



# Exploring cancer survivors' experiences in a group-based walking program before and during the COVID-19 pandemic: a qualitative study

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## Abstract

**Purpose** Physical activity (PA) can help reduce side effects related to cancer whilst promoting quality of life. This qualitative study explored cancer survivors' experiences in an 8-week group-based walking program with behavioural support that was delivered within the community to highlight factors central to successful adoption and sustainability of such programs.

**Methods** Eleven cancer survivors who took part in the program before ( $n=7$ ) or during ( $n=4$ ) the COVID-19 pandemic were interviewed and asked to discuss their PA behaviour, motivation to join and complete the program, and experienced benefits and barriers, as well as offer feedback that could be incorporated into future programs. Interview transcripts were thematically analysed using a hybrid deductive-inductive approach.

**Results** Participants' experiences were summarised into six themes: (1) PA behaviour and motivation were enhanced, (2) seeking accountability to take steps for better health, (3) mutual support encourages in-group bonding, (4) placing value on building PA confidence, (5) the impact of the COVID-19 pandemic and (6) recommendations for future programs. By receiving social and behavioural support, and thus experiencing increased PA confidence, participants felt the program supported their PA behaviour. However, key differences were evident for participants attending the program during the pandemic.

**Conclusions** Exploring strategies that foster a communal focus amongst participants within community-based walking programs may be beneficial. Moreover, findings underscore the value of offering PA programming (walking or otherwise) with behavioural support during a pandemic with appropriate safety measures, though social relationships may not be fully fostered.

**Keywords** Qualitative · Interviews · Oncology · Psychosocial · Exercise behaviour · Motivation

## Introduction

Engaging in physical activity (PA) during or after cancer treatment can assist in recovery, reduce the incidence of second cancers and other chronic diseases and improve survival [1]. Additionally, engaging in PA can improve biopsychosocial health outcomes amongst cancer survivors [1]. Walking,

a popular type of PA among cancer survivors [2], offers benefits spanning physical, cognitive, psychological and social aspects of health and functioning (e.g. [3]). Further, walking promotes sustained PA behaviour and is a safe, feasible and cost-effective intervention for various clinical populations [4]. Importantly, walking is a year-round activity and a type of PA people can enjoy doing together. In light of the benefits of PA (including walking), PA is endorsed as an important part of cancer treatment/survivorship care (e.g. [5]).

Despite the potential benefits of PA, national data highlight suboptimal levels amongst cancer survivors [6]. Cancer survivors may need particular support to participate in PA to overcome physical, emotional, psychological and environmental barriers that deter PA [7, 8]. Group-based PA programs, including aerobic and strength training [9], yoga [10], walking [11] and dragon boating [11], can help address several barriers. Furthermore, group-based PA programs can

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foster social support by providing opportunities to establish meaningful social connections, share and receive relevant cancer and non-cancer-related information and discuss shared experiences in a positive and non-judgemental environment [12]. Therefore, when seeking ways to promote PA amongst cancer survivors, group-based walking programs offered within the community may help translate research into practice by addressing barriers to implementation.

Still, if group-based PA programs (walking or otherwise) are to equip participants with knowledge, confidence and skills to maintain PA post-program, it is critical they provide behavioural support. PA programs that include behavioural support (e.g. teaching goal setting principles, offering feedback, providing social support) are associated with greater program effectiveness in the short term, reduced perceived barriers to PA, increased self-efficacy for PA, and are effective in promoting PA behaviour maintenance post-program [13]. Thus, it is necessary to explore if cancer survivors view this approach for group-based PA programming to be beneficial for supporting their PA behaviour.

The purpose of this qualitative study was to explore cancer survivors' experiences participating in an 8-week group-based walking program with behavioural support delivered within the community and assess the feasibility of delivering such a program to offer recommendations for future programs. During the course of this study, the COVID-19 pandemic began. Consequently, the impact of an international health crisis on participants' experiences within the program was explored by comparing and contrasting participants' experiences prior to and during the COVID-19 pandemic.

## Methods

### Methodology

A social constructivist paradigm was adopted in this qualitative study. This paradigm rests on the view that reality is a construction by and of the mind, and knowledge creation is influenced by the social relationships in which people are embedded [14].

