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REVIEW ARTICLE

Exploration of return-to-work interventions for breast cancer patients: a scoping review

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Abstract
Purpose Many women who have been diagnosed with breast cancer (BC) would like to return to work after undergoing cancer treatment. This review explores the nature of interventions addressing return to work (RTW) for this population.
Method A scoping review was conducted using the Arksey and O'Malley framework. A search was conducted in five bibliographic databases from 2005 to 2015 to identify intervention studies. Article selection and characterization were performed by two reviewers using systematic grids. Themes were identified to construct a narrative summary of the existing literature.
Results The literature search identified 17 articles published between 2005 and 2015. The interventions (n = 16) vary in terms of objectives, methodology, description of intervention activities, and period of deployment. Only one intervention referred to a theory linked to RTW. The results further show that nearly 44% of the interventions found provided only information on RTW (information booklet, individual meeting, group session). Only 38% of the interventions were work-directed and offered other activities, such as coordination of services and information, as well as instructions for drawing up an RTW plan. More than 80% of the interventions were provided by health care professionals. Interventions took place during the survivorship period (75%), at the hospital (44%), or an external rehabilitation center (38%).
Conclusion The variability of interventions found indicates the need to clarify the concept of RTW after a BC diagnosis. Recommendations are made for the development of multicomponent interventions that include both the clinic and the workplace to meet the particular needs of this population.

Keywords Intervention · Return to work · Breast cancer · Cancer survivors · Scoping review

Introduction

Over the past few decades, the number of cancer survivors in industrialized countries has climbed steadily, thanks to major advances in cancer care. By 2020, there will be more than 20 million cancer survivors in the USA, nearly 20% of them are women diagnosed with breast cancer (BC) [1]. In addition to monitoring for cancer recurrence, rehabilitation is also necessary "to overcome the limits of the cancer and its treatments and engage in valued activities of everyday life" [2]. BC survivors have specific needs in terms of social concerns [3], including work and activities of daily living. Resuming one's working role is considered an important aspect of life after cancer, since it fosters the continuation of social interactions, self-esteem, financial security, and psychological well-being [4–7]. However, RTW after BC entails challenges associated with the recurrent effects of the cancer or treatments (e.g., fatigue, pain), as well as challenges associated with the workplace (e.g., lack of support, discrimination, being fired,

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stigmatization) [4, 8, 9]. Considering the challenges of RTW, some authors have suggested that interventions should primarily target three needs identified by patients: planning a structured RTW based on a social, physical, and psychological work role and environment assessments [9, 10], evaluating the effects of the illness and treatments that impact the capability of returning to work (e.g., severe fatigue, brain fog) [7, 10], and making accommodations in the workplace to facilitate the integration of the patient (e.g., flexible working hours for medical visit, adaptation of working tasks depending of the severity of the late side effects) [9, 11].

Two systematic reviews have attempted to pinpoint which interventions were the most effective in facilitating RTW after a cancer diagnosis. The objective of the review by Hoving, Broekhuizen, and Frings-Dresen [12] was to list the effects and characteristics of interventions that promote a successful RTW for a target group affected by BC. That review found four studies published between 1970 and 2007 that proposed interventions that included physical recovery and psychoeducation activities. The authors concluded that the state of knowledge at that time made it impossible to determine with any certainty which interventions were most effective. They also noted the lack of studies on interventions that focused specifically on RTW. The objective of the study by De Boer, Taskila, Tamminga, Frings-Dresen, Feuerstein, and Verbeek [13] was to evaluate the effectiveness of interventions designed to culminate in RTW after a cancer diagnosis. The 15 studies that were selected, released between 1983 and 2013, led to the conclusion that multidisciplinary interventions with a multifaceted approach (physical, psychoeducational, vocational) appear to be most promising, despite the fact that their quality was deemed to be only in the medium range. The two reviews present some pathways to interventions that should be given priority. However, there was very little information on or description of activities specifically addressing RTW as part of these interventions.

As a result, a broader understanding of RTW interventions for BC survivors appears to be essential in guiding the development of new interventions. This article aims to offer an overview of published interventions that address RTW for BC survivors. The three specific objectives of this scoping review are (1) to conduct a systematic search for published articles presenting an intervention addressing RTW for BC survivors, (2) to list the characteristics of such interventions, with specific origins, theoretical foundations, proposed RTW activities, professionals involved, setting, and time of deployment, and (3) to put forward recommendations to adapt RTW interventions to BC survivors.

