



## Strategies to Individualize Nutritional Care of Breast Cancer Survivors

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### ABSTRACT

**Introduction:** Breast cancer survivorship is a complex, chronic condition requiring personalized interventions. While nutrition is widely recognized as a key component of Survivorship Care Plans (SCPs), there is limited implementation of nutritional interventions in routine survivorship care. This discussion paper explores strategies to individualize nutritional care for breast cancer survivors (BCSs), identifies barriers to implementation, and proposes actionable solutions to improve adherence.

**Methods:** A comparative and analytical approach, drawing on peer-reviewed articles in key databases, policy reports, case studies, and international guidelines, was used to examine nutritional care and barriers to implementing SCPs for BCSs.

**Results:** Barriers to nutritional care stem from healthcare systems, including provider knowledge gaps, time constraints, and financial limitations. Patient-related factors include lack of awareness, fatigue, psychological barriers, perceived time barriers, and inconsistent family support.

**Discussion:** Recommendations for overcoming these challenges include enhanced healthcare provider training, integration of registered dietitians into care teams, and promoting remote nutritional interventions to improve accessibility. Additionally, involving family members in dietary interventions may improve long-term adherence.

**Conclusion:** By addressing these barriers through a coordinated multidisciplinary approach, nutritional interventions can improve the quality of life and long-term outcomes for BCSs, reducing the risk of recurrence, comorbidities, and improving their quality of life.

**Implications for nursing:** Nurses, as central figures in survivorship care, are ideally positioned to lead the development and implementation of SCPs, including nutritional counseling, but require formal training in evidence-based nutrition and communication strategies.

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### Introduction

With over 2 million new diagnoses of breast cancer in women in 2022, breast cancer is the second most common cancer worldwide.<sup>1</sup> Improvements in early detection and advances in treatments have contributed to an increasing number of survivors, with 91% of these women being alive 5 years after their diagnosis,<sup>2</sup> representing 40% of the total female cancer survivors (CSs) in the United States.<sup>3</sup> In 2020, there were an estimated 23,711 CSs in Europe, accounting for about 5.0% of the population, with breast cancer being the most prevalent among women.<sup>4</sup>

Cancer survivorship is a challenging, complex, and evolving process, with unique needs that require specialized interventions. The

report “From cancer patient to cancer survivor: lost in transition” initially published by the United States Institute of Medicine (2006),<sup>5</sup> laid the foundation for cancer survivorship care, and the need for development of Survivorship Care Plans (SCPs).<sup>6</sup> Since then, there has been an increase in attempts to meet the needs of CSs, and several areas that need to be included in SCPs have been identified: physical side effects, psychological side effects, social, work, and financial consequences of cancer, surveillance for recurrences/new cancers, and prevention and health promotion.<sup>7</sup> In addition, different organizations have developed guidelines for CSs, and given the significant number of breast CSs (BCSs), specific guidelines have also been developed for this group.<sup>3,6,8–10</sup>

Guidelines exist for BCSs, all emphasizing nutrition and physical activity as key interventions in this patient population, for prevention of recurrences and improving survivors’ quality of life (QoL). Nutritional interventions can also positively influence side effects of therapies, such as bone loss related to aromatase inhibitor use. Despite the

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## Layperson Summary

### What we investigated and why

Breast cancer is the second most common cancer in women, with millions of survivors worldwide. Survivorship, or living after the cancer treatments have finished, presents unique challenges that need personalized care. Nutrition plays a key role in improving the quality of life and reducing the risk of the cancer coming back. This paper discusses strategies to provide individualized nutritional care for these women.

### How we did our research

We reviewed scientific literature and guidelines from leading cancer organizations and created common themes.

### What we have found

We identified barriers that prevent effective nutritional care. These include a lack of healthcare provider knowledge, time constraints during appointments, and limited access to dietitians. Survivors themselves may face difficulties like financial constraints, lack of awareness, and emotional challenges, all of which can difficult healthy eating.

