

Ineffective self-management of lymphedema in mastectomized women: concept analysis

Autogestão ineficaz de linfedema em mulheres mastectomizadas: análise de conceito

Autogestión ineficaz de linfedema en mujeres mastectomizadas: análisis de concepto

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Abstract

Objective: To analyze the concept of “ineffective self-management of lymphedema” in mastectomized women.

Methods: This is an analysis of the concept proposed by Walker and Avant, operationalized through an integrative literature review, organized into eight stages, and based on the following guiding questions: What is the definition of ineffective self-management in mastectomized women? What are the antecedents, attributes, and consequences of ineffective self-management in mastectomized women? How has ineffective self-management of lymphedema been defined in the context of women who have undergone mastectomy? The search for articles was carried out in five electronic databases, with no date limit, from July 2022 to February 2023.

Results: Antecedents (30) and consequents (19) were identified. Among them, the most frequent were the following, respectively: lack of family and/or social support and decreased quality of life. The most frequently identified defining attributes were the following: edema, swelling in the arm, feeling of heaviness in the limb, pain, numbness, and reduced function of the limb. Model and contrary cases were also designed to help decide on the use of the concept.

Conclusion: The concepts resulting from the analysis contribute to clarifying the terms and development of language in nursing, and should be validated by judges and clinical practice for better application in clinical oncology.

Resumo

Objetivo: Analisar o conceito de “autogestão ineficaz do linfedema” em mulheres mastectomizadas.

Métodos: Trata-se de uma análise do conceito proposto por Walker e Avant operacionalizada por meio de uma revisão integrativa da literatura, organizada em oito etapas e baseada nas seguintes questões norteadoras: Qual é a definição de autogestão ineficaz em mulheres mastectomizadas? Quais os antecedentes, atributos e consequências da autogestão ineficaz em mulheres mastectomizadas? Como a autogestão ineficaz de linfedema tem sido definida no contexto de mulheres que passaram por mastectomia? A busca de artigos foi realizada em cinco bases de dados eletrônicas, sem limite de data, no período de julho de 2022 a fevereiro de 2023.

Resultados: Foram identificados 30 antecedentes e 19 consequentes; os mais frequentes entre eles foram respectivamente os seguintes: falta de apoio familiar/social e diminuição da qualidade de vida. Os atributos definidores mais frequentemente identificados foram os seguintes: edema, inchaço no braço, sensação de peso no membro, dor, dormência e diminuição da função do membro. Foram ainda elaborados os casos modelo e contrário para auxiliar na decisão sobre o uso do conceito.

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Conflicts of interest: The authors have nothing to declare.

Conclusão: Os conceitos resultantes da análise contribuem para clarificar os termos e o desenvolvimento da linguagem na enfermagem, devendo ser validados por juízes e prática clínica para melhor aplicação na oncologia clínica.

Resumen

Objetivo: Analizar el concepto de “autogestión ineficaz de linfedema” en mujeres mastectomizadas.

Métodos: Se trata de un análisis del concepto propuesto por Walker y Avant, realizado mediante una revisión integradora de la literatura, organizado en ocho etapas y basado en las siguientes preguntas orientadoras: ¿Cuál es la definición de autogestión ineficaz en mujeres mastectomizadas? ¿Cuáles son los antecedentes, atributos y consecuencias de la autogestión ineficaz en mujeres mastectomizadas? ¿Cómo se define la autogestión ineficaz de linfedema en el contexto de mujeres que pasaron por una mastectomía? La búsqueda de artículos fue realizada en cinco bases de datos electrónicas, sin límite de fecha, en el período de julio de 2022 a febrero de 2023.

Resultados: Se identificaron 30 antecedentes y 19 consecuentes. El antecedente más frecuente fue falta de apoyo familiar/social y el consecuente, reducción de la calidad de vida. Los atributos definidores identificados más frecuentemente fueron los siguientes: edema, hinchazón en el brazo, sensación de peso en el miembro, dolor, adormecimiento y reducción de la función del miembro. Además, se elaboraron los casos modelo y contrarios para ayudar en la decisión sobre el uso del concepto.

Conclusión: Los conceptos resultantes del análisis contribuyen a clarificar los términos y el desarrollo del lenguaje en enfermería y deben ser validados por jueces y práctica clínica para una mejor aplicación en la oncología clínica.

Introduction

Post-mastectomy lymphedema is the most frequent occurrence (10-60%) related to the treatment of breast cancer (CA), depending on the parameter used. It can greatly affect women's quality of life in biopsychosocial aspects such as self-esteem and health-related costs, leading to feelings of weakness, fear, and anxiety.⁽¹⁻³⁾

The study focus on women with lymphedema who survived breast CA was justified because this sequela is a chronic condition that continually affects the lives of these women. They are the object of self-care planning in the stages involving nursing, with relevance to clinical practice.⁽⁴⁻⁷⁾

“Ineffective self-management of lymphedema” is a nursing diagnosis defined by NANDA International 2021-2023 (NANDA-I[®]) as: “unsatisfactory management of symptoms and treatment regimen, with physical, psychosocial, and spiritual consequences, including change in inherent lifestyles, leading to living with edema related to obstruction or disorder of lymph nodes or lymphatic vessels”. The above diagnosis was approved (2020) and included in NANDA-I[®], in the activity and/or rest domain, with level of evidence 2.1 referring to the development of the conceptual framework that will support the interpretations of the constituent elements of nursing diagnosis (ND). Conducting the first stage

of validation studies and presenting a substantial body of knowledge is necessary to increase the level of evidence and support the diagnosis.⁽⁸⁾

Although ineffective self-management is present in another diagnosis in NANDA International and in recent studies,⁽⁹⁾ lymphedema can often be diagnosed as erysipelas or cellulitis, even in mastectomized women. This can lead to different treatments that do not always involve the participation of patients, especially as agents of self-care.⁽¹⁰⁾ Thus, identifying gaps in elements related to ineffective self-management of lymphedema absent in NANDA-I[®] will make the topic more understandable in clinical practice. This can delimit and elucidate the field of nursing practice, as different elements can interfere with its occurrence in this population.

To improve the ND under study in this scenario, investigating the concepts used in the literature, and verifying the defining attributes and their definitions are necessary.⁽¹¹⁾ Therefore, the present study aimed to analyze the concept of ineffective self-management of lymphedema in mastectomized women.