Method

A scoping review was conducted, using the reference framework developed by Arksey and O'Malley [14] and the recommendations made by Levac, Colquhoun, and O'Brien [15]. A five-step process was followed: 1) identify the research question, 2) identify relevant studies, 3) choose studies based on criteria for inclusion and exclusion, 4) list data organized by themes and major issues, and 5) group, summarize, and report the results in order to draft a summary description.

Step 1 A broad research question was determined, using the PICO-TT framework [16]: How do interventions offered to women diagnosed with BC approach RTW?

Step 2 Relevant studies were found in five databases: SCOPUS, CINAHL, MEDLINE, Social Work Abstract, and PsycINFO, between 2005 and 2015. This time frame was based on publication of the international consensus about the primary therapy for early BC [17] that may impact the effects of treatment and ultimately on RTW. The databases were chosen because they cover a broad array of disciplines. The following keywords were used for the search: ["vocational" OR "employment" OR "absenteeism" OR "occupation"* OR "return to work" OR "work retention" OR "job retention"] AND ["breast cancer" OR "breast cancer survivors" OR "rehabilitation"] and ["program" OR "intervention"]. The literature review was adapted to meet the requirements for each database, working with a librarian specializing in the health sciences.

Step 3 The following criteria were used for inclusion: 1) the existence of a detailed description of an intervention with a component designed to address RTW, 2) a sampling that included adult women diagnosed with BC, and 3) article written in English or French. Articles that did not present research findings and primarily covered the topics of lymphedema, menopause, or fear of recurrence were excluded. Article selection was a three-step process. First, titles and abstracts were examined based on the selection criteria. Next, the chosen articles were read closely and those that did not meet the selection criteria were excluded. Finally, the chosen articles were validated with co-authors of this manuscript (K Bilodeau, D Tremblay, MJ Durand).

Step 4 In order to classify the data under relevant themes, a table was drawn up based on the *TIDieR checklist and guide* [18]. This guide was developed by a team of experts based on standards for describing clinical interventions in scientific articles. Using the *TIDieR checklist and guide* enabled us to conduct a systematic analysis of the nature of interventions based on the following: study (authors, year, country) why (goals, rationale), what (activities/processes), how, how much, who provided, where, when, and tailoring (see Appendix A).

Step 5 In order to group, summarize, and report the results, the authors compared and discussed data collated from the table (Table 1). Some of the themes inspired by the *TIDieR checklist*

Table 1 Detailed intervention

Study	Why rationale/theory	What activities/processest	How	How much	Who provided	Where	When	Tailoring
Bertheussen et al. 2012 [19] Norway	N/A	Physical training: • Aerobic capacity—indoor and outdoor activities	Face-to-face	20 min 2×/day	MD or nurse or physiotherapist or trainer, psychologist or social worker, or sex therapist	Rehabilitation center	After primary cancer treatment	Individual consultations were provided on request.
		Cognitive approach focusing on dysfunctional thinking, behavior, and emotional responses	Group discussions	25 h				
		Patient education on: • Psychological reaction and distress management, coping strategies, work situation, partnership, cancer disease, treatments, side effects, physical training, nutrition	Lectures and group discussion	15 h *3 weeks (15 days) + 1 week for follow-up stay (8 à 12 weeks post)				
Cimprich et al. 2005 [20] USA	Taking CHARGE intervention builds on two theoretical frameworks: -Mullan's (1985) [21] definition of stages of cancer survivorship -Bandura's (1986) [22] social cognitive theory.	Psycho education sessions on (session #1 and #4): • Pychological well-being (e.g., fear, loss, anger), personal and social relationships and resuming valued life roles (including work-related issues)	Group discussions	Two group sessions	Nurse practitioner and health educator	Hospital	After primary cancer treatment	Taking CHARGE approach: women chose to work on one concern that was most relevant to their survivorship.
		Patient education on (session #2 and #3.): • Symptoms and side effects of treatment • Healthy lifestyles		Telephone *2-week intervals over a 7-week period	Two telephone sessions			Telephone sessions were tailored to patient needs.

