Physical Activity and Breast Cancer: A Qualitative Study on the Barriers to and Facilitators of Exercise Promotion from the Perspective of Health Care Professionals

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ABSTRACT

Purpose: We determined the barriers to and facilitators of exercise promotion by health care professionals (HCPs) for women with breast cancer (BC). **Methods:** The study was a qualitative descriptive study. Semi-structured interviews were conducted with HCPs who treat individuals with BC in Ontario. The interviews were recorded and transcribed. Two reviewers independently used content analysis to determine codes and themes developed in the interviews. NVivo 10 was used during the coding process. **Results:** A total of 24 HCPs participated in this study. The data from the interviews were grouped into five main categories: (1) institutional barriers, (2) HCP barriers, (3) perceived patient barriers, (4) facilitators (resource and service needs), and (5) patient characteristics. A graphic depiction of the interaction was created for these categories and how they affect the promotion of exercise for women with BC. **Conclusions:** Participants in this study identified several barriers to exercise promotion at the institutional, professional, and patient levels and suggested several strategies to facilitate exercise promotion. These findings can inform future exercise interventions to increase exercise adherence and engagement in this population.

Key Words: breast cancer; exercise; health promotion; rehabilitation.

RÉSUMÉ

Objectif : déterminer les obstacles et les facteurs facilitants de la promotion de l'exercice par les professionnels de la santé (PS) auprès de femmes atteintes du cancer du sein (CS). **Méthodes :** il s'agit d'une étude qualitative descriptive. Des entrevues semi-structurées ont été menées avec les participants. Les entrevues ont été enregistrées et transcrites. Deux examinateurs ont analysé indépendamment le contenu pour déterminer les codes et les thèmes abordés durant les entrevues. NVivo 10 a été utilisé durant le processus de codage. **Résultats :** au total, 24 PS ont participé à cette étude. Les données des entrevues ont été groupées en cinq catégories principales : (1) obstacles organisationnels, (2) obstacles liés aux PS, (3) obstacles perçus des patientes, (4) facteurs facilitants : ressources et services requis et (5) caractéristiques des patients. Une représentation graphique de l'interaction de ces catégories et de la manière dont elles influencent la promotion de l'exercice chez les femmes atteintes de CS a été créée. **Conclusions :** les participants à l'étude ont ciblé certains obstacles à la promotion de l'exercice liés à l'organisation, aux professionnels et aux patientes et ont suggéré certaines stratégies pour faciliter la promotion de l'exercice. Ces résultats peuvent guider les interventions liées à l'exercice afin d'augmenter l'adhésion et l'engagement de cette population.

Breast cancer (BC) is the most prevalent form of cancer in women in North America.^{1,2} One in eight women is expected to develop BC in their lifetime.¹⁻³ In addition, the projected burden of this disease continues to increase with the aging population, and it is predicted that, by 2032, the number of new BC cases among women will increase by 55%.⁴ BC and the associated treatments result in numerous side effects, including pain, fatigue, nausea, weakness, lymphedema, and decreased range of

motion,⁵⁻¹¹ and these side effects affect a person's quality of life and overall functioning.

Recent research has shown that regular moderate-intensity exercise of various forms can ameliorate many of these physical side effects.^{9,12-27} Despite this evidence, only 30% of individuals with cancer take part in regular physical activity.²⁸⁻³¹ Therefore, to enhance quality-of-life outcomes, strategies in the clinical setting that support changing physical activity behaviour are paramount.

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Box 1 Interview Guide

1. Can you tell me what you know about exercise for individuals with breast cancer?
2. Is there anything more you want to add?
3. What do you think that most of your patients know about exercise during cancer treatment?
4. In your interactions with your patients, do you discuss their physical activity levels?
5. What do you find are the barriers to discussing physical activity and exercise with your patients?
6. Do you think there are certain groups of patients who would benefit from this discussion more than others?
7. What would help to facilitate this discussion?
8. Do you think any other member of your team discusses physical activity with their patients? Who?
9. What are your (and the institution's) future needs in relation to promoting exercise with your patients?
10. Do you have any other thoughts/comments on this topic?

