

Original Article

Body image alteration in women with breast cancer: A concept analysis using an evolutionary method

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ABSTRACT

Objective: Women with breast cancer experience changes in body image, a key predictor of overall quality of life. Body image alteration has been recognized in scholarly circles and is actively being researched on; however, a comprehensive conceptualization of body image alteration from an oncological perspective is insufficient. Therefore, this study aimed to analyze the concept of body image alteration in women within the context of breast cancer based on Rodgers' evolutionary method.

Methods: A literature search using a combination of the keywords "breast neoplasms" and "body image" was conducted via PubMed, CINAHL, Embase, PsycInfo, KISS, and RISS. Peer-reviewed journal articles related to body image alteration in women with breast cancer, published from 2001 to 2020, were included in this study.

Results: Three critical attributes of body image alteration were identified: "dismantling the existing body image," "transitioning to the altered body," and "re-integrating a new body image." Antecedents included "breast cancer and its treatment," "awakening to the sociocultural norms of a feminine body," and "triggering events for reflecting on one's body." The consequences were "psychological well-being or distress," "strengthening or breakdown of intimate relationships," "enhancement or impairment of social functioning," and "adherence or resistance to breast cancer treatment."

Conclusions: This study provides comprehensive conceptualizations that encompass individual, interpersonal, and sociocultural components and cover both negative and positive changes in body image from a long-term perspective. This may offer a useful framework that can be used to develop effective interventions for body image improvement and accelerate further research.

Introduction

Body image is a multidimensional psychological structure that includes an individual's perceptions, emotions, and attitudes about one's own body.¹ Cancer and its treatment have an immense effect on body image, as they cause changes in physical appearance and function.¹ Negative body image in patients with cancer leads to psychological problems, including depression, anxiety, and distress,² as well as changes in family functioning and social relationships,³ resulting in a decrease in the overall quality of life.⁴ Although the body image of patients with cancer differs by individual, the degree of body image alteration varies depending on the visibility and reversibility of physical changes and the affected body parts, in general.¹

In this context, the body image of women with breast cancer is particularly important. Breast cancer is the most common cancer in

women worldwide.⁵ Traditionally, for women, breasts symbolize femininity, sexual attraction, and motherhood.⁶ Additionally, because the breast is an external organ that plays a fundamental role in body shape, irreversible changes in its appearance following surgical treatment are evident.⁶ Moreover, women tend to be more sensitive to body changes than men.⁴ Therefore, the diagnosis and treatment of breast cancer significantly affect the body image of women.

As interest in the body image of patients with cancer increased in the 2000s,⁷ related studies have been actively conducted across various disciplines. However, the conceptualization of body image from a cancer perspective, including breast cancer, remains insufficient.⁸ To address the need for a better comprehension of body image in the oncological context, a concept analysis of body image disturbance was conducted for the first time in adults with cancer. Rhoten explained that appearance changes following cancer treatment cause body image disturbance

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characterized by displeasure with physical appearance, a decline in an area of function, and psychological distress regarding these changes, all of which can lead to changes in social patterns.⁹

However, Rhoten’s study focused on drastic changes in physical appearance and therefore could not cover long-term experiences concerning body image responding to various life stimuli confronted by cancer survivors.¹⁰ Additionally, as Rhoten’s study only focused on negative body image, the findings cannot be used to interpret positive changes in body image. Body image is neither fixed nor does it progress in one direction; it alters dynamically toward either improvement or deterioration.^{10,11} Therefore, the current study specified “body image alteration” as a concept that encompasses both positive and negative changes in body image.

Rodgers’ evolutionary method is a concept analysis strategy to capture and analyze changes within a social context. Body image continues to change and evolve under the influence of the times and sociocultural milieu.¹² Therefore, considering this dynamic nature of body image alteration, Rodgers’ evolutionary method is appropriate for exploring and analyzing this concept. The current study aimed to analyze the concept of body image alteration in women with breast cancer. This approach will clarify the concept of body image alteration and broaden our understanding of its overall dynamics.

Methods

Design

In this study, Rodgers’ evolutionary approach¹³ was used to extract the attributes, antecedents, and consequences of body image alteration in women with breast cancer. Body image alteration is a complex and multifaceted concept that has evolved over time and has been viewed divergently across academic fields. Given this, Rodgers’ approach was considered the most appropriate concept analysis method to capture its developmental process and integrate multiple perspectives.