Table 1 (continued)

Study	Why rationale/theory	What activities/processest	How	How much	Who provided	Where	When	Tailoring
Groeneveld et al. 2013 [23] Netherlands	The program was adapted from the evidence-based exercise program of De Backer et al. (2008) [24]	Physical training (interval and resistance)	Face-to-face	1-h/twice a week *12 weeks	Physiotherapist	Fitness center	After primary cancer treatment	Individual program
Hauken et al. 2015 [25] Norway	Focus on prospective, longitudinal lifestyle interventions such as physical activity and psychoeducation to improve and sustain long-term health and HRQOL	Physical training (individual workout, group activities)	Individual or group	2–3×/day	Rehabilitation medicine or physiotherapist, or nurse, nutritionist or social worker	Rehabilitation center	After primary cancer treatment	Individual consultation
		Individual counseling and follow-up: • Setting goals (self-care, productivity, leisure)	Face-to-face	1 week, 3 and 6 months				
		Peer support	N/A	N/A				
	The physical exercise across the Cancer Experience (PEACE) framework (Courneya et al., 2001 [26]) Model of quality of life of cancer survivors (Ferrell et al., 1995 [27])	Psychoeducation sessions (cognitive therapy used): • Each session was constructed in the same way with an introduction, training and discussion session, homework, and reading. Cognitive therapy was used. Various themes including "Education and Work."	Lectures and group discussion	Seven sessions (90 min) *3 weeks of residential rehabilitation				
Hegel et al. 2011 [28] USA	Problem solving and occupational therapy intervention (PST-OT) Person, environment, and occupation model (Law et al., 1996 [29])	PST-OT intervention sessions: (1) Exploration, clarification, and definition of the participation restriction (2) Setting a goal (3) Brainstorming alternative solutions (4) Decision analysis of each solution (5) Choosing a solution (6) Implementing the solution (or action plan)	Telephone	Session 1: around 70 min Sessions 2 to 6: around 35 min *Weekly basis for 6 weeks	OT	N/A	During primary cancer treatment	The goal, solutions and action plans came from the participant. 13% of participants chose a work issue

Table 1 (continued)

Study	Why rationale/theory	What activities/processest	How	How much	Who provided	Where	When	Tailoring
Hershman et al. 2013 [30] USA	N/A	Patient information: • Facing forward: Life after cancer treatment was given (included employment and insurance) Individual consultation on: • Surveillance, recommendations, late side effects, screening, healthy lifestyle	Informational materials Face-to-face	N/A 1 h	Nurse practitioner and dietician	Hospital	After primary cancer treatment	Individual consultation
Hubbard et al. 2013 [31] UK	Biopsychosocial model and multidisciplinary approach	Case management that includes: Patient information: • Work and cancer Assessment of supportive care needs to facilitate work retention or return and coordination of care/services that address: • Cancer-related and treatment side effects (e.g., fatigue, mood changes) • Job-related issues	Informational materials Telephone	N/A	Physiotherapist or OT or occupational nurse or occupational physician or psychologist or CAM therapist	Working Health Services	After primary cancer treatment	Individual consultation to all relevant disciplines
Khan et al. 2012 [32] Australia	N/A	Individual consultation to all relevant disciplines	Face-to-face	Up to three 1-h individual sessions*/week *This comprised half-hour blocks of therapy two–three times per week for up to 8 weeks.	OT or physiotherapist or psychologist or social worker	Rehabilitation outpatient unit	After primary cancer treatment	Interventions based on patient needs and team consensus. Individual counseling on request (e.g., OT for return to work)

Table 1 (continued)

Study	Why rationale/theory	What activities/processest	How	How much	Who provided	Where	When	Tailoring
Korstjens et al. 2006 [33] Netherlands	Graded activity theory (Vlaeyen et al., 1993 [34])	Physical training: • Individual training, group sports, aqua aerobics	Face-to-face	2 h/twice a week	Physiotherapist or oncology nurse or psychologist or social worker or dietician	Rehabilitation center	After primary cancer treatment	Individual physical training
	Group format provided opportunities for: -Social comparison -Social support -Modeling	Psychoeducation sessions on: • Communicating about cancer, coping with stress, creative emotional expression, life changes and cancer, insurance issues and return to work, nutrition, lymphedema, skin care	Lectures and group discussions	seven 2-h sessions *Total of 3 months				
Lyons et al. 2015 [35] USA	Based on principles of cognitive-behavioral therapies approach: -Behavioral activation (BA) -Problem solving treatment (PS)	BA/PS intervention: -Identify a challenging activity -Set a goal -Construct an action plan -Assess the goal	Telephone	Nine sessions *Weekly for 6 weeks with three monthly follow-up sessions	Interventionist (discipline not specified)	Hospital	During primary cancer treatment	Setting goals for activities that support health or other aspect of functioning
Mehnert and Koch, 2013 [36] Germany	N/A	Cancer rehabilitation process in Germany: 1 Preparation for admission 2 Rehab assessment 3 Goal/rehab planning 4 Rehab interventions 5 Discharge assessment 6 Rehab aftercare Multidimensional therapeutic approach that includes: • Patient education • Exercises and physical therapy • Relaxation training • Psychosocial counseling	N/A	*3 weeks	Not specified	Rehabilitation clinic	After primary cancer treatment	Realistic, concrete and individualized in agreement with the patient and the rehab team.