The literature has thoroughly explored the barriers to and facilitators of exercise participation from the patient's perspective.^{28,32–34} Known barriers include individual factors, such as physical symptoms and fatigue, and educational barriers resulting from a lack of general knowledge about the need to stay physically active during and after treatment, proper exercise prescriptions, and available exercise programs.²⁸ One of the most startling findings is the lack of education being provided to patients on the benefits of exercise during and after treatment.²⁸ In Ontario, it was reported that 83% of patients received no form of education from their oncologist about exercise, and 88% received no education from their primary care nurse about physical activity or exercise at any point in their cancer treatment.²⁸ Physiotherapists (PTs) are currently not a usual part of the health care team that treats and manages women with BC in Ontario.

Because these educational and knowledge barriers are common, and because past research has shown the significant influence of the health care team in changing lifestyle behaviours of women with BC,^{35,36} it is important to examine the barriers to and facilitators of exercise promotion from the perspective of health care professionals (HCPs).³⁵

METHODS**Study design**

This study used a descriptive qualitative design. In descriptive qualitative studies, the researcher deliberately chooses to describe an event in terms of a conceptual or philosophical framework, and descriptive qualitative studies are therefore not highly interpretive.³⁷ These types of qualitative studies are the method of choice when clear descriptions of phenomena are desired.³⁷ In this form of research, participants' perspectives and ideas are processed by generating codes, which are then grouped into thematic categories.³⁷ The Hamilton Integrated Research Ethics Board in Hamilton, Ontario, approved this study.

Participant recruitment

We recruited English-speaking HCPs who work with women with BC who are treated as outpatients at cancer centres in southwestern Ontario. The HCPs recruited included oncologists, general practitioners in oncology, nurses, radiation therapists, social workers, and dietitians. We sought a diversity of HCPs in our sampling.

Participants were recruited through a combination of purposive and snowball sampling.³⁸ First, a recruitment letter was sent by email to members of a cancer centre's "breast disease" team. Interested respondents were contacted to schedule an interview date. Participants also suggested other potential participants for the study, and these individuals were sent a follow-up email to request an interview. The sample size for this study was determined on the basis of the need to recruit participants until saturation of the interview data was achieved.^{38–40}

Data collection

One researcher (JST) conducted semi-structured interviews with participants, one on one, in person ($n = 21$), by telephone ($n = 2$), or by videoconference ($n = 1$). An interview guide was created on the basis of the study's purpose and the results of a literature review. The interview guide was pilot tested on the first two participants, and minor revisions were made before implementing the final version (see Box 1). Additional probing questions were used when necessary to ensure that the participants understood what the interviewer was asking or to elicit more information when needed. Before each interview, informed consent was obtained. Each interview lasted approximately 30 minutes, and all interviews were audio-recorded. After each interview, the interviewer made field notes to record her overall impression of the participant in regard to mood, gestures, and other noteworthy occurrences. (Notes on gestures could not be made for telephone interviews.)

Data analysis

The analyses and reporting were performed according to conventional methods for descriptive qualitative studies.³⁸ After the interviews had been conducted, the

Box 2 Example of Category Formation and Coding for the Parent Node “Barriers”

Category	Codes
Institutional barriers	Time with patients Lack of role definition Lack of funding
Health care professional barriers	Lack of knowledge about exercise Negative view toward exercise (it is not important) Forget to discuss exercise Personal limitations (don't exercise themselves)
Perceived patient barriers	Negative attitude toward exercise Lack of accessibility of programs Weather Physical side effects Patient time

Table 1 Participant Characteristics (n = 24)