Research process

Rodgers’ evolutionary approach consists of six simultaneous and iterative steps:¹³

- 1) Identify the concept of interest through a brief review of relevant literature.
- 2) Select the disciplines, timeframe, data sources, and type of literature appropriate for inclusion in the sample.
- 3) Collect relevant data to identify the characteristics of the concept, including its attributes, antecedents, and consequences.
- 4) Identify multidisciplinary diversities and historical context regarding the concept.
- 5) Analyze and describe the data regarding the characteristics of the concept.
- 6) Identify implications and hypotheses for future concept development.

Search methods

Before the full-fledged data collection, the first author conducted an initial explorative literature search on Google Scholar, utilizing the keywords “breast cancer” and “body image” without any limitations to identify the concept of body image alteration and determine the appropriate scope of data collection. Consequently, it was identified that body image alteration in women with breast cancer has been studied indirectly through body image-related concepts, mostly in nursing, medicine, and psychology. Upon consultation with a medical librarian, keywords for the literature search were chosen as “body image” and related terms. Additionally, reflecting the findings from an initial search, the timeframe and sources for data collection were limited to the last two decades, from 2001 to 2020, and to nursing, medicine, and psychology databases,

respectively.

Therefore, literature was extracted from CINAHL, PubMed, EMBASE, PsycInfo, KISS, and RISS through a combination of the keywords “breast neoplasms” and “body image” by referring to the synonyms and thesaurus of each database (Table 1). The inclusion criteria were peer-reviewed journal articles (1) related to body image alteration in women with breast cancer and (2) published in English or Korean. The exclusion criteria were articles (1) that were not original research (eg, review paper, letters to the editor, or commentaries) and (2) that did not address an attribute, antecedent, or consequence of the concept. Additionally, articles (3) focused solely on sexual and gender minorities (SGM) were excluded, owing to the fact that the distinct perception of breasts in SGM compared to heterosexual and cisgender women¹⁴ can result in differing body image alterations following breast cancer.

Search outcome

In total, 2012 articles were identified through the database search. After the removal of duplicates, 1145 articles were screened by two independent researchers. From the title and abstract screening, 674 articles that were irrelevant to the concept of interest or did not meet the inclusion criteria were excluded. In full-text screening, 421 articles for which the characteristics of the concept could not be derived were excluded. If opinions on data selection differed among researchers, a final agreement was reached through a research meeting.

Ultimately, 50 articles were included in the concept analysis. Each of them was classified by discipline, such as nursing, medicine, psychology, sociology, and others based on the first author’s institutional affiliation (Fig. 1, Table 2).

Data analysis

A thematic analysis was conducted to identify the core elements of the selected articles. Data were extracted and classified into Excel sheets with different headings: (1) antecedents, (2) attributes, and (3) consequences of the concept. Next, the listed items were compared and categorized into emerging themes depending on their relevance. These matrices were examined by discipline and publication year to identify multidisciplinary diversities and historical context regarding the concept. Later, these were integrated into the final matrix presenting characteristics of the concept across the four disciplines, and consequently, a conceptual framework was established.

The first author conducted the initial data analysis under the supervision of the corresponding author who has expertise in this concept analysis method. In order to minimize researcher bias and secure the reliability of the analysis and interpretation, the analysis process and

Table 1
Search strategies applied to this study.

Keywords	Index terms	Free terms
Breast neoplasms	PubMed, CINAHL, PsycInfo: breast neoplasms EMBASE: breast cancer	breast neoplasm* OR breast cancer* OR breast carcinoma* OR breast tumor OR “cancer of breast” OR “cancer of the breast” OR human mammary carcinoma OR “malignant neoplasm of breast” OR “malignant tumor of breast” OR mammary cancer* OR breast malignant neoplasm* OR breast malignant tumor* OR human mammary neoplasm* OR mamma cancer* OR breast gland cancer* OR breast gland neoplasm*
Body image	PubMed, CINAHL, EMBASE: body image PsycInfo: body image OR body awareness OR body esteem	body image* OR body identit* OR body represent* OR body schema* OR body satisfact* OR body dissatisfact* OR body awareness OR body esteem