Table 1 (continued)

Study	Why rationale/theory	What activities/processest	How	How much	Who provided	Where	When	Tailoring
Meneses et al. 2007 and Meneses et al. 2009 [37, 38] USA	Four domains of QQL: physical, psychological, social, and spiritual well-being (Dow et al., 1996 [39]; Ferrell, Dow, & Grant, 1995 [40]).	Patient education and support session on: • Psychological and spiritual well-being, social well-being (include work—10 min), physical well-being (lymphedema, fatigue, menopause)	Face-to-face	Three sessions of 60–90 min—over 1 month	Nurse	Hospital	After primary cancer treatment	Tailored to the unique concern/problem facing each person.
	Model of quality of life of cancer survivors (Ferrell et al., 1995 [27])	Follow-up support	Telephone & face-to-face	Five monthly follow-ups of 30 min (three by phone, two face-to-face)				
Nieuwenhuijsen et al. 2006 [41] Netherlands	Occupational rehabilitation components:	Patient information: • Booklet was given to patient (10-step advice on how to return to work)	Informational materials	N/A	Not specified	Hospital	Early phase of cancer treatment	N/A
	Theoretical aspects of goal setting (Siegert, 2004 [42]) and graded activity approach	Coordination of information: • Send a letter to general physician with information on diagnosis and treatment plan (onset of radiotherapy) • Send a letter to GP at the end with information on treatment outcome + copy of the booklet (end of radiotherapy)	N/A					
Rottman et al. 2012 [43] Denmark	N/A	Physical training	Face-to-face	*6 days	Physician, nurse or physiotherapist or social worker or psychologist or dietician	Rehabilitation Center	After primary cancer treatment	Participant produced a personal "action plan"
		Patient education on: • Cancer and psychological reaction, cancer and treatment, working life and lifestyle, sexuality, nutrition	Lectures and group discussion					

Table 1 (continued)

Study	Why rationale/theory	What activities/processest	How	How much	Who provided	Where	When	Tailoring
Tamminga et al. 2013 [44] Netherlands	Intervention development based on: 1) systematic review, 2) factors reported by cancer survivors, 3) focus group data from cancer survivors and supervisors, 4) vocational rehabilitation literature, 5) semi-structured interviews with health care professionals.	Patient information: • 10-step advice (Nieuwenhuijsen et al., 2006 [41]) Patient education on return to work: • Work anamnesis, best ways to inform colleagues and supervisors, assessment of barriers to RTW Coordination of information: • Send a letter to the occupational physician	Informational materials Face-to-face N/A	Four meetings (around 15 min): First—few weeks after diagnosis Second—10 months after first meeting Third—2 months after (evaluate RTW) Fourth—1 month after RTW *Up to 14 months post first meeting	Nurse or social worker	Hospital	During primary cancer treatment	Patient was asked to produce a return-to-work plan (but 10% did make a plan)
	Shared-care model for cancer survivor care (Oeffinger and McCabe, 2006 [45])	Invitation to draw up a concrete and gradual return-to-work plan (patient, occupational physician, employer)	Face-to-face					
Thijs et al. 2012 [46] Netherlands	N/A	Physical training (high-intensity resistance and endurance) with instructions on home-based physical activities	Face-to-face	18 weeks	Physiotherapist	Hospital and home-based	After primary cancer treatment	Supervised training

N/A not applicable

and guide were extracted from the analysis: why (goals and theoretical foundations relating to RTW), what (intervention activities that address RTW), who provided (the professionals involved), when (point in the cancer care trajectory), and where (intervention setting).