### Participants

Following University of Ottawa Research Ethics Board approval, cancer survivors were recruited through advertisements placed on social media websites, online postings on bulletin boards/discussion groups and cancer-related websites, distribution of study recruitment posters by community organisations and locations potentially frequented by cancer survivors (e.g. recreational centres) and word of mouth. Eligible cancer survivors were as follows: (1)  $\geq 18$  years of age, (2) had completed primary treatment for cancer, (3) able

to walk without an assistive device or the help of another person and (4) able to read and understand English. Cancer survivors were ineligible if they self-reported physical impairments precluding PA.

### Procedures

Participants were recruited over a 28-month period starting in May 2018, and walking groups were set to start once  $\geq$  six cancer survivors were recruited. Three groups were hosted, which departed from the Ottawa Regional Cancer Foundation ( $n=2$ ) and the University of Ottawa ( $n=1$ ). Both locations offered easy access to walking paths. Session schedules were determined through consultation with participants. Participants provided written informed consent prior to starting the program and completed a brief questionnaire prior to initiating the program. Approximately 2 weeks after the last session, they were invited to take part in a semi-structured interview with the first author. Interviews were audio-recorded and transcribed verbatim.

### The program

The 8-week group-based walking program consisted of two parts. Part I consisted of weekly 25-min *educational sessions* meant to provide behavioural support. Educational sessions were held indoors, led by the first author who was assisted by an undergraduate student and were designed to promote participants' knowledge, skills and confidence to engage in PA. Participants received worksheets to complete, health behaviour brochures and tailored advice from the first author. Topics covered during the sessions included (1) benefits and importance of PA for health, (2) pros and cons of engaging in PA, (3) goal setting, (4) barrier identification and problem solving, (5) self-monitoring of PA and related mood/thoughts, (6) environmental restructuring to support PA and (7) social support for PA.

Educational sessions were followed by *guided group walks* (i.e. Part II), which were progressive, starting at 20 min and increasing by 5 min weekly, reaching 60 min at week 8 (excluding warm-up and cool down). Walking speed depended on participants, though moderate intensity (as assessed by the Borg Rating of Perceived Exertion Scale [15]) was encouraged.

### Changes to procedures due to COVID-19

Between January 2019 and February 2020, two programs were completed. Before a third program could take place, the University of Ottawa suspended all in-person research activities on March 16, 2020, following provincial declaration of a state of emergency. In August 2020, the University allowed research with vulnerable populations to resume off-campus,

making it possible to resume this study and roll out a third program whilst adhering to public health recommendations. Accordingly, educational sessions were moved outdoors and held in a park near the Ottawa Regional Cancer Foundation (*change I*). The park offered seating that complied with social distancing requirements (2 m apart) so participants could sit prior to walking. Additionally, participants were required to wear face coverings/masks during the walks and use hand sanitizer (provided by the first author) upon arrival and departure (*change II*).

## Measures

### Interview guide

A semi-structured interview guide (see Supplemental File 1) was used during the interviews to allow the interviewer to pursue the same basic lines of inquiry with each participant and assist in managing the interviews in a systematic and comprehensive way. It consisted of open-ended questions with accompanying probes centred on participants' experiences and perspectives on program components. Interviews lasted on average 54 min (range = 41–83 min).

### Feasibility outcomes

Recruitment, enrolment, attrition and adherence rates were tracked by the first author. Recruitment rate was measured by recording the number of eligible individuals out of those who contacted the first author to express interest in the study. Enrolment rate was measured by recording the number of individuals consenting to participate in this study out of those who were eligible to participate. Attrition rate was measured by recording the number of participants dropping out of the study/program, including the reasons. Adherence rate was measured by recording the number of sessions participants attended out of 8.

### Sociodemographic and medical questionnaire

Participants self-reported sociodemographic (i.e. age, sex, annual household income, education attainment, school/work status) and medical (i.e. cancer diagnosis, time since treatment, comorbid conditions) information. These data were used to describe the sample.

### Data analysis

Quantitative data were analysed descriptively using Microsoft Excel, and qualitative data were analysed using thematic analysis (see [16] for details). The thematic analysis of interviews was conducted by the first author and a research coordinator not otherwise involved in this study using NVivo.

The analysis adopted a deductive-inductive approach. Preliminary themes were generated using a semantic approach to allow the study aim to drive theme development, whilst a latent approach was taken to compare and contrast nuances across the walking groups [16]. Next, the authors reviewed themes in relation to the raw data and relevance to the study aim. Finally, themes were refined, defined and named, and transcript extracts were selected to illustrate themes.