### What it means

Although nutrition is crucial for improving the quality of life for women after a breast cancer diagnosis and treatment, ensuring adherence to these recommendations remains challenging. To address this, we recommend training for healthcare professionals, improving access to dietitians, and using telehealth services to make nutritional support more accessible. Additionally, involving family members in the care process and offering psychological support can increase the success of these interventions. Nurses play a key role in ensuring adherence to these recommendations by coordinating care and involving multiple healthcare professionals.

upon peer-reviewed academic articles, policy reports, relevant case studies, and guidelines and recommendations from international scientific organizations such as the European Society for Medical Oncology, American Society of Clinical Oncology, National Comprehensive Cancer Network, National Cancer Institute, and the American Institute for Cancer Research to provide a comprehensive overview of the subject.

A targeted literature review was conducted in August 2024 using key scientific databases, including PubMed, CINAHL, and Cochrane, to identify relevant studies and systematic reviews on nutritional interventions for BCSs. A separate literature search was performed to explore barriers to the implementation of SCPs and nutritional interventions. The selected sources were chosen for their relevance, credibility, and recency to ensure a well-rounded discussion.

In addition to the review, these perspectives were critically analyzed, with a focus on identifying common themes, contrasting viewpoints, and the barriers impacting adherence to nutritional interventions. This process emphasized the importance of understanding the challenges in implementing effective nutritional care strategies.

Finally, the paper synthesizes these findings to propose actionable strategies aimed at enhancing the delivery and effectiveness of nutritional care for BCSs. These recommendations are designed to address existing barriers, improve adherence to care plans, and support more comprehensive survivorship care, ultimately fostering improved outcomes for this population.

## Results

It is well-established that maintaining healthy dietary habits that support an optimal body mass index, particularly for BCSs undergoing hormone therapy, is essential for achieving long-term disease-free survival and improving QoL.<sup>13,14</sup>

Despite strong evidence and consensus to promote nutritional interventions in CSs,<sup>8,10,13</sup> there is a lack of consistent implementation of nutritional interventions as well as adherence to SCPs. Several factors can influence the implementation of SCPs and lack of specific nutritional support during survivorship appointments. Some factors are related to the health care providers (HCPs) and health systems, while others arise from the BCSs themselves.

### Barriers to Implementation

#### Factors Related to Health Care Systems and HCPs

Barriers related to health systems and HCPs have emerged as significant factors. A lack of knowledge and awareness about the latest nutritional guidelines and evidence-based interventions for BCSs can hinder the delivery of effective nutritional care. Time constraints are a significant issue in many clinical settings, where healthcare professionals may have limited time during patient consultations to adequately address nutritional concerns or provide personalized advice. In addition, the lack of reimbursement for nutritional counseling or dietary interventions can discourage healthcare providers from prioritizing this aspect of survivorship care. Moreover, the complexity of nutritional interventions, particularly when they need to be tailored to individual patient needs and comorbid conditions, can make it challenging for providers to implement these strategies consistently. This complexity is further compounded by the need for multidisciplinary collaboration, which may be difficult to coordinate in fast-paced clinical environments (Table 1).

#### Factors Related to BCSs

Barriers related to BCSs have also been identified and encompass a wide range of challenges. A lack of knowledge and awareness about the importance of nutrition and its role in survivorship care can hinder engagement. Financial constraints may limit access to quality

clear benefits that nutrition and physical activity offer in improving outcomes for (BCSs), there remains a significant gap in the integration of nutritional guidance into routine survivorship care. While early detection of recurrence is understandably a priority, the role of tailored nutritional interventions in reducing recurrence risk and managing treatment-related side effects is often underemphasized. The lack of consistent focus on nutrition during follow-up appointments leaves a crucial gap in comprehensive survivorship care, potentially limiting the overall QoL improvements that could be achieved. This gap highlights the need for a more proactive approach to nutrition as a core component of SCPs.

This discussion paper explores the strategies to individualize nutritional care for BCSs, addressing the barriers to implementation and proposing actionable solutions to improve adherence to SCPs, reducing risk of recurrence and increasing the QoL of this vulnerable population.