Results

From the 792 articles found in the search, 17 articles based on 16 studies were chosen (Fig. 1). Twelve studies were conducted between 2011 and 2015 in seven countries: Germany (n = 1) [36], Australia (n = 1) [32], Denmark (n = 1) [43], the USA (n = 6) [20, 28, 30, 35, 37, 38], the UK (n = 1) [31], Norway (n = 2) [19, 25], and the Netherlands (n = 5) [23, 33, 41, 44, 46]. Various research designs were found. Six studies (35%) were randomized controlled trials (RCT) [28, 32, 35, 36, 41, 44]. Four pilot studies (24%), designed to determine the feasibility or acceptability of an intervention, were also found, including three with a control group [20, 37, 43] and one without a control group [30]. Five longitudinal/observational studies (29%) including self-reported quantitative data from patients were also included in the sampling [18, 19, 23, 31, 38]. One patient series design [33] and one qualitative study [25] were also chosen. The majority of the 16 studies (93%) thus reported quantitative data. Also, the diversity of outcome measures (e.g., quality of life, physical activities, depression, social support, work limitation, work abilities) was noted.

The following sections will focus on the results of the analysis, organized by the themes in the *TIDieR checklist and guide* (Table 2).

Why (goals, rationales)

Seven studies (41%) addressed certain aspects of RTW when stating their goals [18, 25, 31, 33, 37, 41, 44]. Specifically, the interventions looked at resuming work [31, 33, 41] and job retention [18, 25, 31, 37, 41, 44] after cancer treatments. Nine studies (53%) did not include any RTW goals; however, they did include goals relating to more global aspects of the post-cancer experience, such as quality of life [19, 23, 32, 35, 38], managing symptoms of cancer or treatments (e.g., pain, fatigue, depression, anxiety) [20, 28, 30, 35, 36, 38], and well-being [20, 28].

Eight studies (47%) detailed the theoretical foundations for their interventions, which were varied (see Appendix A). Three studies were based on a particular theory (e.g., social cognitive theory [22], graded activity theory [34]), but Nierwenhuijsen's [33] was the only intervention based on a

