European Journal of Oncology Nursing 25 (2016) 90–99

Contents lists available at ScienceDirect

European Journal of Oncology Nursing

journal homepage: www.elsevier.com/locate/ejon

Web based survivorship interventions for women with breast cancer: An integrative review

Kathryn E. Post [a, b, *], Jane Flanagan [a, b]

[a] Boston College William F. Connell School of Nursing, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA
[b] Massachusetts General Hospital, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA

ARTICLE INFO

Article history:
Received 8 July 2016
Received in revised form
23 September 2016
Accepted 19 October 2016

Keywords:
Breast cancer
Survivorship
Intervention
Web-based

ABSTRACT

Purpose: Breast cancer survivors' experience a range of negative sequelae post-treatment including depression, anxiety, physical side effects from treatment, sexuality concerns and decreased quality of life. Survivorship care is recommended by the IOM to meet the post treatment needs of survivors but implementation is variable and barriers to delivery such as time and resource restraints have been identified. Web-based interventions may be a way to overcome some barriers to providing quality survivorship care that is efficacious, cost efficient and convenient. The purpose of this integrative review is to summarize and synthesize the current research on web-based interventions for breast cancer survivorship care and evaluate the data to determine potential implications for practice.

Methods: The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to guide this integrative review. Key search terms included *breast cancer, survivor, intervention, web, internet and technology.* Articles evaluating web-based survivorship interventions (n = 405) for early stage breast cancer patients who completed active therapy were included.

Results: Fifteen studies met inclusion criteria: six randomized controlled trials, six survey based studies, one qualitative study, one retrospective chart review and one mixed methods study. Studies evaluating cognitive behavioral therapy provided the strongest data. Other studies evaluated exercise and lifestyle interventions, symptom management programs and pilot/exploratory work. Findings suggest that web-based survivorship interventions are feasible and acceptable to breast cancer survivors.

Conclusions: Web-based survivorship interventions have the potential to meet the needs of breast cancer survivors while possibly overcoming some of the documented barriers to survivorship care implementation.

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1. Introduction

The American Cancer Society (ACS) estimates that there are 15.5 million cancer survivors living in the United States (US) currently, and that 3.1 million of these are breast cancer survivors (ACS, 2016). As early detection methods and therapies improve, these numbers will only continue to grow. This is particularly notable in breast cancer where the National Cancer Institute (NCI) estimates that 89.4% of women diagnosed with loco-regional breast cancer (involving the breast and regional lymph nodes) will survive beyond 5 years (NCI, 2015).

Despite favorable prognoses and improvements in treatments, breast cancer survivors experience a range of negative sequelae following primary cancer treatment including depression, anxiety, high distress and decreased quality of life (QOL), physical side effects from therapy and employment/financial and family problems (Head et al., 2012; Pauwels et al., 2013; Ploos Van Amstel et al., 2013; Runowicz et al., 2015; Schumacher et al., 2013).

Coordinated care is also a challenge for breast cancer survivors. When pre-existing or co-occurring health problems occur during treatment, the patient is often referred to a specialist as opposed to involving their primary care provider. As a result, many specialists (cardiology, endocrinology, gynecology) can be added to the care team during treatment, which adds to the complexity of care and often leaves the primary care provider out of the loop (Hewitt et al., 2004). Taplin and Rodgers (2010) suggest care coordination and sharing of information is central to survivorship care delivery,

* Corresponding author. Boston College William F. Connell School of Nursing, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA.
E-mail addresses: postk@bc.edu (K.E. Post), jane.flanagan@bc.edu (J. Flanagan).

http://dx.doi.org/10.1016/j.ejon.2016.10.004
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particularly around transitions such as the transition patients experience from active therapy to follow up care. Further, they indicate transitions are critical time periods in the cancer care journey and represent opportunities to improve the quality of care if managed successfully. Survivorship care (SC) as recommended by the Institute of Medicine (IOM) (Hewitt et al., 2006), the American Society for Clinical Oncology (ASCO) (McCabe et al., 2013) and the National Cancer Institute (2016) is intended to approach this critical gap in care by addressing the many lasting effects (both physical and psychosocial) of treatment and improving care coordination between providers.

Web-based interventions may be an effective strategy to improve care coordination and provide quality breast cancer survivorship care that is efficacious, cost efficient and convenient. However to date, little is known about breast cancer survivorship care delivered by this format. This integrative review aims to explore and evaluate the research on web based survivorship care for breast cancer survivors and determine what strategies are appropriate for further research aimed at improving the survivorship care of these patients.