### Study rigour

Several strategies were used to enhance the quality and rigour of this study [17]. Namely, interviews were semi-structured which supported a systematic approach to data collection in that each participant was asked the same set of questions whilst allowing their unique responses to dictate supplemental probes. Second, the regular interaction the first author (interviewer) had with participants over the course of the walking program helped build a trusting connection and rapport and purportedly made participants feel safe sharing their experiences with the interviewer. Third, all participants were interviewed regardless of program attendance; this was done to ensure their experiences were captured in the results and to reduce potential adherence bias. Fourth, themes are supported by excerpts from the raw data to show how the investigators' interpretations of the data remain directly linked to participants' experiences. Fifth, the study setting, participants' characteristics and the research process is described with clarity and sufficient detail so readers have enough detail to judge transferability, and an audit trail was kept by the first author to ensure transparency. Further, data saturation was achieved during data analysis, such that the predetermined codes used during deductive analysis were adequately represented in the data and 'new' codes stopped appearing during inductive analysis. Additionally, the authors and research coordinator who assisted with data analysis engaged in discussions, challenged interpretations and offered different perspectives to evoke critical dialogue. Finally, the authors recognise an important element of qualitative research is self-reflexivity [18], and acknowledge the potential impact of their subjective values, biases and pre-conceptions on the research (see Supplemental File 2 for authors' reflexivity statement).

## Results

### Participants

Forty-three individuals expressed interest in this study, of which 26 (recruitment rate: 60.4%) met eligibility criteria; the remaining 17 were ineligible because of contradictions related to PA (e.g. hypertension, history of heart problems;

$n=4$ ), declining to be screened ( $n=4$ ) or being unreachable after three contact attempts ( $n=9$ ). Of the 26 eligible individuals, 14 (enrolment rate: 53.8%) provided consent and were enrolled into this study; the remaining 12 declined to participate due to scheduling concerns ( $n=7$ ), injury ( $n=1$ ), concerns about COVID-19 risks ( $n=3$ ) and no reason given ( $n=1$ ). Post-enrolment, three participants dropped out because of treatment-related nerve pain ( $n=1$ ), cancer recurrence ( $n=1$ ) and distance of the facilities ( $n=1$ ), resulting in an attrition rate of 21.4%. Eight of the remaining 11 participants attended  $\geq 4$  sessions (adherence rate: 53.1%; average number of attended sessions: 4.75/8 sessions). These 11 participants were interviewed (see Table 1 for participants' characteristics).

## Main results

Six themes that describe participants' experiences with the program were identified: (1) PA behaviour and motivation were enhanced, (2) seeking accountability to take steps for better health, (3) mutual support encourages in-group bonding, (4) placing value on building PA confidence, (5) impact of the COVID-19 pandemic and (6) recommendations for future programs. These themes are described in the following section with representative quotations presented in Table 2.

### Theme 1: PA behaviour and motivation were enhanced

At program completion, participants engaged in a variety of physical activities, including walking, yoga, Pilates, strength training, jogging, high-intensity interval training, cycling and figure skating. Most reported their PA levels had increased, whilst others said they had maintained similar PA levels compared to the start of the program. Generally, participants engaged in moderate-intensity PA for an average of 231 min/week. Furthermore, they were motivated to be more active in-between weekly walking sessions, either because they noticed a discrepancy between their PA levels and their health goals, they learned skills to self-manage their PA and/or they came to realise they were capable of being more active.

### Theme 2: seeking accountability to take steps for better health

Owing to the importance they placed on PA for health, participants had generally enrolled in this study (and program) to engage in more PA. As exemplified in this theme, the presence of other participants created a culture of personal accountability within the group, which strengthened their commitment to attend weekly sessions. Indeed, whilst participants acknowledged they could walk alone, the

**Table 1** Sociodemographic and medical characteristics of interviewed participants in a community-based walking group for cancer survivors in the Ottawa, Canada, area

Variables	Descriptives
Age (years), $M \pm SD$ ; range	51.82 $\pm$ 9.14; 41–65
Married, $n$ (%)	8 (72.7)
White, $n$ (%)	10 (90.9)
Completed university/college/graduate school, $n$ (%)	10 (90.9)
Annual household income > \$100,000 CAD, $n$ (%) <sup>a</sup>	4 (36.4)
Cancer type, $n$ (%)	
Leukaemia	1 (9.1)
Breast	8 (72.7)
Thymoma	1 (9.1)
Kidney	1 (9.1)
Cancer stage, $n$ (%)	
I	2 (18.2)
II	4 (36.4)
III	3 (27.3)
Staging does not apply	1 (9.1)
Time since diagnosis (months), $M \pm SD$ ; range <sup>b</sup>	7 $\pm$ 9.41; 5–24
Treatments received, $n$ (%)	
Surgery	10 (90.9)
Chemotherapy <sup>c</sup>	9 (81.8)
Radiotherapy <sup>c</sup>	8 (72.7)
Hormonal <sup>c</sup>	7 (63.6)
Other <sup>d</sup>	4 (36.4)
Comorbid conditions	
Diabetes	1 (9.1)
High blood pressure	1 (9.1)
High cholesterol <sup>a</sup>	3 (27.3)
Other <sup>a</sup>	5 (45.5)