Most organizations define CSs as individuals from the time of diagnosis through the balance of life.<sup>11</sup> However, the present paper will focus on BCSs who have completed active treatment for cancer and are in the extended survivorship (from the end of treatment to 1-5 years), permanent survivorship, or long-term survival ( $\geq 5$  years after the end of active treatment and in clinical remission).<sup>12</sup>

## Methods

This discussion paper adopts a comparative and analytical approach to examine nutritional care for BCSs. The discussion draws

**TABLE 1**  
Barriers to Implementation of Nutritional Interventions

Health Systems and Healthcare Providers (HCPs)	Breast Cancer Survivors (BCSs)
Lack of knowledge and awareness	Lack of knowledge and awareness
Time constraints	Financial constraints
Lack of reimbursement	Fatigue
Complexity of interventions	Psychological barriers
	Lack of personalized interventions
	Lack of family inclusion
	Conflicting information
	Comorbid conditions

nutritional resources, such as consultations with dietitians or the ability to purchase healthy foods. Fatigue, which is a common side effect of cancer treatment, can reduce the energy and motivation to implement healthy eating habits. Psychological barriers, such as anxiety, depression, or emotional distress, can further impede adherence to nutritional guidelines. The fear of recurrence can also lead to confusion or hesitation about which nutritional advice to follow, particularly when BCSs are exposed to conflicting information from healthcare providers, the media, or social networks. This can lead to confusion and mistrust of dietary advice. The absence of personalized interventions can result in generic dietary recommendations that fail to address the specific needs of BCSs, making it harder for them to adhere to interventions. Additionally, comorbid conditions, such as diabetes, hypertension, or cardiovascular diseases, complicate dietary choices, making it difficult to balance nutritional needs with other medical conditions. Lastly, a lack of family inclusion in the care plan may isolate survivors and reduce support at home, further challenging adherence to nutritional recommendations (Table 1).

## Discussion

In this discussion, we outline strategies to customize nutritional care for BCSs and offer practical solutions aimed at improving adherence to these individualized plans.

### Strategies to Individualize Nutritional Care for BCSs

Acknowledging the complexity of the subject, the authors of this paper, drawing on their experience in nutrition care, BCSs consultations, and related research propose several strategies aimed at addressing and overcoming these barriers (Table 2).

For instance, HCPs, including nurses and physicians, need to receive specific information and training regarding the impact of nutrition in survivorship care. While HCPs are usually aware of the importance of nutrition for health promotion and disease prevention, they may be unaware of the specific impact of these interventions in BCSs, such as postmenopausal women who are obese having an estimated 20% to 60% higher risk of dying of breast cancer, which could be reduced by an adequate nutrition that promotes a standard weight (body mass index 18.5–24.99).<sup>14</sup> Therefore, institutions should provide ongoing specific training for healthcare workers about the latest evidence-based nutritional guidelines and interventions for BCSs.

All healthcare professionals involved in the care of BCSs should also be trained in addressing nutritional needs in a culturally sensitive and nonjudgmental manner. This involves understanding the diverse cultural backgrounds and dietary practices of patients, as well as recognizing socioeconomic factors that may influence their food choices. This can be achieved through educational programs that enhance the communication skills of the professionals, which is critical for successfully implementing nutritional interventions and are culturally aware and diverse. HCPs who are confident in their ability to communicate nonjudgmentally with their patients are better positioned to foster trust and encourage open dialogue about

**TABLE 2**  
Recommendations to Overcome Barriers

Recommendations	Description
Training for HCPs	Provide ongoing education on nutrition in breast cancer survivorship.
Culturally sensitive communication	Train HCPs to communicate nonjudgmentally, promote cultural sensitivity and motivational interviewing techniques.
Routine nutritional discussions	Integrate nutrition into routine care using SCPs.
Use of SCPs	Implement SCPs to address all the complex needs of BCSs.
Nurse involvement	Empower nurses to coordinate SCPs and address chronic needs.
Referral to dietitians	Routine referrals to dietitians for personalized nutritional care.
Advocate for reimbursement	Advocate for better funding and reimbursement for RD services.
Collaborative care	HCPs handle brief counseling; RDs offer personalized care. Social workers and psychologist provide financial and emotional support.
Family involvement	Engage families to support survivors, encourage healthy eating habits, and promote long-term adherence.
Telehealth and eHealth	Use remote interventions to increase access and reduce costs.