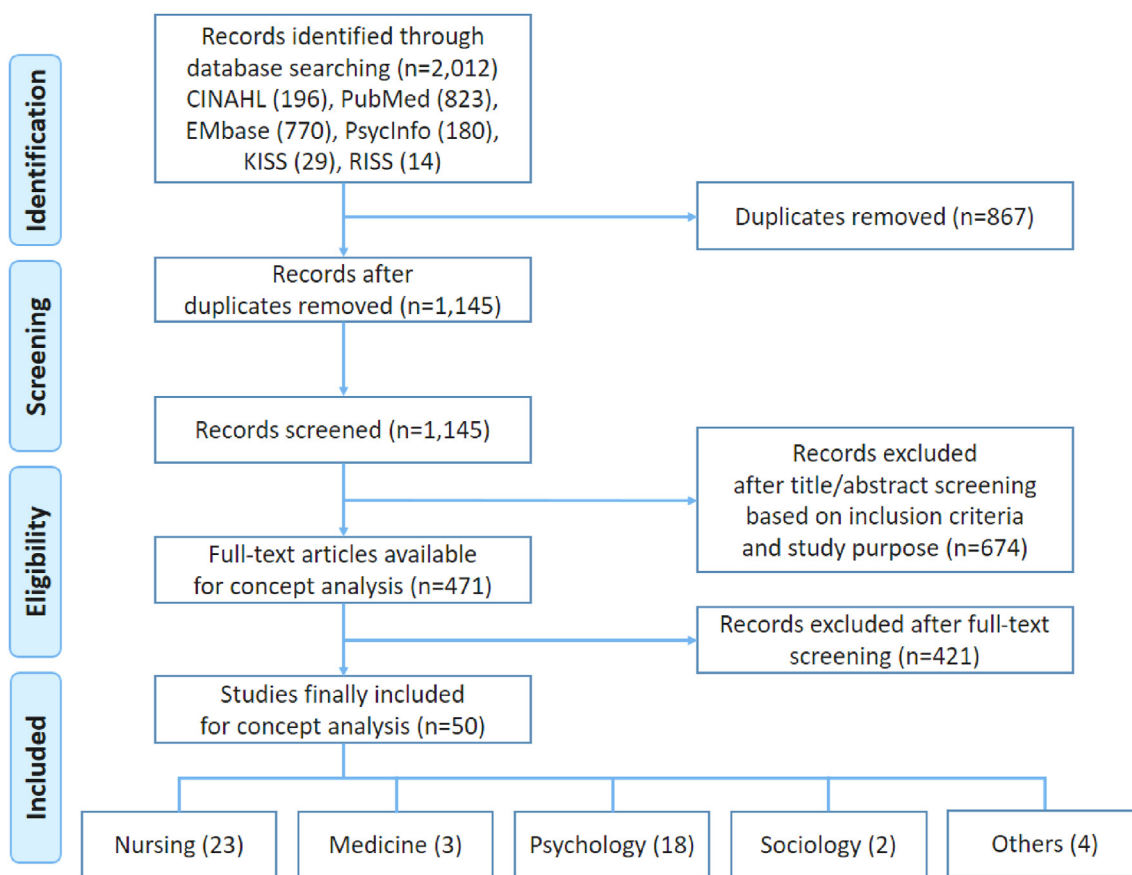


Fig. 1. Flow diagram of literature review.

results were presented and reviewed at a research group that included three nursing professors. Specifically, experts were asked to review the data analysis process, identify any potential sources of bias, and provide feedback on the interpretation of the data, through a series of meetings. The feedback provided by experts was incorporated into the final analysis and interpretation of the data. The implications and hypotheses for future research are identified and presented in the discussion section.

Results

The selected literature was classified into four disciplines, including nursing, medicine, psychology, and sociology. Each discipline had its own unique perspective on the concept of body image alteration.

Body image alteration as viewed by other disciplines

Medicine

Medicine is the discipline in which the most extensive research on body image alteration in women with breast cancer has been conducted. However, despite active research, most of the studies were quantitative and focused on evaluating the degree of body image alteration according to the individuals' demographic or disease-related characteristics rather than illustrating the phenomenon itself. In medicine, body image alteration refers to negative perceptions, worries, and concerns women experience about their bodies following the loss or deformation of breasts owing to breast cancer treatments.^{15,16}

Sociology

In sociology, research has focused on the sociocultural norms of the feminine body, social pressure for femininity, and the symbolism attached to the female breast. From a sociological viewpoint, body image

alteration of breast cancer survivors implies psychological distress caused by the discrepancy between sociocultural ideals and body realities,¹⁷ and women's desire to regain their normal appearance that conforms to social standards.¹⁸

Psychology

In psychology, studies have focused mostly on the changes in women's self-image,¹⁹ gender identity,^{20,21} and psychosocial adaptation¹⁹ following alterations in body image due to breast cancer. Additionally, the importance of psychosocial support in improving body image has been emphasized.^{20,21} The influence of intimate relationships on body image alteration was also investigated, and it was found that satisfactory relationships with partners may lead to women's acceptance of their body image.^{22,23}

The historical context of body image alteration in nursing

Nursing viewed body image alteration from the most comprehensive perspective, encompassing approaches from medicine, sociology, and psychology, whereas other disciplines tended to focus on specific aspects. Looking at the developmental process of the concept according to the trend of the times, studies aimed to identify changes in body image based on the type of surgery or treatment in earlier years.^{24,25} Since then, as the area of interest in research has expanded, sociocultural and relational elements have been recognized as factors that induce body image alteration,^{26,27} in addition to the physical changes.