Methods

The concept analysis model proposed by Walker and Avant was adopted to develop this stage, being

operationalized based on the integrative literature review and organized into eight stages: (1) concept selection, (2) determination of the objectives of conceptual analysis, (3) identification of possible uses of the concept, (4) determination of critical attributes, (5) construction of a model case, (6) development of other (opposite, invented, or illegitimate) cases, (7) identification of the antecedents and consequences of the concept, and (8) definition of empirical references for the defining attributes.⁽¹¹⁾

Initially, the following guiding questions were formulated: What is the definition of ineffective self-management in mastectomized women? What are the antecedents, attributes, and consequences of ineffective self-management in mastectomized women? How has ineffective self-management of lymphedema been defined in the context of women who have undergone mastectomy? To better direct search strategies, these questions were directed to articles identified in a specific population of mastectomized women, according to the acronym PCC which means: P (population): women; C (concept): self-management of lymphedema, and C (context): mastectomized women. Articles without date limit were selected from five databases: Virtual Health Library, PubMed, Web of Science, CINAHL, and SCOPUS. The search in the databases occurred from July to August 2022, being reviewed in February 2023 to include articles that could have been published in that time interval. The search strategy followed the criteria of each database combined with the Boolean operators “AND” and “OR” and the following terms: axillary lymphedema, breast cancer, breast removal, lymphedema, lymphoedema, mastectomy, extended radical mastectomies, nursing, breast removal, self-management, and self-care. The search strategies in the databases are shown in Table 1.

The inclusion criteria were as follows: address the topic of self-management and/or self-care of lymphedema in women with mastectomy, have been published in Portuguese, English, or Spanish, and answer the guiding questions of this study. Previous notes, reviews, projects, protocols, ongoing research, and letters to editors were excluded.

After identifying the articles, they were exported to the systematic review manager *Rayyan - Intelligent*

Table 1. Database search strategies

Databases	Search Strategies
Virtual Health Library	(lymphedema) AND (mastectomy) OR (breast cancer) AND (nursing) AND (self management) OR (self care)
PubMed	((lymphedema) OR (lymphoedema) AND (breast cancer)) OR (extended radical mastectomies) OR (mastectomy)) OR (breast removal) OR (breast cancer surgery))) OR (axillary lymphedema) AND (self care)
Web of Science (SciELO index)	((lymphedema) OR (lymphoedema) AND (mastectomy) OR (breast cancer) AND (self management))
Cinahl	((lymphedema) OR (lymphoedema) AND ((breast cancer) OR (mastectomy) OR (breast removal) AND ((self care) OR (self management)))
Scopus	(lymphedema) AND (mastectomy) AND (self-care) OR (self-management) AND (breast cancer)

Systematic Review. Independent and blinded reading of titles and abstracts was carried out by two researchers to identify articles that met the inclusion criteria. Discordant cases were resolved by a third researcher. The selected articles were read in full, including the title and abstract. Articles that were not available electronically were acquired by direct request to the author. In each article, the consequences, and attributes were identified and grouped following an approach guided by the guiding questions.

Results

The articles were characterized, and the results were presented according to the steps of the proposed concept analysis, except for the description of the empirical references as they did not contemplate the proposed objective. Figure 1 follows the scheme recommended by the *Preferred Reporting Items for Systematic Review and Meta-Analyses* (PRISMA).⁽¹²⁾ A total of 1200 articles were identified; 277 of them were selected and 43 articles were the final sample.

Table 2 shows the characteristics of the 43 articles selected according to the inclusion criteria that guided this review: year, country, authors, study title, journal, design, and level of evidence (LE) according to the Melnik and Fineout-Overholt classification.⁽¹³⁾

The highest percentage of articles (25.6%) was published in the last five years (2019-2023) predominantly in English. Nurses (56.0%), psychologists (14.6%), medical doctors (9.7%), as well as occupational therapists, physiotherapists, and

