B23; B32; GV20; H7, CS6, L3, SP6, SP9	MTC	0.25x15mm or 0.30x30 mm needles (Hwato, Suzhou Medical Instruments, China)	Insertion depth: 5-20 mm. Requested responses: De qi. Manual or electrical stimulation (2 Hz)	14	30 minutes	2 x week for the first 2 weeks. Thereafter, 1 x week for 10 weeks.	6 physiotherapists with many years of experience.
LILJEGREN <i>et al.</i> 2012 <sup>(11)</sup>	IG4, H6, L3, S36, SP6, K7	The points were selected according to previous reports and with expert opinions, as found in acupuncture textbooks	0.25 x 40 mm sterile disposable needles (Dong bang acupuncture inc.)	The needles were inserted at a depth of 5 to 20 mm and until the patient felt the De qi sensitivity. This procedure was performed when inserting and removing needles. After 10 minutes, the position of the needles was controlled by gentle rotation without evoking the feeling of De qi.	10	20 minutes	2 x week	Authorized oncological physiotherapist with 5 years of practice in acupuncture for pain, hot flashes, and sweat.

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Study Identification	Acupoints used	Reference that guided the choice of points	Application device	Needle details	Number of sessions	Session length	Treatment frequency	Professional who performed the intervention and years of experience
OTTE <i>et al.</i> 2011 <sup>(15)</sup>	According to the TCM diagnosis of each individual. The most frequent points were located on the lung meridian.	TCM	Acupuncture Needles	An average of 10 needles was used per session	3	//	//	Licensed acupuncturists with at least 6 years of experience. They had master's degrees in Oriental medicine at an accredited American school and were members of the local and national professional organization for acupuncturists.
WALKER <i>et al.</i> 2010 <sup>(14)</sup>	B23, K3, SP, GV 14, GB20, L9, L3, GV20, E36, CV6, CS7, H7	TCM	0.20 x 30mm filiform stainless-steel needles (Seirin; Shizuoka City, Japan; and Carbo, Toronto, Canada).	Needles were inserted 0.25 to 0.5 inches deep into the skin and manipulated to create the De qi sensation	16	30 minutes	2 x week for the first 4 weeks. Thereafter, 1 x week for 8 weeks.	//
de VALOIS <i>et al.</i> 2010 <sup>(19)</sup>	Treatment 1 (Aggressive energy drainage); B13, B14, B15, B18, B20, B23. Treatment 2 (Treat hot flashes and night sweats): L7, K6, CV4, SP6, K7, IG11. There was also the option of using individual points.	TCM	Acupuncture Needles	For each point, they had an orientation	8	20 minutes (with the needle)/ one hour sessions	1 x week	Acupuncturists

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Study Identification	Acupoints used	Reference that guided the choice of points	Application device	Needle details	Number of sessions	Session length	Treatment frequency	Professional who performed the intervention and years of experience
HERVIK; MJÅLAND, 2009 <sup>(17)</sup>	L3, GB20, L7, K3, SP6, CV7, CS7, F8	TCM	0.30 mm disposable needles	The points were inserted unilaterally. Needles were handled manually at the beginning and the end of each treatment until the patient reported the feeling of De qi.	10	30 minutes	2 x week	Physiotherapist with a 3-year certified training course from the Norwegian School of Acupuncture and 15 years of practice.

Notes: TCM – Traditional Chinese medicine; EA – electroacupuncture; GV – Governor vase; CV – Conception vase; SP – Spleen-pancreas; S – stomach; L- Lung; SI – Small intestine; F – Liver; GB – Gallbladder; R – Kidney; B – Bladder; CS – Circulation sex; H – Heart; mm – mm; Hz – Hertz.

Acupuncture showed to be an effective strategy for the relief of hot flashes in women after breast cancer. There was also an improvement in the quality of life<sup>(4,20)</sup>, in general, health status<sup>(17)</sup>, and the physical and emotional well-being of this population<sup>(19)</sup>. The sleep disorders, characteristic in some women due to the night sweats from this condition showed a significant reduction compared to the intervention of acupuncture<sup>(4,15-16)</sup>.