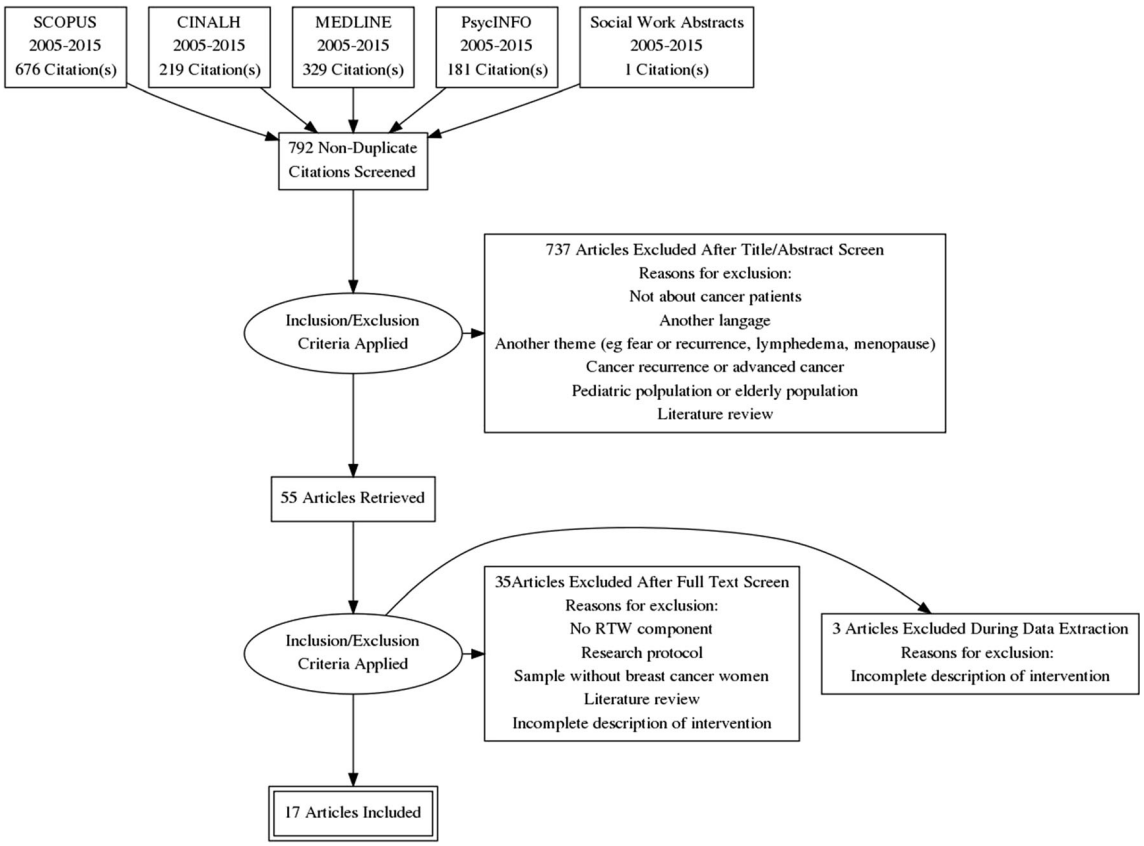

Fig. 1 PRISMA flow diagram for the scoping review process

Table 2 Summary of results from analysis

Authors, years	Why (goals, rationale)		What (activities)	Who provided	When	Where
	RTW research goals	RTW theoretical assumptions	Work-directed intervention	More than two professionals	Point in cancer care continuum[35]	*H*ospital setting or external *R*ehabilitation clinic or center
Bertheussen et al. 2012 [19]	√			√	Survivorship[b]	R
Cimprich et al. 2005 [20]					Survivorship	H
Groeneveld et al. 2013 [23]	√				Survivorship	
Hauken et al. 2015 [25]				√	Survivorship	R
Hegel et al. 2011 [28]			(√)[a]		Treatment	
Hershman et al. 2013 [30]					Survivorship	H
Hubbard et al. 2013 [31]	√		√	√	Survivorship	
Khan et al. 2012 [32]			(√)[a]	√	Survivorship	R
Korstjens et al. 2006 [33]				√	Survivorship	R
Lyons et al. 2015 [35]			(√)[a]		Treatment	H
Mehnert and Koch, 2013 [36]	√		Not specified	Not specified	Survivorship	R
Meneses et al. 2007, 2009 [37, 38]					Survivorship	H
Nieuwenhuijsen et al. 2006 [41]	√	√	√	Not specified	Treatment	H
Rottman et al. 2012 [43]				√	Survivorship	R
Tamminga et al. 2013 [44]	√		√		Diagnosis	H
Thijs et al. 2012 [46]	√				Survivorship	H

[a] On patient request

[b] Survivorship is defined as beginning with the post-treatment period [47]

theory linked to vocational rehabilitation (graded activity [42]). The other interventions (n = 5) were based on frameworks or models relating to quality of life for cancer survivors [19, 35, 38], cancer survivorship [41], resumption of physical activity [19], or clinical practice in occupational therapy [20]. It should also be noted that Tamminga et al. [41] also used empirical data on the experience of cancer and RTW to develop their intervention.

What (activities, processes)

Six interventions (38%) were work-directed. Three included patient education (individual, informational booklet) [18, 20, 30], coordination of services (offering/referring to other professionals based on patient's needs) [37, 41] and transmission of information (e.g., sending a summary of the file to the occupational physician) [33, 37, 41], and directions for the patient, the occupational physician, and the employer to work together to set up an RTW plan [41]. The other three interventions also suggested work-directed activities, but only if the patient asked for them. Support for RTW was then offered, with individual follow-up over the phone [20, 30] or coordination of services (e.g., referral to an occupational therapist) [36].

Seven interventions (41%) integrated RTW into educational activities (individual, group). The themes addressed were related to life after cancer, disease prevention, and health promotion as well as RTW [19, 23, 31, 32, 35, 38, 43]. The time devoted to RTW as part of these interventions ranged from 10 min to two and a half hours. RTW was also addressed by handing out an information booklet [28]. Two interventions proposed a program for resumption of physical activity, designed to facilitate RTW and job retention [25, 44]. Table 3 provides details on activities specifically addressing RTW.

Who provided

The majority (81%) of interventions were offered by a range of health-care professionals, including physicians, nurses, occupational therapists, social workers, psychologists, and dieticians. Some interventions mentioned more than two professionals being involved [19, 28, 31, 32, 36, 37], but they were only asked to intervene periodically and on their own, as part of the intervention activities (e.g., workshops, individual consultations). Only two interventions (13%) reported two professionals being present at the same time at an individual meeting with the patient [28, 43]. Two studies failed to specify which professionals were involved [18, 33].