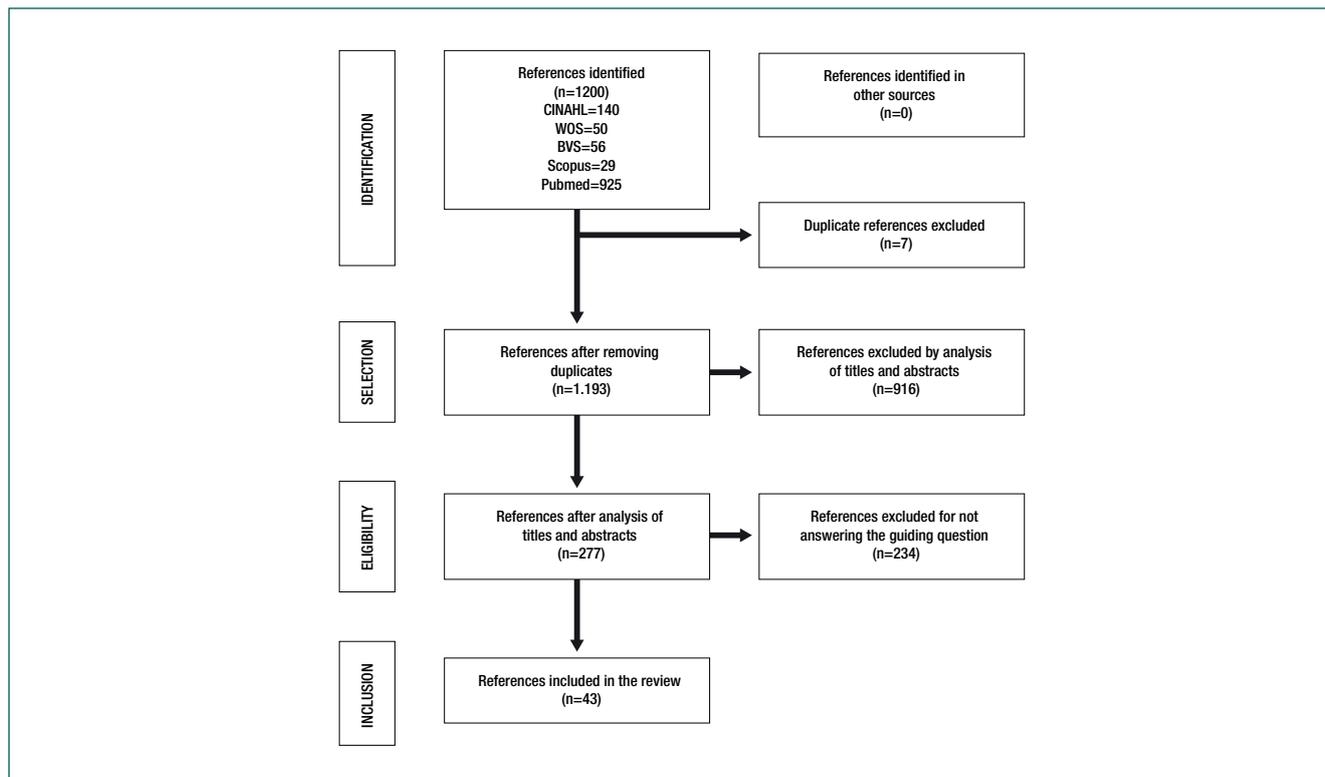


Figure 1. Flowchart of the search and selection stages of articles (adapted from the PRISMA model)

Table 2. Studies included in the literature review according to the information extracted from the articles (n=43)

Years	Countries	Authors	Study Titles	Journals	Designs	LE
2020	Brazil	Paiva <i>et al.</i> ⁽⁴⁾	Nursing care from the perspective of the world in the life of women who experience lymphedema resulting from breast cancer treatment.	Anna Nery School Journal of Nursing	Qualitative phenomenological approach**	6
2012	China	Huang HP, Zhou JR, Zeng Q ⁽⁵⁾	Risk Factors Associated with Lymphedema among Postmenopausal Breast Cancer Survivors after Radical Mastectomy and Axillary Dissection in China.	Breast Care	Descriptive**	6
2018	Mexico	De la Borbolla Martínez GD, Martínez MEH, Raygoza NP ⁽¹⁴⁾	Nursing intervention in women who developed lymphedema after undergoing a modified radical mastectomy: A pre-experimental study	Ecancer Medical Science	Prospective longitudinal**	4
2022	China	Li <i>et al.</i> ⁽¹⁵⁾	Illness perceptions and adherence to breast cancer-related lymphedema risk management behaviours among breast cancer survivors.	European Journal of Oncology Nursing	Transversal**	6
2020	Türkiye	Cal A, Bahar Z, Gorken I ⁽¹⁶⁾	Effects of Health Belief Model based nursing interventions offered at home visits on lymphedema prevention in women with breast cancer: A randomised controlled trial.	Journal of Clinical Nursing	Randomized controlled**	2
2020	Türkiye	Aydin A, Gursoy A ⁽¹⁷⁾	Lymphedema Information and Prevention Practices of Women After Breast Cancer Surgery.	Florence Nightingale Journal of Nursing	Descriptive**	6
2017	Brazil	Bonisson <i>et al.</i> ⁽¹⁸⁾	Lymphedema in women undergoing breast cancer surgery	Revista Rene	Transversal**	6
2012	Türkiye	Sisman H, Sahin B, Duman BB, Tanriverdi G ⁽¹⁹⁾	Nurse-assisted education and exercise decrease the prevalence and morbidity of lymphedema following breast cancer surgery.	Journal of the Balkan Union of Oncology	Transversal*	6
2009	USA	Swenson KK, Nissen MJ, Leach JW, Post-White J ⁽²⁰⁾	Case-control study to evaluate predictors of lymphedema after breast cancer surgery.	Oncology Nursing Forum	Case control**	4
2007	USA	Meneses KD, McNeese MP ⁽²¹⁾	Upper extremity lymphedema after treatment for breast cancer: a review of the literature.	Ostomy Wound Manage	Literature review	7
2011	USA	Ridner SH, Dietrich MS, Kidd N ⁽²²⁾	Breast cancer treatment-related lymphedema self-care: Education, practices, symptoms, and quality of life	Support Care Cancer	Transversal**	6
2019	Brazil	Marchito LO, Fabro EAN, Maccedo FO, Costa RM, Lou MBA ⁽²³⁾	Prevention and Care of Lymphedema after Breast Cancer: Understanding and Adherence to Physiotherapeutic Guidelines	Rev. bras. cancerol	Qualitative descriptive**	6
2022	Brazil	Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾	Metacognition as an educational technology in self-care learning: the case of prevention of post-surgical lymphedema of breast cancer	Esc. Anna Nery Rev. Enferm	Reflection based on philosophical and theoretical reasoning	7
2021	Australia	Koelmeyer <i>et al.</i> ⁽²⁵⁾	Prospective surveillance model in the home for breast cancer-related lymphoedema: a feasibility study.	Breast cancer research and treatment	Group Intervention Study**	3

Continue...

Continuation.