Characteristic	No. (%)
Health care professional	
Medical oncologist	7 (29.2)
Primary care nurse	5 (20.8)
Radiation oncologist	4 (16.7)
Surgeon	2 (8.3)
Radiation therapist	2 (8.3)
General practitioner in oncology	1 (4.2)
Nurse practitioner	1 (4.2)
Social worker	1 (4.2)
Dietician	1 (4.2)
Sex	
Female	16 (66.7)
Male	8 (33.3)
Location	
Juravinski Cancer Centre	21* (87.5)
Joseph Brant Hospital	2* (4.2)
St. Joseph's Hospital Hamilton	1 (4.2)
Niagara Health System	1 (4.2)

*One participant worked at both the Juravinski Cancer Centre and the Joseph Brant Hospital and was thus included twice.

audio recordings were transcribed verbatim by an independent transcriptionist; the transcripts were then checked for accuracy and completeness by the interviewer. The first five transcripts were coded independently using line-by-line analysis by two researchers (JST, JR), who then met to discuss the emerging themes and develop a coding manual for subsequent analysis. After the coding manual was developed, one researcher (JST) independently coded the remaining transcripts as they were completed. All transcripts were uploaded to NVivo 10 (QSR International Pty Ltd., Doncaster, VIC, Australia), and the coded data were aggregated into nodes and grouped

into meaningful categories on the basis of the patterns that emerged. Discussions between the researchers occurred periodically during the transcription to consider how well the codes being developing addressed the research question. See Box 2 for an example of the coding process for the parent node “Barriers.”

RESULTS

Description of participants

A total of 24 HCPs from four urban cancer centres agreed to participate in this study (see Table 1 for participant details). The participants were knowledgeable about the benefits of exercise for this population; however, they gave a range of responses about how much they actually knew. All but 1 participant had a positive response to the use of exercise for BC survivors. The majority of HCPs acknowledged that they discussed physical activity and exercise with their patients, but most admitted that they did so inconsistently (data not shown).

Findings

Overall, the HCPs interviewed in this study were supportive of the use of exercise for women with BC. Interestingly, when we compared how the health professions perceived the benefits of exercise, we found that physicians related the benefits and importance of exercise to recurrence risk and mortality, whereas non-physicians (nurses and other HCPs) related the benefits and importance of exercise to symptom management and quality of life. Neither focus is suggested to be better, but this comparison reveals a difference in the treatment these professionals offer and the emphasis of their training.

To determine the barriers to and facilitators of promoting exercise for this population, the data from the interviews were coded and grouped into five main categories: (1) institutional barriers, (2) HCP barriers, (3) perceived patient barriers, (4) facilitators (resource and service needs), and (5) patient characteristics (see Table 2).

Institutional barriers

Institutional barriers reported by HCPs in relation to promoting exercise for women with BC include (1) time with each patient, (2) a lack of identification of who should be discussing exercise with the patient, and (3) a lack of funding for exercise interventions and for the role of rehabilitation professionals in an institution. Lack of time and the higher priority of other issues related to their own profession was the most commonly mentioned barrier preventing HCPs from discussing exercise with their patients. The need to discuss so many issues in such a short time meant that HCPs had to prioritize.

Sometimes it's just, you've got a 15-minute appointment. In that 15-minute appointment, you're expected to do so much ... you just can't get it all in.... It's not because people don't want to, it's just—the reality is that there isn't time. (general practitioner in oncology)

Table 2 Barriers to and Facilitators of Exercise Promotion

Barriers	
Institutional barriers	Time with each patient So many issues to discuss Lack of identification of who in the institution should be discussing exercise Lack of funding for exercise interventions and/or rehabilitation professionals
Health care professional barriers	Lack of specific knowledge about exercise Discussion of exercise is a low priority Forget to discuss exercise Personal limitations
Perceived patient barriers	Negative attitude toward exercise Lack of accessibility Cost Transportation Weather constraints Patient side effects and symptoms Patient time
Facilitators: resource and service needs	
Institutional supports	Inclusion of a rehabilitation professional as part of the breast disease site team Exercise programs housed at the institutional level Health care professional education Champion leaders
Individual supports	Patient education materials: Pamphlets Posters Prescription pad Handouts
Other considerations	
Patient characteristics	Risk groups Comorbidities Psychosocial Issues Pre-cancer fitness level Treatments received