nutritional habits and address concerns that might be perceived as sensitive by the patients, particularly when increased body weight is of concern for BCSs. One effective approach to achieving this is using motivational interviewing,<sup>15</sup> a patient-centered communication technique that helps patients explore their own motivations for change and set realistic, self-determined goals. HCPs can use motivational interviewing to guide patients in identifying barriers to better nutrition and devising personalized strategies for overcoming these challenges. By adopting a nondirective, supportive approach, HCPs, as facilitators, encourage patients to take the lead in their interventions, enhancing their sense of autonomy and responsibility, ultimately leading to more sustainable, long-term improvements in dietary behavior.

In addition, referrals to registered dietitians (RDs) specializing in cancer care should be offered throughout the survivorship journey, both as a routine practice and in response to specific concerns such as weight gain or suboptimal eating habits.<sup>16</sup> Unfortunately, despite strong efforts and recommendations, the integration of specialized dietitians in healthcare settings is still underutilized.<sup>17</sup> These services oftentimes receive limited funding, and there is lack of standardized recognition of their role within the multidisciplinary team. Moreover, inconsistencies in reimbursement models and differing priorities in preventative or primary care further challenge the integration of these services into the healthcare system. To address this, healthcare professionals, including nurses, should advocate for the reimbursement of nutritional services as part of high-quality standards of care.

Integration of RDs can also aid in other perceived barriers such as time constraints and lack of specialized knowledge. Nurses are ideally positioned to detect needs and initiate brief counseling for patients regarding nutrition, whereas more in-depth and personalized interventions should be performed in coordination with RDs specializing in cancer and survivorship care. These recommendations are in line with patient preferences, as they have previously reported an interest in receiving specific and detailed dietary recommendations,<sup>16</sup> which may not be feasible within a nursing or physician appointment.

Further referrals and interdisciplinary collaboration should involve social workers and behavioral health professionals when appropriate. Social workers play a crucial role in helping patients navigate the healthcare system and in providing resources to mitigate the financial toxicity associated with cancer treatment.

Additionally, psychological support should be made available to all survivors, as effective management of perceived stress and anxiety may also enhance adherence to recommended nutritional guidelines.

Moreover, nutritional interventions should focus not only on the survivors themselves but also promote the involvement of family members. Families provide emotional support, help survivors stay accountable, and create a positive environment,<sup>18</sup> that encourages healthy eating habits. By offering encouragement and participating in meal planning or preparation, family members can reinforce nutritional goals, making it easier for survivors to adhere to recommended dietary changes. Additionally, a supportive family dynamic can help alleviate stress, which may otherwise hinder the adoption of healthier lifestyle behaviors. This collective approach helps alleviate the burden on survivors, increases motivation, and fosters a shared sense of commitment, ultimately improving long-term adherence to the proposed interventions, a challenge that has been highlighted in previous studies.<sup>19</sup>

Finally, we recommend the implementation of personalized nutritional interventions through telehealth, offering a feasible solution to overcoming geographic, time, and accessibility barriers. Remote interventions can increase accessibility to these services and decrease the overall cost of care, a barrier often encountered by healthcare systems and patients. Additionally, telehealth can decrease the time commitment required for patients, eliminating the need for travel and reducing the number of in-person appointments, which can be particularly burdensome for those transitioning back to work. By minimizing transportation costs and easing the logistical challenges of attending multiple appointments, telehealth interventions have the potential to alleviate the financial strain and improve the QoL of survivors.<sup>20</sup> Emerging evidence also supports the effectiveness of eHealth interventions, even among older populations who have become more familiar with using technology, further reinforcing the feasibility of this approach.<sup>21</sup>

#### *Actionable Solutions for Improving Adherence*

Given the available evidence and guidelines, it is essential that discussions and recommendations regarding diet and nutrition be integrated as a routine part of patient assessment and interventions during both treatment and survivorship. Incorporating these elements into the standard care pathway will ensure that nutrition is consistently addressed as a critical factor in the overall well-being and long-term health outcomes of BCSs. SCPs help ensure that all survivor needs, including nutritional support, are addressed. They also facilitate the involvement of family members in discussions and provides referrals to specialized services such as nutrition counseling, social work, or behavioral health.