None of the studies have been carried out in Brazil. This fact demonstrates the scarcity of the theme in Brazilian production. An integrative literature review whose objective was to analyze the national scientific production on the use of Integrative and Complementary Practices in health in which acupuncture was inserted showed that although there has been an increase in the number of scientific production in Brazil, only 10% adopted experimental studies as a research method<sup>(21)</sup>. At the national level, the discussion is still incipient about the effectiveness of acupuncture in treating the symptoms of hot flashes in women who have had breast cancer.

However, the international literature showed a greater number of publications on acupuncture in the treatment of hot flashes. We observed that, among the findings of this study, 27.3%<sup>(15,18-19)</sup> are evidence level III and 72.7%<sup>(4,111-14,16-17,20)</sup> evidence level II.

Regarding the type of acupuncture used in the experimental group, 81.8% of the studies adopted the systemic acupuncture<sup>(11,13-20)</sup> and 18.2% also used electroacupuncture<sup>(4,12)</sup>. The results were positive in both types. Thus, the two types of acupuncture modality are efficient for the

relief of hot flashes and the associated discomforts.

As for the control group, there was a variation in the techniques used. However, sham acupuncture (applied to points that are unrelated to the research focus) was used in 62.5% of the studies<sup>(11-13,16-17)</sup>. The sham method as a placebo in acupuncture is used, however, it has a great barrier since it is difficult to characterize it as totally inactive<sup>(22)</sup>.

In this perspective, Liljegen and collaborators (2012) evaluated the action of true acupuncture compared to non-insertive stimulation on non-acupuncture points (CTRL) on hot flashes and sweats in women diagnosed with breast cancer treated with tamoxifen as an adjuvant. Although the results are significant since real acupuncture is more effective than placebo, it is still possible to identify that CTRL allows a considerable effect than other therapies and, therefore, should not be used as a placebo in studies in this area.

Among the selected studies, we observed that 45.4%<sup>(12,15-16,19-20)</sup> had the intervention performed by acupuncturists who had six<sup>(15)</sup> to 20<sup>(12,20)</sup> years of experience in the clinical area. Acupuncture was also performed by a Korean traditional physician<sup>(18)</sup> and physiotherapists with experience in the area of acupuncture<sup>(4,11,17)</sup>. Only 18.2%<sup>(13-14)</sup> did not mention the training of professionals who practiced the intervention.

The experience and practice of the interventionists are essential in conducting acupuncture. According to the recommendations of STRICTA (2010), the choice and description of the professional's practice can reduce the

experience bias and will imply better applicability of the results.

It is important to highlight that there was no standardization in the protocol for the relief of hot flashes in the points of application, number, and duration of acupuncture sessions. In the findings, the number of sessions varied from three<sup>(15)</sup> to 16 sessions<sup>(14)</sup>, with an average of 10 sessions, in the period from one<sup>(16,19-20)</sup> to three times a week<sup>(18)</sup>, with the retention of needles in the body for approximately 25 minutes. It was determined, based on the arithmetic mean of each study selected in this review and the professional can adjust numbers according to the needs of each patient.

We should highlight that standardization through a protocol in intervention studies is necessary to ensure its replicability, which is essential for evidence-based practice<sup>(23)</sup>.

However, the retrospective review of the associations between the symptoms reported by the patient and the diagnosis of TCM in response to treatment with hot flashes acupuncture in cancer patients showed that there is the possibility of carrying out the individuality of the treatment through a diagnosis according to the TCM principles. This finding opens the possibility for the versatility of acupoints in each session, according to the groupings of symptoms and the alteration of the clinical evaluation, minimizing the idea of intervention through pre-fixed protocols based only on the presumed diagnosis of the main symptom, disregarding the associated symptoms<sup>(24)</sup>.

The theoretical reference that guided the therapeutic approach for the treatment of hot flashes by acupuncture showed that 54.5% of the studies<sup>(4,14-15,17,19-20)</sup> used the TCM precepts. In the others, the authors based on the selection of acupoints on acupuncture books<sup>(11,16,18)</sup> and only 18,8% did not report such information<sup>(12-13)</sup>.

The most used acuapunctures in the studies that were part of this review were: SP6, which was used in 63.3% of the studies<sup>(4,11,14,16-17,19-20)</sup>; the L3 in 45.4%<sup>(4,11,14,16-17)</sup>; the K3 in 36.3%<sup>(13-14,16-17)</sup>; CS6<sup>(4,13,16)</sup>, CV4<sup>(13,19-20)</sup>, B23<sup>(4,14,19)</sup> and GV20<sup>(4,14,18)</sup>, used in 27.3% of the studies.