Another barrier commonly mentioned was a lack of definition of whose job it was to discuss exercise and physical activity levels in an institution: “I see it as partly my role, my responsibility, but I can’t pinpoint one group of people right now who I think it’s their duty and role to consistently do that” (medical oncologist [MO]).

A lack of available funding for new programs in Ontario was also mentioned repeatedly.

[The] challenge in introducing supports that deal with exercise ... is not in convincing those with the ability to make [funding] decisions that these are worthwhile causes; everyone is going to agree to that. ... The problem is there are a lot of [issues] that are [seen as] a higher priority in the view of those that are making [funding] decisions. (radiation oncologist)

Health care professional barriers

HCP barriers identified by participants include (1) lacking specific exercise knowledge, (2) seeing exercise as a low priority in relation to their other professional responsibilities, (3) forgetting to discuss physical activity, and (4) having personal limitations, for example, not exercising themselves. The most commonly reported HCP barrier reported by participants was the lack of spe-

cific knowledge about exercise so as to educate patients effectively and with details. This was demonstrated repeatedly by statements such as “There is evidence that exercise is beneficial. ... I can’t quote the evidence. ... I think strengthening as well as a little bit of aerobic” (nurse [N]).

Many also commented that although they appreciated the benefits of exercise for symptom management, it was a low priority on their list of things to discuss with their patients (a list that includes topics such as treatment and medication regimes, possible side effects, side effect management, and prognosis), especially at initial diagnosis.

There’s a lot going on when you first see a patient, and ... telling a patient about chemotherapy for the first time, right before they’re about to start. ... I’m not sure how effective it is to talk about exercise at that point. (MO)

It was also noted that although they thought it was important, many simply forgot to talk about exercise because it has not been a part of their regular daily practice.

Perceived patient barriers

HCPs also reported perceived barriers on the part of their patients that prevented them from promoting

exercise. These perceived barriers included patients (1) having a negative attitude toward exercise, (2) lacking access to exercise programs (because of cost and transportation), (3) experiencing weather constraints, (4) experiencing side effects, and (5) having little time to commit to exercise. The most commonly reported perceived patient barrier was a negative attitude toward exercise. This was expressed by HCPs in many ways, including that their patients are afraid to exercise, doubt their exercise capability, have misconceptions about what exercise is, and think that exercise will make them feel worse. For example, one HCP said,

I think that people are still under the impression it means that you've got to go work out ... you've got to lift weights ... and then I think that sort of stops a lot of people. They think, "I can't ever do that" or "I've never done that," and I think that's a psychological barrier on how ... they ... view the exercise because even walking around the block is a form of exercise. Taking the stairs at work is a form of exercise. (N)

Many HCPs were also concerned about their patients' ability to access exercise programs. This came up in relation to describing patients' ability to pay for both exercise programs and transportation to them: "I've had lots of patients who just ... don't have money to pay for joining a program" (N).

Facilitators: Resource and service needs

Many participants suggested that having facilitators (in the form of additional resources and services) would aid in promoting exercise for individuals with BC; these facilitators included an increase in both institutional supports (services needed in a cancer centre) and individual supports (resources needed by patients). In regard to institutional supports, four main suggestions were made: (1) including a rehabilitation professional on the team that works with individuals with BC, (2) housing exercise interventions in the institution, (3) creating content-specific education for HCPs, and (4) using "champion leaders." Many participants acknowledged that referring patients to exercise programs would be easier if exercise programs were run in house. For example,

You know, we have often mentioned that, especially in [the] chemo [waiting rooms], that we should have an area that's got some stationary bikes ... because people do a lot of waiting—you know, to have something that is accessible. (N)

They also acknowledged the importance of having someone in house to refer patients to for exercise education: "In an ideal world, if someone were here that we could actually just send [patients to] in the supportive care department, having a person to connect them with. That would be nice" (MO).