One approach to achieving this routine integration, despite some conflicting evidence, is through the consistent use of SCPs, which are designed to promote adherence to integrated and holistic interventions.<sup>6</sup> SCPs serve as a valuable tool for addressing the specific need of CSs and coordinating their complex care requirements. Despite the difficulty in SCPs implementation due to being time and resource-consuming,<sup>22</sup> these tools continue to be recommended for addressing the needs of CSs.

Nurses can play a pivotal role in the design, implementation, and monitoring of SCPs,<sup>23</sup> as they are key professionals for the coordination of complex and chronic needs. Nurses have long demonstrated their abilities for the assessment, management, and coordination of chronic comorbidities and illnesses, which makes them the ideal professional to address the complex needs of BCSs.<sup>24</sup>

#### **Conclusion**

The importance of targeted nutritional interventions for long-term BCSs is well-established, with survivors expressing a clear

interest in receiving dietary recommendations and support. Despite this, consistent implementation of such interventions remains a challenge in practice. Multiple barriers, ranging from limited patient education and healthcare provider training to inadequate access to nutritional resources and insufficient integration of SCPs, have been identified in the literature. Addressing these barriers requires a coordinated, multidisciplinary approach that promotes patient education, enhances healthcare provider competencies, and ensures better access to nutritional resources, supported by policies that integrate SCPs into routine care.

By addressing these barriers through a collaborative and multidisciplinary strategy, nutritional interventions can be more effectively delivered, contributing to better health outcomes and long-term sustainability for BCSs.

Finally, we believe that personalized nutritional interventions not only benefit BCSs but may also positively impact the health of their families, reducing the risk of comorbidities, cancer recurrence, or the development of new malignancies. These interventions have also the potential to lower overall healthcare costs by preventing chronic disease and enhancing survivorship QoL.

#### **Strengths and Limitations**

This discussion paper draws its recommendations for implementing nutritional interventions in breast cancer survivorship care on well-established national and international guidelines, supported by systematic reviews and meta-analysis of existing literature. In contrast, several limitations should be considered regarding the implementation strategies proposed by the authors.

The authors highlight that this is a discussion paper; therefore, a systematic literature review was not conducted before formulating these strategies. In addition, while evidence-based recommendations are provided, some creative insights reflect the authors' personal experiences and perspectives. Furthermore, some of the proposed implementation strategies have not yet been fully tested by research; therefore, the authors advise caution and recommend further randomized-controlled trials before the systematic implementation of these strategies.

#### **Implications for Nursing**

Nurses are uniquely positioned to develop and implement SCPs consistently across clinical practice. By advocating for SCPs as a standard component of survivorship care, nurses can ensure that nutritional interventions are seamlessly integrated into routine patient care. Given that cancer and survivorship are long-term, chronic conditions, nurses play a critical role in educating and empowering both patients and their families to adopt and maintain healthier lifestyle practices, including nutrition.

However, to fulfill this role effectively, nurses must be adequately supported by healthcare systems and receive formal, specialized training. This training should encompass evidence-based specific knowledge on nutritional needs of BCSs, skills in motivational interviewing to promote behavior change and brief counseling techniques. Additionally, nurses need to be proficient in coordinating care and making appropriate referrals to RDs and other relevant professionals. With the right training and support, nurses can enhance the quality of survivorship care, ensuring that nutritional needs are met as part of a comprehensive, multidisciplinary approach to long-term cancer care.

#### **Declaration of Generative AI and AI-assisted Technologies in the Writing Process**

During the preparation of this work, the authors used ChatGPT to improve language and detect errors in references and formatting.



After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### CRediT authorship contribution statement

**Irati Rodríguez-Matesanz:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Conceptualization. **Nathan Schober:** Writing – review & editing, Methodology, Conceptualization. **Cristina García-Vivar:** Writing – review & editing, Methodology, Conceptualization.

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