<sup>a</sup> $n=10$

<sup>b</sup> $n=6$

<sup>c</sup> $n=9$

<sup>d</sup> $n=8$

interactions and exchanges amongst participants created an enabling environment to fulfil their commitment to engage in more PA for better health. Additionally, they explained that having scheduled, reoccurring sessions in their calendars with other people counting on them enabled them to prioritise PA and decline other activities or events that would otherwise interfere.

### Theme 3: mutual support encourages in-group bonding

Participants felt the program *format* (i.e. group of cancer survivors with a PA facilitator), the ability to interact and exchange with a small group and the receipt of various types of support (e.g. encouragement, information)

**Table 2** Anonymized quotations from participants in a community-based walking group for cancer survivors in Ottawa, Canada

Theme 1: PA behaviour and motivation were enhanced	P4: I guess you could say it spurred me on, like, I definitely did more in the eight weeks than I had been doing before. So I guess you could say it had a positive influence (group 1)
	P1: Well, there's no point of just going out for a walk once a week if you want to get physically active, so just being like "okay, well, I'm a little bit tired today, but maybe I'll go for 20 min and tomorrow I have my fitness class". So, it was motivating in that regard to see some progression (group 1)
	P3: It certainly motivated me to keep setting goals, to keep improving and keep making it a priority and scheduling it in (group 1)
	P5: I know now that I definitely have to exercise and that I'm going to do it, so it did help. It motivated me to keep continue exercising (group 2)
	P6: I just think it was a motivator to begin, like a starting place to begin to get more physically active (group 2)
	P11: It sort of spurred me on to get out again and helped me realize how much I actually enjoy it once I get there (group 3)
Theme 2: seeking accountability to take steps for better health	P9: I needed to resume it [exercise] and I resumed it by walking. That's why I was so interested in your program, just to involve myself with more physical activity (group 3)
	P2: I wanted to get back into walking again, and I thought well here's a great opportunity to get with people who also want to walk (group 1)
	P5: Because I needed to exercise more. I needed to become more active. And I thought that it was an opportunity to do it, it would force me, I would have a commitment (group 2)
	P6: I wanted to use it as a catalyst to help me to get out there and get more physically active. I just feel like participating in a group helped with like, commit to doing it (group 2)
	P2: It keeps me accountable, especially, in the winter, it's easy to become a hermit in the winter, so by having other people to do things with, it helps encourage you to go outside, instead of staying inside and saying there's too much snow (group 1)
	P8: I think, for me personally, having, you know, a scheduled time really helps with me, and if I know that there's other individuals that are there, kind of relying on me, that also really motivates me as well (group 3)
	P1: I know if I've made a commitment to a group or something, then I will block that time off definitely in my schedule, and just work around it like, "nope, Tuesdays at that time, I'm not free" (group 1)
Theme 3: mutual support encourages in-group bonding	P1: I think just the sharing of the stories, sharing of information, you know, the chats while we walked that was all, you know, made me want to come back (group 1)
	P3: I think socialization was the biggest motivator, by far, just knowing that I was going to see this wonderful group that I was trying to get to know. And that was exciting and supportive. And that was just a huge, huge motivator for me to continue on and to keep coming (group 1)
	P4: I really liked talking to them and hearing from them each week. And I felt like we could all be encouraging to one another. So, I was definitely motivated to come back because I liked the connection with people (group 1)
	P5: I actually looked forward to going and it was nice to socialize too and to walk with people and talk and to meet other cancer patients and talk to them (group 2)
	P9: I was very pleased to see them and we discussed and we exchanged and things like that, but not after the meeting (group 3)
	P10: Maybe not the bonding, but at least for that social moment you know, it probably won't go any further than that moment (group 3)
	P11: I had hoped, I think, for it to be maybe a bit of a bigger group and I would meet somebody who was a West-ender like I am, and wanted to continue beyond the program on Sundays and walk together or something (group 3)
	P2: To me, we were all working towards a common goal which is to be active, I wasn't looking, because I have people in my life that care about me, I wasn't looking for that with the group [...] I did feel that people cared but at the same time, I wasn't really paying attention to it because that wasn't really what I was after in the group (group 1)