In recent years, studies highlighting the positive changes in body image have emerged, demonstrating that body image improved as women came to terms with their new physical condition.²⁸ Moreover, it has been reported that women established affirmative body image as they positively accepted their changed bodies.²⁹ Meanwhile, as the

Table 2
Selected articles for the concept analysis.

Disciplines	Author(s)	Year	Title	
Nursing	Wilmoth MC	2001	The aftermath of breast cancer: An altered sexual self	
	Landmark BT, Wahl A	2002	Living with newly diagnosed breast cancer: A qualitative study of 10 women with newly diagnosed breast cancer	
	Rancour P, Brauer K	2003	Use of letter writing as a means of integrating an altered body image: A case study	
	Boehmke MM, Dickerson SS	2005	Symptom, symptom experiences, and symptom distress encountered by women with breast cancer undergoing current treatment modalities	
	Taleghani F, Yekta ZP, Nasrabadi AN	2006	Coping with breast cancer in newly diagnosed Iranian women	
	Muniz Da Costa Vargens O, Berterö CM	2007	Living with breast cancer: Its effect on the life situation and the close relationship of women in Brazil	
	Lindwall L, Bergbom I	2009	The altered body after breast cancer surgery	
	Fang SY, Balneaves LG, Shu BC	2010	"A struggle between vanity and life": The experience of receiving breast reconstruction in women of Taiwan	
	Nizamli F, Anoosheh M, Mohammadi E	2011	Experiences of Syrian women with breast cancer regarding chemotherapy: A qualitative study	
	Klaeson K, Sandell K, Berterö CM	2011	To feel like an outsider: Focus group discussions regarding the influence on sexuality caused by breast cancer treatment	
	Fallbjörk U, Salander P, Rasmussen BH	2012	From "no big deal" to "losing oneself": Different meanings of mastectomy	
	Ridner SH, Bonner CM, Deng J, Sinclair VG	2012	Voices from the shadows: Living with lymphedema	
	Choi EK, Kim IR, Chang O, Kang D, Nam SJ, Lee JE, Lee SK, Im YH, Park YH, Yang JH, Cho J	2014	Impact of chemotherapy-induced alopecia distress on body image, psychosocial well-being, and depression in breast cancer patients	
	Heidari M, Ghodusi M	2015	The relationship between body esteem and hope and mental health in breast cancer patients after mastectomy	
	Cheng H, Sit J, Cheng K, Sit JWH, Cheng KKF	2016	Negative and positive life changes following treatment completion: Chinese breast cancer survivors' perspectives	
	Wiedemann R, Schnepf W	2017	External breast prostheses in post-mastectomy care in Germany – Women's experiences: A qualitative study	
	Pedersen B, Groenkjaer M, Falkmer U, Delmar C	2017	Understanding the essential meaning of measured changes in weight and body composition among women during and after adjuvant treatment for breast cancer: A mixed-methods study	
			2018	Reconstruction of feminine identity: The strategies of

Table 2 (continued)