When and where

The results show that the majority (75%) of interventions addressing RTW were offered during the survivorship period, in a hospital or an external rehabilitation center. Four of the six interventions with work-directed activities took place during the period of cancer diagnosis [41] or treatments [20, 30, 33].

Table 3 Activities that involved RTW topics

Authors, years	Patient education (individual, group, booklet)	Coordination of services or transmission of information	Telephone follow-up	RTW plan
Bertheussen et al. 2012 [19]	√			
Cimprich et al. 2005 [20]	√			
Groeneveld et al. 2013 [23]	N/A	N/A	N/A	N/A
Hauken et al. 2015 [25]	√			
Hegel et al. 2011 [28]			√	
Hershman et al. 2013 [30]	√			
Hubbard et al. 2013 [31]	√	√		
Khan et al. 2012 [32]		√		
Korstjens et al. 2006 [33]	√			
Lyons et al. 2015 [35]			√	
Mehnert and Koch, 2013 [36]		√		
Meneses et al. 2007, 2009 [37, 38]	√			
Nieuwenhuijsen et al. 2006 [41]	√	√		
Rottman et al. 2012 [43]	√			
Tamminga et al. 2013 [44]	√	√		√
Thijs et al. 2012 [46]	N/A	N/A	N/A	N/A

N/A not applicable

Most of these interventions (n = 3) were initiated at the hospital.

Discussion

This article explores the nature of interventions addressing RTW for cancer survivors, including BC survivors. A number of observations can be made. First of all, there are major discrepancies in what is described (e.g., goals, activities), making it difficult to implement the interventions in other contexts. The lack of theoretical foundations suggests that the interventions were not really supported. Even when the activities were described, the logic behind them was not explicitly stated. In addition, the proposed interventions were offered almost exclusively by health care professionals in "silos" (i.e., working in isolation) and there was no continuity with the workplace. Finally, a major aspect raised by this scoping review is variations in the timing of launching the interventions. The various observations will be discussed below in greater detail.

Why

An initial observation emerging from this scoping review is that the documented RTW interventions were not based on solid theories relating to RTW after a cancer diagnosis. No intervention theories or logic models for intervention were documented. A logic model is a graphical depiction that shows how the intervention theory works, showing the links and coherence between intervention activities, available resources, and anticipated results [48]. The absence of these elements limits the potential for targeting the "winning" elements or "active ingredient" [49] of the interventions and determining whether they are transferable to other contexts [50, 51]. The results of the scoping review therefore underline the need to develop an intervention theory and a logic model, with stakeholders consistent with the RTW needs of BC survivors.

What

Although the chosen interventions did address the topic of RTW, noticeable variations in goals and activities were found. First, some interventions were work-directed, i.e., they proposed activities to support RTW (e.g., sending information to the occupational physician, directions on completing an RTW plan). These interventions were deployed during the diagnosis or treatment period. An initial explanation for this situation lies in the definition of RTW, which can be considered a measurable and final result, but also a process [52]. It is possible that work-directed interventions consider RTW a process, which could explain why these interventions occurred earlier in the cancer care continuum. Some interventions proposed activities of a more global nature and took place at the end of cancer treatments, addressing RTW through patient education instead. There is a reason to believe that these interventions were inspired by oncology survivorship care models, which recommend a biopsychosocial approach to accompany the post-cancer experience [53]. The goal of that approach is to give each patient individual tools to help them face post-cancer challenges. Thus, RTW is considered not a process but rather a social activity to be resumed. The diversity of interventions found appears to be related to divergent views of RTW after a BC diagnosis.

The results of this review also reveal that many "work-directed" interventions did not appear to include follow-up for side effects from cancer. This is surprising, as one of the challenges of life after cancer is managing recurrent symptoms from the cancer and treatments [3, 47]. The association between the experience of side effects related to the cancer and problems with RTW and job retention has been documented [54–57]. One possible explanation could be that this aspect was directly included in the content of patient education or was addressed in terms of coordination of services (e.g., referral to a professional) and was not described by the authors, or that it did not exist. Interventions including goals related to global aspects of life after cancer placed more emphasis on managing side effects, but did not include long-term follow-up. The results of this scoping review found a lack of activity sustained over time to address this crucial issue.