motivated them to attend sessions over time even more so than the program *content* (i.e. walking). Participants identified receiving support during the weekly sessions as important. Further, they noted creating bonds and connections with the other participants shifted their participation motives to include communal motives in addition to

personal health motives. Specifically, participants felt the communal qualities of the group (e.g. empathetic, friendly, sincere) and the support available within the group compelled them to attend sessions. This being said, in-group relationships did not translate to a deeper, more meaningful connection outside the sessions. There were two

**Table 2** (continued)

## Theme 4: placing value on building PA confidence

*Knowledge and skills to facilitate PA* P8: I really enjoyed meeting all the other participants for sure. I had a chance to talk to them and learn a little bit about their own individual experiences with cancer and a little bit of their own personal lives. I think that it was really beneficial to learn some of those things from those other participants (group 3)

P3: I think it definitely increased my confidence about the fact that it's possible and the fact that I can set a goal or I can schedule it [...], whereas in the past, I didn't really do that. I just sort of left it to chance that I would have enough time leftover in my day to do it, but now I'm a little bit more—I really kind of schedule it into my day (group 1)

P7: One of my goals was to cycle to work every day so I prepared for it, like we discussed. Because I wanted to do it but how can I make it easy for me to achieve that goal? My bicycle didn't have lights and a ring [bell] and that sort of thing. So, I prepared, I bought myself a good helmet. All those things helped me to make it more achievable (group 2)

*Belief in ability*

P1: I think, you know, talking with the other women and encouragement from them and hearing that they were in the same position and yes, you know, like, "this week wasn't a good week, my child was sick, I couldn't get out", just knowing that other people are dealing with the same type of struggles (group 1)

P6: I think you encouraged me that I could keep going at it and I could keep doing it and I would be okay. Because at first going for a half hour walk was a challenge. And by the end, we were going for an hour, so I think that was encouraging (group 2)

P1: Each week you were increasing the distance, so for myself I knew, "Okay, I'm feeling good. I can do it". So, when I was at home, I could say "Okay, I'm not going to go for 20 min today, I'm going to go for half an hour today" (group 1)

P3: I think that the way that it was structured, and that it was sort of a gradual increase in activity, each time that we met, I think, really kind of demonstrated to me that I can set goals for myself, and that I can increase activity or increase the intensity, I can make little changes and my body can respond (group 1)

## Theme 5: impact of the COVID-19 pandemic

P10: The others, I don't really know them. I know we said the names the first week but after that I couldn't really repeat any of the other names. I can't tell you what their names are, let alone which is who (group 3)

P9: One barrier was really the mask. Because often when we were walking, it was hard to understand (group 3)

P11: I guess the whole Covid thing, I found it very, it didn't give me those parts of what I had hoped to get out of this. I couldn't tell you the names of the other women, I couldn't tell you anything about them. I felt it was quite isolating, it was very individual, because we're all wearing masks. We're all trying to stay away from each other. So I didn't feel a camaraderie (group 3)

P11: It would have been nice to have been able to do that part [discussion on self-management skills] indoors where we weren't huddled because we're getting cold standing around. It would have been nice to be able to go into the facility and sit around a table for 15 min at the beginning to have a little chat about whatever the topic of the week is, but also have a little opportunity to chat amongst ourselves and get to know the other women a little bit (group 3)

## Theme 6: recommendations for future programs

*Overall*

P1: It was very enjoyable, even when it was minus 29 and we were out there all bundle up, we still laughed and did it. We really showed how resilient we can be, it was a very positive experience (group 1)

P6: I think it was great. It's a great program. I hope more people participate in them. I hope to see more people doing it (group 2)

P9: I feel like it was a beneficial experience for me. I feel like it gave me an outlet every week to have that social piece as well as an opportunity for physical activity (group 3)

*Recommendations*

P1: Oh, a personal trainer would be nice to show me how to do absolutely everything correctly (group 1)

P11: I think anything to help connect individuals would be really help. You know, you meet together once a week, which is nice and all but, it's a very short time with very little actual interaction [...] I think having an online presence or a before or after cup of tea kind of thing would help me foster that kind of a relationship (group 3)