Numerous individual supports for patients were also suggested. These supports included educational resources

that HCPs could give patients, such as pamphlets, posters, prescription pads, or handouts.

Patient characteristics

While discussing the barriers to and facilitators of exercise promotion, many HCPs highlighted the complexity of this patient group and the numerous variables that needed to be considered when discussing exercise. More specifically, they highlighted the various risk groups in this population (from estrogen receptor status to age), the various comorbidities that many of these patients have (from obesity to cardiovascular disease), the high prevalence of psychosocial issues to consider (self-image, anxiety, depression), and the variability in pre-cancer fitness levels and BC treatments received (a combination of surgery, chemotherapy, radiation therapy, and hormone replacement). In fact, these factors could increase the complexity for HCPs when promoting exercise and could themselves be a barrier to its promotion. One participant described patient complexity by saying,

Take a young lady.... Everything's good ... she has a young family ... she's just been shocked by having this diagnosis of breast cancer; it's the first major illness of her life. She's thinking, "I'm going to die," and the next thing she starts to realize is the cancer's got control of her life.... She gets depressed.... Then we make her physically sick with the chemotherapy, screw up her sex life.... It's almost like we've created an illness.... She becomes very dependent, and then we finish our treatment and try to get the patient integrated back into normal life. The patient is a changed patient, and we've created a psychological and emotional wreck.... Now she's wondering, when's the cancer going to come back.... So now, try to put into that whole scenario, introducing exercise. (MO)

This type of patient complexity will increase the difficulty of promoting exercise. One participant highlighted this, saying, "A lot of the times, they have concerns that are more pressing than exercise, and so what time you do have with them, you devote to whatever their [main] physical ... or emotional concerns are" (radiation therapist).

Putting it all together: A graphic depiction of the determinants of exercise promotion

Figure 1 illustrates the likelihood of HCPs promoting exercise for women with BC. It depicts the three categories of barriers mentioned in the interviews and the interaction of each with one another. In addition to these established barriers, two other components (patient complexity and availability of resources and services) have an effect on the consequences that these barriers will have on the likelihood of a HCP promoting exercise. A patient who is highly complex would enhance the barriers described and decrease the likelihood of exercise promotion, whereas a patient who is less complex would have the opposite effect, minimizing the barriers and

Figure 1 Determinants of exercise promotion.

increasing the likelihood of exercise promotion. In addition, a low availability of resources and services would enhance the described barriers and diminish the likelihood of exercise promotion by HCPs, whereas having resources and services available would minimize these barriers. Accordingly, HCPs working with an individual who is highly complex and who does not have easy access to resources and services have a low likelihood of promoting exercise and vice versa. A continuum exists between these two extremes. Therefore, to increase the likelihood of exercise promotion by HCPs for women with BC, rehabilitation professionals not only have to create interventions to minimize the barriers but also consider the complexity of this patient group and provide, or facilitate easy access to, sustainable resources and services.