Disciplines	Author(s)	Year	Title		
Nursing	Zeighami Mohammadi S, Mohammad K, Kermanshahi S, Vanaki Z	2018	women with breast cancer to cope with body image altered		
	Chuang LY, Hsu YY, Yin SY, Shu BC		Staring at my body: The experience of body reconstruction in breast cancer long-term survivors		
	Hubbeling HG, Rosenberg SM, González-Robledo MC, Cohn JG, Villarreal-Garza C, Partridge AH, Knaul FM		2018	Psychosocial needs of young breast cancer survivors in Mexico City, Mexico	
	Alhusban RY		2019	Changed body image as perceived by Jordanian women undergoing breast cancer treatment	
	Yamani Ardakani B, Tirgari B, Roudi Rashtabadi O		2020	Body image and its relationship with coping strategies: The views of Iranian breast cancer women following surgery	
	Liow KHF, Ng TRP, Choo CH, Koh SSL, Shorey S		2020	The experiences and support needs of women with gestational breast cancer in Singapore: A descriptive qualitative study	
	Medicine		Avis NE, Crawford S, Manuel J	2004	Psychosocial problems among younger women with breast cancer
			Thomas-MacLean R	2005	Beyond dichotomies of health and illness: Life after breast cancer
			Winch CJ, Sherman KA, Koelmeyer LA, Smith KM, Mackie H, Boyages J	2015	Sexual concerns of women diagnosed with breast cancer-related lymphedema
			Psychology	Ashing KT, Padilla G, Tejero J, Kagawa-Singer M	2003
Frierson GM, Thiel DL, Andersen BL		2006		Body change stress for women with breast cancer: The Breast-Impact of Treatment Scale	
McDonough MH, Sabiston CM, Crocker PRE		2008	An interpretative phenomenological examination of psychosocial changes among breast cancer survivors in their first season of dragon boating		
Vilhauer RP		2008	A qualitative study of the experiences of women with metastatic breast cancer		
Anagnostopoulos F, Myrzianni S		2009	Body image of Greek breast cancer patients treated with mastectomy or breast conserving surgery		
Zimmermann T, Scott JL, Heinrichs N		2010	Individual and dyadic predictors of body image in women with breast cancer		
Moreira H, Canavarró MC		2010	A longitudinal study about the body image and psychosocial adjustment of breast cancer patients during the course of the disease		
Piot-Ziegler C, Sassi ML, Raffoul W, Delaloye JF	2010	Mastectomy, body deconstruction, and impact on identity: A qualitative study			
Didier F, Arnaboldi P, Gandini S, Maldifassi A, Goldhirsch A, Radice D, Minotti I, Ballardini B, Luini A, Santillo B, Rietjens M, Petit JY	2012	Why do women accept to undergo a nipple sparing mastectomy or to reconstruct the nipple areola complex when nipple sparing mastectomy is not possible?			
Boquiren VM, Esplen MJ, Wong J, Toner B, Warner E	2013	Exploring the influence of gender-role socialization and objectified body consciousness on body image			

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Table 2 (continued)

Disciplines	Author(s)	Year	Title
			disturbance in breast cancer survivors
	McKean LN, Newman EF, Adair P	2013	Feeling like me again: A grounded theory of the role of breast reconstruction surgery in self-image
	Kurowecki D, Fergus KD	2014	Wearing my heart on my chest: Dating, new relationships, and the reconfiguration of self-esteem after breast cancer
	Buki LP, Reich M, Lehardy EN	2016	“Our organs have a purpose”: Body image acceptance in Latina breast cancer survivors
	Grogan S, Mechan J	2017	Body image after mastectomy: A thematic analysis of younger women’s written accounts
	Barthakur MS, Sharma MP, Chaturvedi SK, Manjunath SK	2017	Body image and sexuality in women survivors of breast cancer in India: Qualitative findings
	Jabłoński MJ, Streb J, Mirucka B, Stowik AJ, Jach R	2018	The relationship between surgical treatment (mastectomy vs. breast conserving treatment) and body acceptance, manifesting femininity and experiencing an intimate relation with a partner in breast cancer patients
	Herring B, Paraskeva N, Tollow P, Harcourt D	2019	Women’s initial experiences of their appearance after mastectomy and/or breast reconstruction: A qualitative study
	La J, Jackson S, Shaw R	2019	‘Flat and fabulous’: Women’s breast reconstruction refusals post-mastectomy and the negotiation of normative femininity
Sociology	Crompvoets S	2006	Comfort, control, or conformity: Women who choose breast reconstruction following mastectomy
	Hamid W, Jahangir MS, Khan TA	2020	Lived experiences of women suffering from breast cancer in Kashmir: A phenomenological study
Others	Chung LK, Cimprich B, Janz NK, Mills-Wisneski SM	2009	Breast cancer survivorship program: Testing for cross-cultural relevance
	Brunet J, Sabiston CM, Burke S	2013	Surviving breast cancer: Women’s experiences with their changed bodies
	Davies CC, Brockopp D, Moe K, Wheeler P, Abner J, Lengerich A	2017	Exploring the lived experience of women immediately following mastectomy
	Guedes TSR, Dantas de Oliveira NP, Holanda AM, Reis MA, Silva CP, Rocha e Silva BL, Cancela MC, de Souza DLB	2018	Body image of women submitted to breast cancer treatment

* Each article was classified into nursing, medicine, psychology, sociology, and others based on the first author’s institutional affiliation.

research focus has shifted to body image alteration itself rather than its predictors or consequences, studies are also being actively conducted on the processes and coping strategies regarding body image alteration.^{28,30} In other words, nursing has evolved a holistic understanding of body image alteration over time by encompassing multiple perspectives and addressing positive body image.

Attributes

The attributes of a concept are the characteristics that distinguish it from other similar or related concepts, and broaden our understanding of it.³¹ Through a literature review of the usage of the concept of body image alteration, three attributes that appeared repeatedly were identified, as follows (Fig. 2).