Who provided

The results of this scoping review show that many different professionals may be involved in certain intervention activities (e.g., workshops, individual consultations). According to the Cochrane Review by de Boer et al. [13], multidisciplinary interventions should be given priority. However, our analysis of results shows that professionals intervene in silos when providing patient education or responding to a consultation. The results show that a multidisciplinary approach does not necessarily imply that there is teamwork where more than two members need to interact and recognize their interdependency to achieve a shared goal [58–60], i.e., the patient's RTW. The review did not find any interventions that were really founded on interdisciplinary teamwork, although teamwork is considered crucial in oncology treatment [61, 62] and is considered the best way to work toward RTW after cancer [55, 63].

In addition, none of the studies considered interventions directly involving the employer. Although the clinical team plays an important role in following up with oncology patients, other partners are essential to the RTW process, such as the RTW coordinator in the workplace [64]. The contributions made by these professionals would foster joint action

among insurers, employers, and health care professionals [65, 66]. It therefore appears to be important to broaden the scope of interventions to other stakeholders in the RTW process.

When and where

The results of the scoping review highlighted an interesting point: when to start interventions addressing RTW. Work-directed interventions took place during the diagnostic or treatment period. However, based on evidence on good practice in RTW with other target groups, it is recommended that interventions start at the beginning of the sick leave [66]. This is an extremely important aspect, as it highlights the need to initiate RTW activities before the survivorship period begins.

None of the interventions included activities in the workplace—a surprising situation, as the literature on the RTW process with other target groups shows the importance of workplace-based interventions [67]. Recommendations have been made on using a gradual approach with the employer, including among other things an evaluation of work tasks and making an RTW plan with accommodations [68]. The available evidence shows the importance of integrating interventions into the workplace as well.

Recommendations

A starting point would be to elaborate interventions using a shared definition of the multiple challenges of being at work after BC. Then, the development of the intervention theory and logic model is prerequisites to implementation. Intervention theory refers to an explanation of causal assumptions underpinning a multicomponent intervention and its expected effects. We therefore suggest to develop, adapt, and evaluate the intervention to uncover its active ingredient [49, 69]. We also propose that the concept of RTW after cancer be clarified in order to better target appropriate interventions in terms of priority activities, stakeholders to involve, and the deployment period to be determined. The first step could be to consider RTW as a process needing early interventions. Some authors have suggested making RTW an integral aspect of the usual psycho-oncology care [10, 44]. It then becomes important to specify appropriate RTW interventions throughout the cancer care continuum, from diagnosis period to survival. For example, it is also important to offer survivorship care, including management of late symptoms that persist over time, to facilitate RTW, and job retention. BC patients, health care professionals (oncologists, family physicians, nurses, physiotherapists, and occupational therapists), and people in the workplace (supervisors, human resources representatives, RTW coordinators) are essential when considering RTW after cancer, and they should be called upon at strategic moments in the cancer care continuum.

Considering complex issues of RTW after BC, we suggest exploring the possibility of developing multicomponent interventions [48]. Further intervention studies are needed to develop and to test risk-based assessment tools related to cancer (e.g., cancer type, primary treatment, side effects, comorbidity) and to detect long-term side effects (e.g., fatigue, brain fog). Moreover, workplace accommodations need more investigation to measure their benefits for both patients and organizations. Finally, we propose that mixed methods or realistic evaluation [51] be considered in order to identify the active ingredients of the intervention. Researchers from all fields (rehabilitation, cancer survivorship) must work together to develop appropriate interventions based on existing evidence (e.g., management of late side effects, workplace involvement).

Strengths and limitations

One strength of this scoping review is that it included a broader examination of available interventions in RTW after breast cancer. One of the review's limitations was identifying interventions that included women diagnosed with BC in their samplings. This group of patients appeared to be predominant in the samplings, but it is possible that promising interventions intended for another group of cancer patients may have been set aside. Also, given the goal of this review, the diversity of research design (e.g., qualitative, pilot) and outcomes, evaluation data were not included in the results. Another limitation is that the literature review was limited to health care databases. Other interventions might have been found using gray literature or databases that explore other areas of interest. Given these limitations, the results of the review should be interpreted with caution.

In conclusion, the results of this review suggest that interventions addressing RTW are diversified and do not appear to address all the issues involved in RTW after BC. It is important to define the concept in order to develop appropriate multicomponent interventions based on current evidence, with the active ingredient still remaining to be identified.

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