Years	Countries	Authors	Study Titles	Journals	Designs	LE
2018	Canada	Shallwani SM, Towers A ⁽²⁶⁾	Self-Management Strategies for Malignant Lymphedema: A Case Report with 1-Year and 4-Year Follow-Up Data.	Physiotherapy Canada	Case report**	7
2020	UK	Board J ⁽²⁷⁾	Lymphoedema education for a Breast Cancer Support Group: an overview of the programme and its delivery.	Journal of Lymphoedema	Article**	6
2021	Australia	Koelmeyer LA, Sherman KA, Boyages J, Dean CM ⁽²⁸⁾	Understanding home monitoring and self-management in breast cancer-related lymphoedema: a qualitative study.	Journal of Lymphoedema	Qualitative**	6
2013	UK	Jeffs E, Wiseman T ⁽²⁹⁾	Randomised controlled trial to determine the benefit of daily home-based exercise in addition to self-care in the management of breast cancer-related lymphoedema: a feasibility study	Support Care Cancer	Randomized Controlled Clinical Trial**	2
2011	China	Chung CW, Hwang EK, Hwang SW ⁽³⁰⁾	Details of Lymphedema, Upper Limb Morbidity, and Self-Management in Women after Breast Cancer Treatment.	Korean Journal of Women Health Nursing	Transversal**	6
2021	Türkiye	Deveci Z, Karayurt O, Eyigor S ⁽³¹⁾	Self-care practices, patient education in women with breast cancer-related lymphedema.	Turkish Journal of Physical Medicine & Rehabilitation	Transversal**	6
2008	Türkiye	Armer <i>et al.</i> ⁽³²⁾	The health deviation of post-breast cancer lymphedema: symptom assessment and impact on self-care agency.	Self-Care, Dependent-Care & Nursing	Prospective longitudinal**	4
2019	Denmark	Ammitzbøll <i>et al.</i> ⁽³³⁾	Progressive resistance training to prevent arm lymphedema in the first year after breast cancer surgery: Results of a randomized controlled trial.	Cancer	Randomized clinical trial**	2
2019	Türkiye	Temur K, Kapucu S ⁽³⁴⁾	The effectiveness of lymphedema self-management in the prevention of breast cancer-related lymphedema and quality of life: A randomized controlled trial.	European Journal of Oncology Nursing	Randomized clinical trial**	2
2016	USA	Ridner <i>et al.</i> ⁽³⁵⁾	Breast cancer survivors' perspectives of critical lymphedema self-care support needs.	Supportive Care in Cancer	Qualitative descriptive**	6
2016	UK	Jeffs <i>et al.</i> ⁽³⁶⁾	Exploring patient perception of success and benefit in self-management of breast cancer-related arm lymphoedema.	European Journal of Oncology Nursing	Qualitative**	6
2012	USA	Fife <i>et al.</i> ⁽³⁷⁾	A randomized controlled trial comparing two types of pneumatic compression for breast cancer-related lymphedema treatment in the home	Supportive Care in Cancer	Randomized clinical trial**	2
2017	USA	Ostby PL, Armer JM, Smith K, Stewart BR ⁽³⁸⁾	Patient Perceptions of Barriers to Self-Management of Breast Cancer-Related Lymphedema	Western Journal of Nursing Research	Qualitative**	6
2022	Türkiye	Brown <i>et al.</i> ⁽³⁹⁾	Prescription and adherence to lymphedema self-care modalities among women with breast cancer-related lymphedema	Supportive Care in Cancer	Randomized clinical trial**	2
2022	Türkiye	Cansız G, Arıkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾	The effect of a self-management Prescription and adherence to lymphedema self-care modalities among women with breast cancer-related lymphedema education program on lymphedema, lymphedema-related symptoms, patient compliance, daily living activities and patient activation in patients with breast cancer-related lymphedema: A quasi-experimental study.	European Journal of Oncology Nursing	Experimental control group**	4
2019	Canada	Bolette <i>et al.</i> ⁽⁴¹⁾	Self-Measured Arm Circumference in Women With Breast Cancer Is Reliable and Valid.	Physical Therapy	Transversal**	6
2021	Iran	Noura <i>et al.</i> ⁽⁴²⁾	Effect of Self-care Training on Upper Limb Function and Pain After Breast Cancer Surgery.	Med Surg Nurs J.	Experimental**	3
2015	Australia	Sherman KA, Miller SM, Roussi P, Taylor A ⁽⁴³⁾	Factors predicting adherence to risk management behaviors of women at increased risk for developing lymphedema	Support Care Cancer	Prospective longitudinal*	4
2015	USA	Brown <i>et al.</i> ⁽⁴⁴⁾	Association Between Lymphedema Self-Care Adherence and Lymphedema Outcomes Among Women with Breast Cancer-Related Lymphedema	American Journal of Physical Medicine & Rehabilitation	Randomized clinical trial**	2
2005	USA	Fu MR ⁽⁴⁵⁾	Breast cancer survivors' intentions of managing lymphedema	Cancer Nursing	Cross-sectional qualitative**	6
2015	Australia	Alcorso <i>et al.</i> ⁽⁴⁶⁾	Psychosocial factors associated with adherence for self-management behaviors in women with breast cancer-related lymphedema.	Support Care Cancer	Transversal*	6
2015	Sweden	Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	Perceptions of lymphoedema treatment in patients with breast cancer - a patient perspective.	Scandinavian Journal of Caring Sciences	Qualitative, phenomenographic method**	6
2011	USA	Armer JM, Brooks CW, Stewart BR ⁽⁴⁸⁾	Limitations of self-care in reducing the risk of lymphedema: supportive-educative systems	Nursing Science Quarterly	Secondary analysis of qualitative data**	6
2013	Ireland	McGrath T ⁽⁴⁹⁾	Irish insights into the lived experience of breast cancer related lymphoedema: implications for occupation focused practice.	World Federation of Occupational Therapists Bulletin	Longitudinal qualitative research**	6
2016	Australia	Alcorso <i>et al.</i> ⁽⁵⁰⁾	Perceived barriers to adherence to breast cancer-related lymphoedema self-management.	Journal of Lymphoedema	Descriptive quantitative**	6
2014	Brazil	Hamaji <i>et al.</i> ⁽⁵¹⁾	Care to mastectomy with axillary lymphadenectomy, lymphedema prevention: an integrative review	Journal of Nursing UFPE	Integrative review**	6
2016	USA	Maree JE, Beckmann D ⁽⁵²⁾	Just live with it": Having to live with breast cancer related lymphedema.	Health SA Gesondheid	Exploratory qualitative**	6
2012	South Africa	Wanchai A, Stewart BR, Armer JM ⁽⁵³⁾	Experiences and management of breast cancer-related lymphoedema: a comparison between South Africa and the United States of America	International Nursing Review	Qualitative**	6
2023	Türkiye	Deveci Z, Karaywurt O, Bilik O, Eyigor S ⁽⁵⁴⁾	Development of the Breast Cancer Related Lymphedema Self-Care Scale	Clinical Nursing Research	Descriptive**	6

* No clear information about the design was provided by the authors;

** Design informed by the authors

LE: level of evidence

professionals in related areas (4.9%) were the authors of the studies. Among the studies evaluated, cross-sectional (20.9%) and randomized controlled studies (14.0%) were the most frequent.

From the studies analyzed, the concept of ineffective self-management was applied in 43 studies that dealt with lymphedema in women with mastectomies. However, none of these articles evidenced a clear and defined concept about the nursing diagnosis under study. The lymphedema self-management activities listed by the studies mainly included: know the factors and risk signs for developing lymphedema, monitoring the affected limb for characteristic signs of lymphedema, prevention of trauma to the affected extremity and the risk of infection, prevention and maintenance of skin integrity, maintaining adequate weight and carrying out regular physical activity. Such actions correspond to acceptance and knowledge of the disease, perception and recognition of risk factors and triggers of worsening, and caring attitudes. The defining attributes correspond to the content of the concept analysis.⁽¹¹⁾ The 31 identified attributes are shown in Chart 3. The most frequent attributes were “edema and/or swelling” in the limb (mentioned in ten articles) and “feeling of heaviness in the arm” (cited in six articles).