Dismantling the existing body image

Women with breast cancer developed a new consciousness regarding their bodies through the recognition of actual or perceived body alterations. Women became aware of the physical changes by comparing their bodies not only with their previous selves or with those of other women^{21,26} but also with the sociocultural ideal of the female body.^{18,32} Subsequently, women anticipated changes in their lives concerning their bodies, including their health status,³³ interpersonal or intimate relationships, and societal views toward the altered body.^{34,35} As these subjective expectations led to a deconstruction of the previous thoughts, feelings, and attitudes about one’s body, women experienced the breakdown of their existing body image.

Transitioning to the altered body

As the body image was dismantled, there was a transition from the existing body to the altered body. Some women accepted mastectomy as a necessary cost of cancer treatment and were grateful that they had regained their health through tumor removal.^{34,36} Additionally, they offset the impact of bodily changes by intentionally underestimating and neutralizing the significance of breasts.^{36,37} Consequently, scarred breasts were regarded as evidence of successful treatment and a sign of victory in the battle against breast cancer.³⁷

Conversely, women who valued the breast as a unique body organ symbolizing femininity equated its loss with the loss of their feminine identity.³⁸ They also considered it not only a barrier in their interpersonal and social life²⁷ but also a constant reminder of a life-threatening disease.^{21,39} Similarly, based on whether their priority was avoiding physical changes or surviving breast cancer, women with breast cancer experienced either negative or positive transitions, respectively.

Reintegrating a new body image

Female breast cancer survivors integrated new body images by reevaluating their bodies. They rearranged their body standards between sociocultural norms and body realities. For women who adhered to sociocultural norms regarding the feminine body, the discrepancy between body ideals and realities deepened.^{21,26} In contrast, women who established new realistic standards for femininity and identity aligned with the altered body, formulated positive body perceptions.^{20,32} Through self-appraisal based on their own body standards, women rebuilt their thoughts, feelings, and attitudes toward their bodies.

Antecedents

Antecedents are events or phenomena that precede the occurrence of the concept.³¹ Three antecedents were identified, as follows (Fig. 2).

Breast cancer and its treatment

Breast cancer and its treatment are the most important antecedents of body image alteration. Following the diagnosis and treatment of breast cancer, women experienced drastic physical changes. Surgical treatment, including mastectomy and breast reconstruction, caused loss or deformation of the breasts.³⁶ Additionally, various changes in appearance occurred, such as lymphedema,⁴⁰ weight gain or loss,⁴¹ and chemotherapy-induced alopecia.³⁵ There were also changes in health status⁴² and functional status (eg, sexual function and activities of daily living),^{15,19} accompanied by the progression of breast cancer.

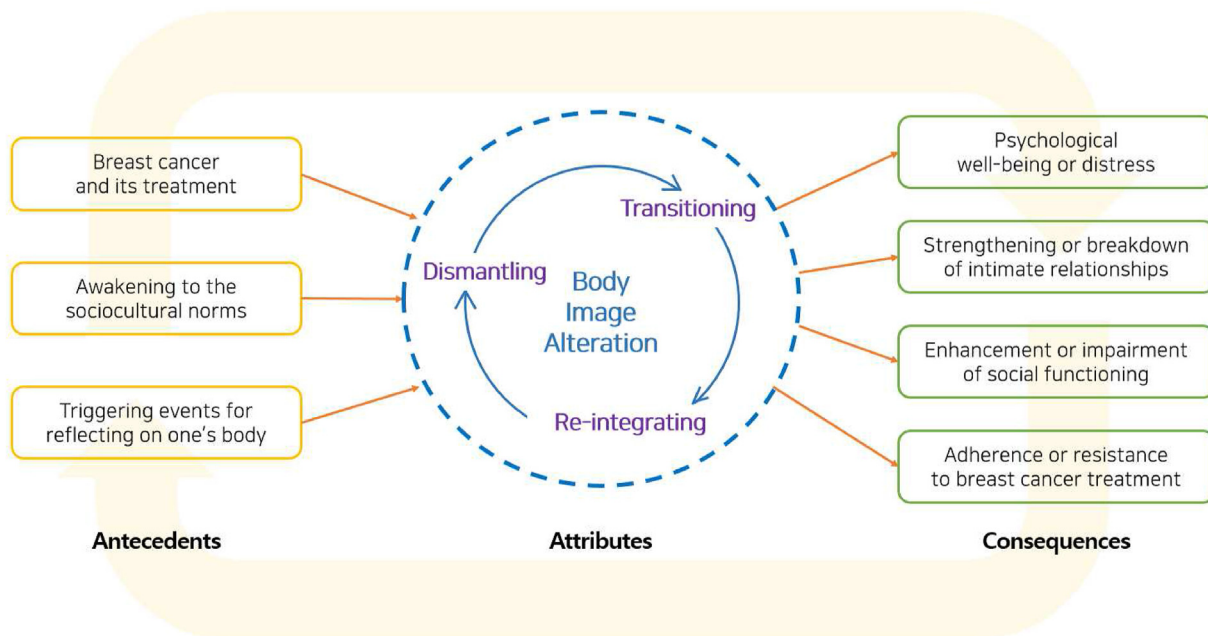


Fig. 2. The model of body image alteration of breast cancer women.