DISCUSSION

To our knowledge, this is the first qualitative study to examine the barriers to and facilitators of promoting exercise for women with BC from the perspective of HCPs. Although HCPs were knowledgeable about the benefits of exercise for this population, their exercise advice was general. For example, some would recommend that patients stay active, but they did not give specific details (e.g., following the FITT principles of frequency, intensity, time, and type) to encourage patients to follow their recommendations. This is important because research has shown that patients' adherence to exercise is improved when the instructions they receive are specific and understandable.⁴¹ This finding is also interesting be-

cause it relates to previous research on patient barriers to exercise participation, which found that both a lack of knowledge of the sort of exercise being prescribed and fear of doing unsuitable exercises were barriers to participation.^{24,28,32}

While conducting this study, it became clear that how individuals in the same profession promote exercise is inconsistent. Also, it is unclear whose role it is to discuss exercise with patients; many HCPs assume that someone else is doing it. This lack of role definition is likely preventing HCPs from giving patients a detailed and consistent message in regard to the importance of regular exercise. A possible solution would be to include PTs on the health care team to fill this role at institutions across Ontario because PTs specialize in prescribing exercise for individuals with chronic conditions. It has been reported that only 17 oncology rehabilitation programs across all of Canada employ a PT; this shows a lack of access to physiotherapy for Canadians undergoing cancer treatment, despite the evidence for the benefits of rehabilitation for cancer survivors.⁴²

Because of financial constraints in Ontario hospitals, it may not be feasible to incorporate PTs into all cancer institutions. An alternative solution is to have PTs act in consultation roles in institutions, providing education to HCPs employed in this setting so that they can act as the knowledge translators on this topic. This would allow the information given to patients to be more specific and the delivery of exercise promotion to be more efficient, and the role of other HCPs would simply be to reinforce the message.

Another question raised in these interviews was “What is the right time to promote exercise with these patients?” There is evidence to support the use of exercise interventions both during and after cancer treatment.^{16,43–45} However, many HCPs suggested that it was inappropriate in the beginning stages of treatment (before and during chemotherapy) because of the volume of information being given at that time and because of the physical and emotional changes the individual is going through. We acknowledge this difficulty, but on the basis of the benefits shown in the research,^{16,43–45} it is necessary to incorporate this education into all stages of cancer treatment. The challenge will be to devise ways to frame the interventions at each stage to be sensitive to the challenges the individual is experiencing.

Future directions

Future research should take these findings, together with the previous research on the barriers to and facilitators of exercise participation from the perspective of BC patients, and suggest novel interventions in cancer institutions in Ontario. These interventions should consist of exercise programs run by PTs and include effective educational strategies to promote exercise with this population. Because the number of individuals surviving BC is expected to increase substantially in the next decade,⁴ promoting healthy behavioural change is important to decrease the individual and societal burden of the disease and return survivors to at least their pre-cancer level of functioning at work and at home.

Our study had several limitations. First, all participants were from southwestern Ontario. Participants from other parts of Canada may have other important perspectives on this topic because of variations in provincial and territorial health care systems and funding of rehabilitation professionals, so this will be important to explore in future research. Second, no PTs were interviewed as part of this study because there are currently no PTs who are part of the breast disease teams at the participating institutions. However, given PTs’ expertise in therapeutic exercise, their perspectives are important to consider in determining future needs and ideas for promoting exercise interventions for this population. Finally, including participants who responded to the recruitment email may have led us to recruit individuals who were especially interested in the topic or who supported the content of this research study.

CONCLUSION

The aim of this study was to describe the barriers to and facilitators of exercise promotion for women with BC from the perspective of HCPs. Participants identified several barriers at the institutional, professional, and patient levels and suggested several strategies to facilitate exercise promotion. These findings can inform future interventions to make them more meaningful for this population.

KEY MESSAGES

What is already known on this topic

BC and its treatments result in many physical and psychological side effects that affect survivors for many years after their cancer diagnosis. Exercise has been shown to mitigate many of these side effects, but only a very small percentage of women with BC take part in regular exercise. Barriers from a patient’s perspective include physical symptoms, a lack of education about the need to stay physically active, and a lack of awareness of available exercise programs.

What this study adds

This is the first study to describe the barriers to and facilitators of exercise promotion by HCPs for women with BC. Results show that there are barriers at the institutional, professional, and patient levels that need to be overcome before incorporating this effective form of treatment into the cancer care continuum for women with BC.

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