From the analysis of the selected studies, 30 antecedents were identified and distributed into three categories: patient, access to information and educational practices, and treatment adherence (Chart 4).

A total of 19 consequences of the concept of “ineffective self-management of lymphedema” were identified in the articles (Chart 5). To identify the consequences, the following question was asked: What are the events resulting from ineffective self-management of lymphedema in mastectomized women?

Contrary case case of self-management of lymphedema in mastectomized women

Mrs. Angélica (58 years old, widow, illiterate) lives with her daughter, with an income of one minimum wage from retirement. She was diagnosed with cancer in her right breast in 2020; she underwent a total mastectomy and had axillary dissection; a total

of 22 lymph nodes were removed and she received 36 sessions of radiotherapy. She reported that she avoids using her right arm for daily activities such as cooking or washing dishes, but she did not perform daily skin care or wear compression sleeves. She was unable to maintain her physical exercise and lymphatic drainage routine. Eight months after the surgery, her arm started to swell but she did not know why because she was not advised about this fact. Pain appeared in the right scapular region, limiting extension and flexion; numbness with a feeling of heaviness. Loss of movement in her arm, with progressive worsening of pain, led her to use frequent analgesic medication. She reported worsening pain during manual lymphatic drainage. The daughter reported that her mother does not accept her health problem. The mother has difficulty in monitoring with a multidisciplinary team because she lives on the outskirts of the city.

Model case of self-management of lymphedema in mastectomized women

Mrs. Ana (59 years old, married) lives with her husband and two daughters, with a family income of six minimum wages. She was diagnosed with breast cancer in 2019. She underwent a mastectomy and axillary dissection with removal of the nodules and underwent chemotherapy sessions. A year after the mastectomy, her arm began to become edematous, as the blouses were tight on only one side. She was diagnosed with lymphedema. She reported that she followed the guidelines given by the multidisciplinary team at the oncology center near where she lives. She maintains a balanced diet to control her weight and exercises three times a week. She always keeps her arms clean and dry by applying body moisturizer, sunscreen, and repellent. She performs manual lymphatic drainage daily, and maintains the use of compression clothing for strenuous activities and air travel, in addition to avoiding places of extreme cold or heat. Whenever she goes to the health service, she avoids checking pressure or puncturing in her left arm. Her family does all the domestic work, encouraging her in her routine care. She reported that their help has made a difference in her treatment over the years, preventing her from devel-

Chart 3. Attributes and frequency of ineffective lymphedema self-management identified in the articles

Defining attributes	Identification of studies	n (%)
Edema and/or swelling in the arm	Aydin A, Gursoy A ⁽¹⁷⁾ Swenson KK, Nissen MJ, Leach JW, Post-White J ⁽²⁰⁾ Ridner SH, Dietrich MS, Kidd N ⁽²²⁾ Shallwani SM, Towers A ⁽²⁶⁾ Jeffs E, Wiseman T ⁽²⁹⁾ Armer et al. ⁽³²⁾ Ammitzbøll et al. ⁽³³⁾ Temur K, Kapucu S ⁽³⁴⁾ Ridner et al. ⁽³⁵⁾ Maree JE, Beckmann D ⁽⁵²⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	11 (25.6)
Feeling of weight in the arm	Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾ , Jeffs E, Wiseman T ⁽²⁹⁾ Armer et al. ⁽³²⁾ Ammitzbøll et al. ⁽³³⁾ Cansız G, Arıkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	6 (14.0)
Pain	Jeffs E, Wiseman T ⁽²⁹⁾ Ammitzbøll et al. ⁽³³⁾ Cansız G, Arıkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾ Maree JE, Beckmann D ⁽⁵²⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	5 (11.6)
Low adherence to self-care modalities in lymphedema	Brown et al. ⁽³⁹⁾ Alcorso et al. ⁽⁴⁶⁾ Armer JM, Brooks CW, Stewart BR ⁽⁴⁸⁾ Alcorso et al. ⁽⁵⁰⁾	4 (9.30)
Difference in arm circumference	Cal A, Bahar Z, Gorken I ⁽¹⁶⁾ Sisman H, Sahin B, Duman BB, Tanriverdi G ⁽¹⁹⁾ Wanchai A, Stewart BR, Armer JM ⁽⁵³⁾	3 (6.97)
Numbness	Armer et al. ⁽³²⁾ Ammitzbøll et al. ⁽³³⁾ Cansız G, Arıkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾	3 (6.97)
Decrease in limb function	Li et al. ⁽⁵⁾ Cansız G, Arıkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	3 (6.97)
Decrease in arm range	Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾ Maree JE, Beckmann D ⁽⁵²⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	3 (6.97)
Lack of observation of signs and symptoms and risk factors	Huang HP, Zhou JR, Zeng Q ⁽⁶⁾ Ostby PL, Armer JM, Smith K, Stewart BR ⁽³⁸⁾	2 (4.65)
Disuse of the affected limb with edema	Chung CW, Hwang EK, Hwang SW ⁽³⁰⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	2 (4.65)
Changes in arm edema volume	Koelmeyer LA, Sherman KA, Boyages J, Dean CM ⁽²⁸⁾ Fife et al. ⁽³⁷⁾	2 (4.65)
Lack of lymphedema management	Ridner et al. ⁽³⁵⁾ Cansız G, Arıkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾	2 (4.65)
Lack of self-management of lymphedema symptoms	Noura et al. ⁽⁴²⁾ Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	2 (4.65)
Barriers and burdens to self-care	Brown et al. ⁽⁴⁴⁾ Alcorso et al. ⁽⁴⁶⁾	2 (4.65)
Lack of knowledge about risk factors	Bonisson et al. ⁽¹⁸⁾	1 (2.32)
Weight gain	Meneses KD, McNeas MP ⁽²¹⁾	1 (2.32)
Arm injury	Meneses KD, McNeas MP ⁽²¹⁾	1 (2.32)
Lack of self-management to control and/or reduce lymphedema	Board J ⁽²⁷⁾	1 (2.32)
Lack of effective monitoring of lymphedema symptoms	Sherman KA, Miller SM, Roussi P, Taylor A ⁽⁴³⁾	1 (2.32)
Lack of self-care activities with the affected limb	Fu MR ⁽⁴⁵⁾	1 (2.32)
P Everyday problems when wearing compression clothing (e.g.: increase in body temperature)	Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	1 (2.32)
Absence of aesthetics in the affected limb	Paiva et al. ⁽⁴⁾	1 (2.32)
Lack of care to minimize lymphedema	Hamaji et al. ⁽⁵¹⁾	1 (2.32)
Change in skin texture	Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾	1 (2.32)
Fatigue	Ammitzbøll et al. ⁽³³⁾	1 (2.32)
Absence of commitment to self-care guidelines	McGrath T ⁽⁴⁹⁾	1 (2.32)