2. Background

2.1. Survivorship

The NCI (2016) states cancer survivorship begins at the time of diagnosis and continues through the end of life. Also included in this definition are family members and loved ones impacted by cancer (NCI, 2016). The IOM report *From Cancer Patient to Cancer Survivor: Lost in Transition* considered SC as beginning once active treatment is complete. Because the focus of this review is on post-treatment sequelae, the IOM's definition frames this review.

The IOM report identified four essential components of survivorship care: prevention of recurrent and new cancers, surveillance for cancer spread, intervention for consequences of cancer and care coordination. Now a decade later, there are a plethora of SC interventions utilizing various care delivery models (in person visits, web-based interventions, mobile apps). Despite the many existing models of SC that do exist, many do not include the four components of SC or meet the ideals put forth in the IOM report.

First, there is a lack of consistency across cancer centers in delivering SC. In a recent study of 23 cancer programs in the US, Birken et al. (2013) reported that less than 25% reported providing a SCP to their patients. Secondly, barriers to SC delivery and implementation have been identified including limited staffing, funding, clinician time, onerous SCP templates and unknown best practices regarding delivery modality (i.e. in person, web-based, phone, mobile apps) (Birken et al., 2013; Dulko et al., 2012; Mayer et al., 2015). These barriers likely contribute to the paucity of evidence supporting improved patient outcomes resulting from SC. This makes it more challenging to advocate for the necessary resources to be directed towards SC (Mayer et al., 2015).

2.2. Survivorship care via technology

Technological approaches to SC delivery such as phone, web-based and mobile technology have been suggested as a way to overcome some of these barriers (Fosdal, 2014; Rechis et al., 2011). However, the efficacy of and patient outcomes associated with them are lacking; especially with regard to the emerging role technology will play in the delivery of SC (Earle and Ganz, 2012; Jefford et al., 2015; Mayer et al., 2012).

Findings from studies exploring the needs of women with breast cancer post treatment suggest women desired web based interventions as a way to facilitate this time period (Flanagan et al., 2016; Flanagan et al., 2012). Women reported that they wanted to stay connected to their oncology providers during the transition to and throughout survivorship. They expressed the desire for follow up care via a website because this format would be convenient and not require trips into the hospital. Marbach and Griffie (2011) noted patient support for electronic delivery of SC to decrease additional visits to the clinic. O'Malley et al. (2016) also reported that survivors preferred to receive survivorship information via a website as opposed to phone or patient navigator interventions.

Technological approaches have the potential advantage of decreasing costs to the clinic by reducing the staff and time needed to conduct face-to-face interviews. For patients, web-based interventions may also reduce costs in terms of the time and travel needed to attend such visits, and further allow patients to use the interventions at their convenience. This may enhance participation in such SC programs and facilitate communication with the oncology team. Lastly, care coordination between oncology providers and primary care may be improved by utilizing technology in care delivery (Fosdal, 2014; Kellerman and Jones, 2013).

It is important for clinicians to know how best to spend their resources when developing new models for SC. An evaluation of the available evidence is needed to document whether using technology as a model for SC delivery is feasible, cost-efficient and efficacious for breast cancer survivors and oncology clinicians. To date, there has not been a review examining web-based interventions as the primary delivery modality with regard to the breast cancer survivor population. As breast cancer patients represent a large proportion of all cancer survivors and have been shown to be high users of SC (Hill-Kayser et al., 2013; Hill-Kayser et al., 2012) it is imperative to document best practices.

Reviews to date have examined the use of technological approaches to certain aspects of SC such as lifestyle interventions and psychological well-being (Goode et al., 2015; Leykin et al., 2012). Goode et al. (2015) examined telephone, web-based and print approaches to physical activity and diet interventions for cancer survivors and found some support in favor of these delivery modalities in that almost three quarters of the studies met study outcomes. Leykin et al. (2012) found that web-based interventions could provide unmet needs for psychological care in cancer survivors but that more rigorous studies were needed to advance the field. However, there are many survivorship topics that have been largely unexamined in a review format.

3. Methods

3.1. Search strategy

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to guide this integrative review (Moher, Liberati, Tetzlaff, Altman, The PRISMA Group, 2009). Individual search strategies were developed and performed with the assistance of a research librarian for the following databases: MEDLINE/Ovid, CINAHL, Embase, PubMed, Scopus and Cochrane Library. The following search terms were targeted: breast cancer, survivorship, technology, Internet and web. As the use of technology platforms such as smartphones, notebook and other accessible devices have blossomed in the last 6 years, articles published between January 2010–February 2016 were considered for this review (Pew Research Center, 2016). This search strategy yielded 405 sources after removing exact duplicates.

3.2. Eligibility criteria

A study was considered eligible for this review if a web-based design was used as the primary delivery mode for SC

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