Regarding the acupuncture application device, the use of systemic needles predominated used in 90.9% of the studies<sup>(4,11-12,14-18,20)</sup>; a study<sup>(13)</sup> did not provide this information compromising its replicability. In 63.6% of the studies<sup>(4,11-12,14,17-18,20)</sup>, the authors reported manipulation of the needles,

until reaching the sensation of De qi; and two studies<sup>(4,12)</sup> also used electrical stimulation.

The term acupuncture is derived from the Latin, in which *acus* means needle and *puncture* is the action of puncture. The needles are the most device used in acupuncture worldwide and are the ones that trigger the most promising results. When inserted into an acupoint and manipulated, they evoke a sensation called De qi, which means "arrival of Qi"<sup>(25)</sup>. It is described as pain, numbness, tingling, weight, fullness, heat, distension, or pressure<sup>(26)</sup>. Positive results are believed to be associated with the "De qi" feeling. The study that explored the relationship between De qi and the clinical effectiveness of acupuncture for primary dysmenorrhea pointed out that this sensation contributed to the analgesic effect of the intervention. Also, manual needle manipulation is a prerequisite for obtaining and improving the "De qi" sensations, and this is essential to achieve therapeutic effects<sup>(26)</sup>.

Currently, some non-invasive devices have been adopted to stimulate acupuncture points, such as laser, haihua (electromagnetic stimulation), seeds, crystals, magnets, among others. These devices can enhance the effects triggered by the needles; however, the action of the needle is more potent when compared to the application of these devices alone<sup>(27)</sup>. To date, no studies have been found comparing the effects of invasive and non-invasive stimuli of acupuncture on hot flashes in women after breast cancer. However, we believe that better results can be found with the use of needles even investigations are necessary to confirm this hypothesis.

On the other hand, electrical stimulation, when associated with acupuncture needles, seems to intensify the effects triggered by the intervention. In this review, only two studies<sup>(4,12)</sup> used this type of stimulation. However, none of them compared the effects of electroacupuncture on the effects of manual stimulation with the evocation of "De qi" in this population. In others, as in people with chronic low back pain, better results were found for the group that received acupuncture with electrical stimulus than the group that received the intervention with only the manual stimulus<sup>(28-29)</sup>. Again, to prove this hypothesis in women with hot flashes, additional studies with expressive samples are necessary.

## CONCLUSION

Acupuncture seems to be an effective intervention for the treatment and control of hot flashes in women after breast cancer. However, the variety in the studies can compromise the findings.

There was no standardization in the treatment of acupuncture for the relief of hot flashes in the points of application, number, and duration of the sessions. However, a possible protocol can be proposed for this clinical condition. Based on the studies raised, systemic acupuncture or electroacupuncture on acupoints SP6, L3, K3, HS6, CV4, B23, and GV20, with systemic needles can be performed, which must be manipulated until feeling "De qi", in 10 sessions, once or twice a week, with needles retained in the acupoints in approximately 25 minutes. The individualized evaluation at each session is important, and new points can be added to these main points.

As a limitation of this study, we highlight that Chinese databases were not consulted. As acupuncture is a common clinical practice in the country, more studies could have been rescued. Another limiting factor is the restriction of languages since studies in other languages may have been lost when selecting the search for that study.

Therefore, we suggest to carry out randomized clinical trials using the protocol proposed in this study to validate it since the scientific evidence on the use of acupuncture for hot flashes in women after breast cancer is still incipient. Also, these studies are essential to prove the effectiveness of clinical interventions in the health area.

As an important implication for the practice, we emphasize that acupuncture is a therapeutic option to reduce the symptoms of hot flashes in women after breast cancer. This practice allows nurses to act autonomously and independently at all levels of care, promoting care and assistance to women in these conditions.

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**E-mail address:**

Bianca Bacelar de Assis

School of Nursing, Federal University of Minas Gerais. 190,  
Professor Alfredo Balena Avenue - Santa Efigênia, Belo  
Horizonte - MG, 30130-100.

E-mail: bibacelar@hotmail.com