Chart 4. Antecedents and frequency of ineffective self-management of lymphedema identified in the literature

Antecedents	Identification of studies	n (%)
Related to patients		
Lack of family and/or social support	Ridner <i>et al.</i> ⁽³⁵⁾ Jeffs <i>et al.</i> ⁽³⁶⁾ Alcorso <i>et al.</i> ⁽⁵⁰⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	4 (9.30)
Education level	Bonisson <i>et al.</i> ⁽¹⁸⁾ Deveci Z, Karayurt O, Eyigor S ⁽³¹⁾	3 (6.97)
Family income	Bonisson <i>et al.</i> ⁽¹⁸⁾ Alcorso <i>et al.</i> ⁽⁵⁰⁾	2 (4.65)
Daily time spent on self-care	Ridner SH, Dietrich MS, Kidd N ⁽²²⁾ Alcorso <i>et al.</i> ⁽⁵⁰⁾	2 (4.65)
Physical discomfort	Fu MR ⁽⁴⁵⁾ Wanchai A, Stewart BR, Armer JM ⁽⁵³⁾	2 (4.65)
Using clothing to disguise swelling	Paiva <i>et al.</i> ⁽⁴⁾ Alcorso <i>et al.</i> ⁽⁵⁰⁾	2 (4.65)
Pain	McGrath T ⁽⁴⁹⁾ Wanchai A, Stewart BR, Armer JM ⁽⁵³⁾	2 (4.65)
Physical limitations	Alcorso <i>et al.</i> ⁽⁵⁰⁾ Maree JE, Beckmann D ⁽⁵²⁾	2 (4.65)
Lack of self-measurement on the arm	Bolette <i>et al.</i> ⁽⁴¹⁾	1 (2.32)
Overweight	Swenson KK, Nissen MJ, Leach JW, Post-White J ⁽²⁰⁾	1 (2.32)
Concern	Board J ⁽²⁷⁾	1 (2.32)
Psychic suffering	Alcorso <i>et al.</i> ⁽⁴⁶⁾	1 (2.32)
Negative experience with compression sleeves	Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	1 (2.32)
Psychic and cognitive limitations	Armer JM, Brooks CW, Stewart BR ⁽⁴⁸⁾	1 (2.32)
Sensation of muscle shortening	McGrath T ⁽⁴⁹⁾	1 (2.32)
Advanced age	Deveci Z, Karayurt O, Eyigor S ⁽³¹⁾	1 (2.32)
Chronic diseases	Deveci Z, Karayurt O, Eyigor S ⁽³¹⁾	1 (2.32)
Lack of emotional support	Ammitzbøll <i>et al.</i> ⁽³³⁾	1 (2.32)
Related to adherence to self-care		
Difficulty in using accessible technologies and techniques	Ridner SH, Dietrich MS, Kidd N ⁽²²⁾ Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾ Koelmeyer <i>et al.</i> ⁽²⁵⁾ Shallwani SM, Towers A ⁽²⁶⁾ Jeffs E, Wiseman T ⁽²⁹⁾ Deveci Z, Karayurt O, Eyigor S ⁽³¹⁾ Jeffs <i>et al.</i> ⁽³⁶⁾ Fu MR ⁽⁴⁵⁾ Hamaji <i>et al.</i> ⁽⁵¹⁾	9 (20.9)
Self-care deficit	Armer <i>et al.</i> ⁽³²⁾ Fife <i>et al.</i> ⁽³⁷⁾ Ostby PL, Armer JM, Smith K, Stewart BR ⁽³⁸⁾ ; Brown <i>et al.</i> ⁽³⁹⁾ Sherman KA, Miller SM, Roussi P, Taylor A ⁽⁴³⁾ Alcorso <i>et al.</i> ⁽⁴⁶⁾ Hamaji <i>et al.</i> ⁽⁵¹⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	8 (18.6)
Cost of treatment	Alcorso <i>et al.</i> ⁽⁵⁰⁾ Maree JE, Beckmann D ⁽⁵²⁾	2 (4.65)
Lack of resources for self-care activities	Ridner <i>et al.</i> ⁽³⁵⁾	1 (2.32)
Difficulties integrating physical exercise and drainage into the daily routine	Temur K, Kapucu S ⁽³⁴⁾	1 (2.32)
Related to knowledge and educational practices		
Lack of knowledge about self-care	Ridner SH, Dietrich MS, Kidd N ⁽²²⁾ Marchito LO, Fabro EAN, Maccedo FO, Costa RM, Lou MBA ⁽²³⁾ Koelmeyer LA, Sherman KA, Boyages J, Dean CM ⁽²⁸⁾ Ostby PL, Armer JM, Smith K, Stewart BR ⁽³⁸⁾ Noura <i>et al.</i> ⁽⁴²⁾ Hamaji <i>et al.</i> ⁽⁵¹⁾	6 (14.0)
Nursing education and/or intervention	De la Borbolla Martínez GD, Martínez MEH, Raygoza NP ⁽¹⁴⁾ Cal A, Bahar Z, Gorken I ⁽¹⁶⁾ Aydin A, Gursoy A ⁽¹⁷⁾ Sisman H, Sahin B, Duman BB, Tanriverdi G ⁽¹⁹⁾ Huang HP, Zhou JR, Zeng Q ⁽⁵⁾	5 (11.6)
Limitation in knowledge about lymphedema	Ridner <i>et al.</i> ⁽³⁵⁾ Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾ Armer JM, Brooks CW, Stewart BR ⁽⁴⁸⁾ Alcorso <i>et al.</i> ⁽⁵⁰⁾	4 (9.30)
Knowledge about lymphedema management	Meneses KD, McNeas MP ⁽²¹⁾ Sherman KA, Miller SM, Roussi P, Taylor A ⁽⁴³⁾	2 (4.65)
Lack of self-care training	Noura <i>et al.</i> ⁽⁴⁴⁾	1 (2.32)