Awakening to the sociocultural norms of a feminine body

The second antecedent is the awakening to the sociocultural norms of a feminine body. Sociocultural norms refer to the symbolism given to female breasts, such as femininity, motherhood, and sexual attractiveness.^{17,27} Moreover, they also imply sociocultural expectations or standards for women’s appearances,^{16,28,32} as well as societal views or discourses toward women with breast cancer.⁴¹ Women diagnosed with breast cancer became increasingly conscious of the prevailing sociocultural norms, which function as external criteria for evaluating their own bodies.

Triggering events for reflecting on one’s body

The third antecedent entails triggering events that lead to reflecting on one’s body. This comprises both positive and negative events. Positive events include favorable feedback about one’s body,^{40,43} support from significant others,¹⁷ and the establishment of new romantic relationships.²² In contrast, negative events include unpleasant responses²¹ or discrimination from others²⁷ as well as reduced closeness to one’s partner.²³

Consequences

Consequences are events that follow the occurrence of the concept.³¹ Four consequences were identified, as follows (Fig. 2).

Psychological well-being or distress

The first consequence is psychological well-being or distress following the body image alteration. Psychologically well-adapted individuals experienced a sense of happiness,³⁷ satisfaction,²³ and improved self-esteem.²² In contrast, women who could not adjust to altered body image felt sorrow, depression, and anxiety,^{27,39} and regarded bodily changes as unacceptable psychological trauma.^{24,32} This led to emotional disorders²⁹ and suicidal ideation if it worsened.⁴³

Strengthening or breakdown of intimate relationships

The second consequence is the strengthening or breakdown of intimate relationships, which means changes in close relationships with significant others, including family or partners. Concerns about body image acted as a threat, resulting in the disconnection of relationships.²²

It not only caused problems in the functioning of the family, such as the performance of the role of mother and wife,³⁵ but also had adverse effects on sexual life.^{21,27} In contrast, positive body image acceptance promoted solidarity and satisfaction in intimate relationships through the establishment of supportive relations.^{15,38}

Enhancement or impairment of social functioning

The third consequence is the enhancement or impairment of social functioning. Women who were excessively conscious and concerned about bodily disclosures owing to negative body image avoided participation in social situations. This caused impairment of social functioning, including changes in interpersonal relationships,³³ career disconnection,¹⁵ and social isolation.⁴⁰ In contrast, women with breast cancer who positively accepted their new body image showed active social participation.⁴¹ This allowed them to enhance social functioning and resume their daily lives without perceived social restrictions following changes in their body image.⁴⁴

Adherence or resistance to breast cancer treatment

Finally, adherence or resistance to breast cancer treatment occurred. Women who rationalized body image alteration as a natural process for treatment, not only actively underwent treatments but also practiced health promotion behaviors to reach an optimal level of health.^{20,33,39} However, women who prioritized body image over breast cancer survival perceived treatments as a threat to their body image. Consequently, these women developed negative attitudes, such as avoidance, suspension, or refusal of treatment, to maintain or recover their body image.^{35,40}

These consequences ultimately act as antecedents of body image alteration by directly causing changes in physical health status or by indirectly acting as triggers that induce the reevaluation of the body. This feedback mechanism reinforces a positive or negative body image for female breast cancer survivors (Fig. 2).

Discussion

The concept of body image alteration in women with breast cancer was analyzed using Rodgers’ evolutionary method,¹³ and a conceptual model was developed. Although body image alteration itself has not been

clearly defined or conceptualized so far, approximately 2,000 articles were searched using related concepts across various disciplines. This demonstrated that body image alteration has been recognized as an important concept affecting the overall quality of life in women with breast cancer.

According to the *Oxford Handbook of Cancer Nursing*, “altered body image” is defined as “a state of disturbance when the person’s changed body image does not enable the person to experience their usual sense of self, or it inhibits their ability to engage in social interaction.”⁴⁵ This reflects the prejudice of existing studies that equate body image alteration with negative changes in body image. Similarly, to date, most studies conducted on patients with cancer, those with eating disorders, or the public, focused on negative body image.⁷ Given this limitations, it is crucial to explore positive changes in body image to provide a more comprehensive view.