Chart 5. Distribution of consequences of ineffective self-management of lymphedema

Consequences	Identification of studies	n (%)
Decrease in quality of life	Cal A, Bahar Z, Gorken I ⁽¹⁶⁾ Ridner SH, Dietrich MS, Kidd N ⁽²²⁾ Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾ Koelmeyer LA, Sherman KA, Boyages J, Dean CM ⁽²⁸⁾ Ostby PL, Armer JM, Smith K, Stewart BR ⁽³⁸⁾ Cansız G, Arkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾ Sherman KA, Miller SM, Roussi P, Taylor A ⁽⁴³⁾ Alcorso <i>et al.</i> ⁽⁴⁶⁾ Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	9(20.93)
Interference with daily and work activities	Swenson KK, Nissen MJ, Leach JW, Post-White J ⁽²⁰⁾ Assis MR, Maraglia PH, Brandão MAG, Peixoto MAP ⁽²⁴⁾ Cansız G, Arkan Dönmez A, Kapucu S, Borman P ⁽⁴⁰⁾ Fu MR ⁽⁴⁵⁾ Alcorso <i>et al.</i> ⁽⁴⁶⁾ Maree JE, nBeckmann D ⁽⁵²⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	7(16.27)
Psychic suffering	Koelmeyer LA, Sherman KA, Boyages J, Dean CM ⁽²⁸⁾ Jefferis <i>et al.</i> ⁽³⁶⁾ Sherman KA, Miller SM, Roussi P, Taylor A ⁽⁴³⁾ Fu MR ⁽⁴⁵⁾ Alcorso <i>et al.</i> ⁽⁴⁶⁾ Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	6(13.95)
Pain	Paiva <i>et al.</i> ⁽⁴⁾ Temur K, Kapucu S ⁽³⁴⁾ Jefferis <i>et al.</i> ⁽³⁶⁾ Fife <i>et al.</i> ⁽³⁷⁾ Noura <i>et al.</i> ⁽⁴²⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	6(13.95)
Concern about appearance and/or aesthetics	Jefferis <i>et al.</i> ⁽³⁶⁾ Fife <i>et al.</i> ⁽³⁷⁾ Alcorso <i>et al.</i> ⁽⁴⁶⁾	3(6.97)
Muscle weakness	Temur K, Kapucu S ⁽³⁴⁾ Jefferis <i>et al.</i> ⁽³⁶⁾ Noura <i>et al.</i> ⁽⁴²⁾	3(6.97)
Embarrassment and/or shame	Paiva <i>et al.</i> ⁽⁴⁾ Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾ Hamaji <i>et al.</i> ⁽⁵¹⁾	3(6.97)
Concern about the future	Cal A, Bahar Z, Gorken I ⁽¹⁶⁾ Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	2(4.65)
Dysfunction in the affected limb	Jefferis <i>et al.</i> ⁽³⁶⁾ Noura <i>et al.</i> ⁽⁴²⁾	2(4.65)
Loss of self-esteem	Paiva <i>et al.</i> ⁽⁴⁾ Hamaji <i>et al.</i> ⁽⁵¹⁾	2(4.65)
Feeling of heaviness	Fife <i>et al.</i> ⁽³⁷⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	2(4.65)
Skin infections	Noura <i>et al.</i> ⁽⁴²⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	2(4.65)
Swelling progress	Fife <i>et al.</i> ⁽³⁷⁾ Deveci Z, Karaywurt O, Bilik O, Eyigör S ⁽⁵⁴⁾	2(4.65)
Lack of visible positive results	Ridner SH, Dietrich MS, Kidd N ⁽²²⁾	1(2.32)
Difficulty choosing what to wear	Temur K, Kapucu S ⁽³⁴⁾	1(2.32)
Sexual problems	Temur K, Kapucu S ⁽³⁴⁾	1(2.32)
Unsuccessful management	Ostby PL, Armer JM, Smith K, Stewart BR ⁽³⁸⁾	1(2.32)
Occupational distress	McGrath T ⁽⁴⁹⁾	1(2.32)
Feeling of guilt	Karlsson K, Biguet G, Johansson K, Nilsson-Wikmar L ⁽⁴⁷⁾	1(2.32)

oping further complications with lymphedema in her arm so far, which is a constant fear.

Discussion

When analyzing the articles, the countries of publication were different. Those from North America

and Europe stood out, being related to the highest incidence of breast CA and prevalence of lymphedema.^(54,55)

After 2012, an increasing number of studies developed by nurses was observed, which influenced the development of our study. Furthermore, the presence of studies developed by professionals (such as doctors, physiotherapists, and psycholo-

gists) points to a comprehensive understanding of the complex management that involves lymphedema and its multidisciplinary nature. *E.g.*, physiotherapists develop studies related to the use of new techniques for managing and measuring lymphedema; they contribute to the early detection of indicators that lead to ineffective self-management, also contributing to educational practices for mastectomized women.⁽⁴¹⁾

In this group of people, the aspects involving lymphedema show the extent to which the phenomenon can manifest itself, as evidenced in the different categories presented in the antecedents. When there is more than one antecedent or related factor interacting with people, the human response can show different levels of severity, from the exclusive presence of local edema (and decreased mobility of the limb) to the impact on quality of life and social relations. Different levels of severity of ineffective lymphedema self-management can also trigger other human responses.⁽⁵⁶⁾

Given the importance of multidisciplinary management in the clinical practice of nurses for better quality of life of mastectomized women, having the contribution of different professional perspectives and the exchange of knowledge between their areas is essential for the self-care and rehabilitation of these patients. However, few studies have deepened into this topic.

Concerning the defining attributes most explored by the authors in the articles analyzed, edema and/or swelling of the arm, sensation of heaviness, pain, and numbness were recurrent. "Arm edema and/or swelling" is related to the accumulation of extracellular fluid as a result of damage to the lymphatic system related to breast cancer treatment.⁽¹⁰⁾ This leads to a decrease in the distensibility of the tissue around the joints and an increase in the weight of the extremities, causing a feeling of heaviness, numbness, and decreased function of the affected limb.⁽⁵⁷⁾

Attribution of ineffective self-management of lymphedema to the presence of edema and 'aesthetic and functional' aspects of the affected limb has also been observed, and factors related to self-management have not been adequately explored. This

may be related to the subjectivity of the clinical assessment to which mastectomized women are subjected, as the presentation of lymphedema as a sequelae of oncological treatment is expected, causing confusion of concepts, making the investigation and identification of the attributes analyzed more complex.

Pain is a symptom defined as an unpleasant sensory and emotional experience, associated with real or potential tissue damage, of sudden or slow onset and mild to severe intensity, with an anticipated or predictable end.^(8,58)

A study by Fabro *et al.* highlighted that pain (as a neuropathic condition) had an incidence of 52.9% six months after surgical treatment for breast cancer. Pain in the shoulder and/or thoracoscapular region resulting from surgical treatment of breast cancer was observed in 27.2% of patients; younger women (younger than 40 years old) and those who underwent axillary lymphadenectomy (more than 15 lymph nodes removed) were at greater risk of developing pain syndrome.⁽⁵⁹⁾

In patients who present such attributes, early intervention by the multidisciplinary team with self-management strategies can reduce the risk of progression of lymphedema related to breast CA. Nurses can incorporate such strategies into these women's daily lives to reverse the stages of lymphedema, in addition to making them see themselves as agents of their self-care.

The attributes support nurses' decisions to identify ineffective self-management of lymphedema, contributing to planning effective actions based on patient training and engagement concerning the phenomenon. Although the patient in the fictitious case was also diagnosed with lymphedema after breast cancer, defining attributes and antecedents are not perceived in the context of the model case, discouraging nurses from developing actions focusing on ineffective self-management.

As for the antecedents, those attributed to the patients are the ones that stand out the most. However, those related to adherence to self-care, as well as the difficulty in adhering to self-care guidelines using accessible technologies and/or devices and techniques (bandages, compression garments,

pneumatic compression, manual lymphatic drainage, physical exercises, and bioimpedance) were the most frequent. Specialized accessible and cost-effective interventions for mastectomized women with lymphedema need to be further explored. Such interventions may present a high risk of complications, in addition to the changes in habits and routines already required to achieve and maintain successful treatment results.^(22,24,28)

Studies show that less than a third of women adhere to self-care practices.^(31,46) This lack of adherence may be related to a lack of knowledge about self-care. In the articles analyzed, this is a significant indicator. The multiple barriers to self-care reinforce the multidisciplinary approach focused on education and self-monitoring to improve the quality of life of this population.⁽³⁵⁾

Women need to take responsibility for their self-care, incorporating it permanently into their routine. This requires reinforcement in the teaching-learning process and awareness. Technological devices and improved techniques are needed.⁽²⁴⁾

In addition to teaching and awareness about the importance of lymphedema, it must be considered that cognitive and affective changes in a situation of health threat can influence the lack of adherence. Therefore, they must also be observed by professionals.⁽⁴³⁾ On the other hand, a study showed that participants understand their chronic problems, but realize that the health team does not have the necessary knowledge when diagnosing lymphedema. This leads to a lack of expectation about the treatment and what it will provide, affecting the management of the problem.⁽⁴⁷⁾

In this context, nursing interventions aimed at preventive behavior and long-term monitoring help to prevent lymphedema when supported by home visits. Furthermore, they are considered cost-effective, reducing the financial burden on both the patient and the healthcare system.⁽¹⁶⁾

Consequences are events that occur as a result after the concept occurs; they cannot be considered defining attributes of the concept under analysis.⁽¹¹⁾ Thus, it was observed that the pain component (cited in 14.0% of articles) appears as a consequence but also appears as a defining attribute. The NANDA-I

taxonomy does not present the pain component as a defining characteristic.⁽⁸⁾

The defining characteristics are dynamic and changeable; they contribute to preparing the ND by nurses, assisting in the planning of nursing interventions. Considering the direction of Walker and Avant,⁽¹¹⁾ we can state that pain is a consequence of ineffective self-management of lymphedema, being disregarded as a defining attribute. However, the clinical consequences are an exacerbation of the attributes associated with exposure to clinical antecedents; a greater degree of impairment can be observed in the consequence depending on the intensity of this exposure.⁽⁵⁵⁾

The three most frequent consequences were the following: decrease in life quality (20.9%), interference with daily and work activities {recomendo coerência no arredondamento de casas decimais; lembrando que há ~10 valores de porcentagem expressos com uma casa decimal em todo o manuscrito} (16.27 16.3 %), and psychological distress (13.95 14,0 %).

The greater the swelling of the arm or hand, the greater the limitations observed in women with different degrees of lymphedema. The difficulties faced in simple activities of daily living, such as cleaning, bathing, and eating, are even greater. These difficulties result in their inability to take care of themselves.^(20,40)

The consequent “decrease in life quality” was pointed out by breast cancer survivors. They highlighted elements that help achieve a better quality of life, such as involvement in treatment decisions and individualized support and advice for patients.⁽⁴⁷⁾

Psychological suffering is related to emotional disorders as daily disorders linked to lymphedema impact the lives of mastectomized women. The change in body image acts as a visible reminder of cancer and treatment, adding to patient reports of physical symptoms often used to assess distress levels.⁽³⁶⁾ A study performed in Australian clinics showed an inversely proportional relationship between levels of distress and degrees of adherence to lymphedema self-management, reinforcing that psychological distress is a consequence of ineffective self-management of lymphedema.⁽⁴⁶⁾

The presence of discomfort and fear related to lymphedema negatively affects women from a psychosocial point of view, resulting in psychological and body image disorders, reflecting on life quality. Therefore, clarifying the treatments that the health system can offer and involving cure expectations and functional impairments that can impact daily life is important.^(24,43,45,47)

Conclusion

This concept analysis allows identifying the fundamental elements to understand the concept of ineffective self-management of lymphedema. This was achieved by identifying defining attributes, antecedents, consequences, model and contrary cases, thus contributing to clarifying this nursing diagnosis. Nursing diagnoses with lower levels of evidence are generally not incorporated into the nursing process, as their elements do not reflect clinical practice nor contribute to identifying effective strategies and managing the causes of ineffective self-management of lymphedema. The described and identified elements that resulted from this conceptual analysis require validation by judges and clinical application.

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