Previous studies on the body image of breast cancer survivors have reported that women generally experienced a negative body image.⁷ However, some studies have shown that there was no significant difference in their body image compared to healthy women.^{46,47} Furthermore, there have also been results suggesting that women with breast cancer were satisfied with their changed bodies and had established an affirmative body image.^{20,34,48} Thus, criticism has recently been raised that studies must explore positive body image in women with breast cancer rather than assuming that they have a negative body image.⁴⁸

Research on positive body image, which implies “an overarching love and respect for the body,” has emerged,⁴⁹ primarily targeting the general population. Despite positive body image being distinct from the negative one, individuals can simultaneously experience both positive and negative body images.⁵⁰ In the conceptual framework of this study, the body image alteration of women with breast cancer represents a highly individualized, subjective, and dynamic mental process that is fluid without a specific direction. This comprehensive conceptualization enables the coverage of the spectrum from negative to positive changes in body image, breaking away from existing views that regard body image alteration itself as negative and problematic.

Moreover, this study encompasses physical, psychological, sociocultural, and interpersonal elements. Most studies have focused on visible changes in appearance as a key factor in body image alteration.⁷ However, this study included awareness of sociocultural norms for a feminine body and a myriad of triggering events as components that led to changes in body image. Wood-Barcalow et al suggested that biological, sociocultural, and interpersonal factors influence how individuals perceive and interpret their bodies.⁴⁹ Likewise, this study can provide a holistic view regarding body image alteration from a long-term perspective.

Additionally, this study presented psychological health regarding body image alteration, changes in intimate relationships and social functions, and adherence to breast cancer treatment as a consequence of the concept. This overcomes the limitations of existing studies that were constrained to mental and social outcomes⁹ by including the relational and physical elements repeatedly suggested in the literature.^{33,44} Given that the body image of women with breast cancer affects their overall quality of life,¹¹ this study can provide a better explanation about the phenomenon of interest.

Implications and hypotheses for future research

This study revealed that sociocultural norms of femininity and life experiences regarding one’s body are important antecedents causing body image alteration, in addition to actual physical changes. Therefore, interventions that aim to generate sociocultural awareness or induce positive cognitive thinking can be effective for enhancing body image. Additionally, this study emphasized that consequences act as antecedents to activate the feedback mechanism of the concept. This suggests that reinforcing positive outcomes and avoiding or overcoming negative outcomes eventually lead to positive changes in body image. Thus, the interest in body image alteration should not simply end immediately after treatment but persist through the survival period.

Strengths and limitations

This study is significant in that it has developed disease-specific explanations of the concept. Such an attempt can enable health professionals to understand the dynamics of body image alteration in women with breast cancer and to improve communication about the concept. This study can guide nurses on what aspects should be continuously observed and intervened in clinical practice with respect to body image related issues in women being treated for breast cancer. Thus, this could be a useful theoretical foundation for the development of related interventions.

The literature search in this study was rigorously conducted; however, it was restricted to articles written in English or Korean. Furthermore, to ensure the quality of each study, it only included peer-reviewed articles that excluded grey literature, which is helpful to supplement and broaden the identification of common uses of the concept. Therefore, it may cause the omission of meaningful information regarding body image alteration in women with breast cancer. Additionally, the findings of this study may not be generalizable to SGM women as articles focused solely on this population were excluded. Lastly, because each article was categorized by disciplines based on the affiliation of its first author, the actual academic field may have been misclassified. While this study cannot guarantee an absolute classification, it can contribute to providing insight into trends and perspectives of concept utilization in each discipline.

Conclusions

This study investigated the concept of body image alteration over time in the nursing discipline by comparing and analyzing the perspectives of each discipline. Using Rodgers’ evolutionary method, the attributes, antecedents, and consequences of the concept were extracted, thereby encompassing individual, interpersonal, and sociocultural factors, and both negative and positive changes in body image. This will provide an understanding of the overall dynamics of body image alteration in the context of breast cancer. Further studies on the empirical verification of the conceptual framework are required to strengthen the theoretical basis.

CRedit author statement

Jeonghee Ahn: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – Original draft, Writing – Review and Editing. **Eunyoung E. Suh:** Supervision, Formal analysis, Funding acquisition, Project administration, Writing – Review and Editing. All authors had full access to all the data in the study, and the corresponding author had final responsibility for the decision to submit for publication. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

Declaration of competing interest

The authors declare no conflict of interest.

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Ethics statement

Not required.

Data availability statement

The data that support the findings of this study are available from the corresponding author, E. E. Suh, upon reasonable request.

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