P3: I didn't really expect to spend so much time as a group indoors talking at first, but I'm actually kind of glad that that's the way it was because it was a small group and there was some degree of getting comfortable with the group. So I think we were able to gel a little bit better, just outside of the walk first before actually going out on the walk. So I think I really felt really comfortable and connected with the other members (group 1)

P2: I think as long as the person leading a group like this, is aware of what people are going through, then no it's not necessary to have experienced it [cancer] in order to lead it [...] Your personalities made it easy for the participants to not feel judged, to not feel that they're being dismissed, that they were being listened to, so from that side, there was that openness there that made it easy (group 1)

Ellipsis (...) indicates text omitted to enhance clarity. The group the participants attended is indicated in parentheses at the end of each quotation; groups 1 and 2 took place prior to the COVID-19 pandemic whereas group 3 took place during the COVID-19 pandemic. PA=physical activity.

distinct reactions to this lack of outside connection: disappointment or indifference.

#### **Theme 4: placing value on building PA confidence**

The progressive nature of the walks facilitated PA outside of the weekly sessions. Participants explained the progressive nature of the walking session created positive experiences with PA, which helped them develop and demonstrate physical competence and, in turn, allowed them to gain confidence to be active independently. In addition, they felt they were able to gain valuable knowledge and skills to self-manage their PA through the education sessions and exchanges with other participants. The benefit of the latter was it fostered the sharing of similar struggles around engaging in PA along with advice and resources to overcome struggles.

#### **Theme 5: impact of the COVID-19 pandemic**

Whilst participants valued the program, measures put in place to adhere to public health recommendations hindered the experiences of those who completed the program during the COVID-19 pandemic. Compared to those who took part in the program without the measures (before COVID-19), they struggled to create supportive relationships due to the need to wear face masks/coverings and hold educational sessions outdoors. Wearing face masks/coverings hindered interactions as participants felt they could not easily understand each other. It was therefore more difficult to bond with others. Further, participants were less motivated to ‘sit (or stand) around’ outside in the late Fall when it was colder outside, and thus found it hard to exchange with others to get to know them. Since some were attracted to the program for its potential social benefits (e.g. obtaining PA support, decreasing feelings of isolation), the relational aspect that made the program ‘special’ was lost for them.

#### **Theme 6: recommendations for future programs**

Overall, participants were satisfied with the program and felt it offered them a fun, enjoyable PA experience whilst connecting with other cancer survivors. Nevertheless, participants provided suggestions that could help better align the program with their needs and preferences. First, participants felt to further promote their PA competence they would require instrumental support focused on teaching them technical skills, strategies and knowledge to perform different exercises. Second, participants noted creating an online community could facilitate connections outside

sessions for those seeking additional social support. Third, as underscored by participants who took part in the program during COVID-19, future programs should be hosted in a way that affords participants socialising opportunities in comfort. Last, participants highlighted the importance of having someone who can create a warm and welcoming environment, whether a peer or expert, lead the program.

## **Discussion**

The purpose of this qualitative study was to explore cancer survivors’ experiences participating in an 8-week group-based walking program with behavioural support delivered within the community, as well as assess the feasibility of delivering such a program to offer recommendations for future programs. Partway through the study, the COVID-19 pandemic began, which provided an opportunity to explore how implementing public health recommendations (i.e. social distancing, meeting outdoors, wearing face masks/coverings) could impact participants’ experiences. Findings suggest the program fostered participants’ motivation for PA and increased their confidence to engage in PA. Further, the group component of the program encouraged a communal focus in addition to a health focus. Nevertheless, implementing public health recommendations dampened participants’ experiences as it had an effect on social interactions and limited PA support. Overall, participants were satisfied with the program, but they did provide useful feedback that could serve to improve future programs, namely adding strategies to provide instrumental support, facilitating optional socialising and ensuring the program is delivered in a welcoming environment by a competent and warm facilitator.

Several theories have been applied to understand and change PA behaviour (see [19]). Whilst this study was not grounded in a specific theory a priori, findings map onto several prominent theories. For example, participants emphasised the importance of progression in the walking sessions as it allowed them to develop or reinforce their beliefs in their ability to be active through mastery, which is in line with social cognitive theory [20]. Additionally, participants’ accounts of the influence of social interactions as critical for increased PA confidence are reflective of the interrelationship between the basic psychological needs of competence and relatedness within basic needs theory [21]. Additionally, similar to other programs [12], participants felt the group-based program facilitated their motivation and commitment to the group because it created personal accountability and thus enabled PA. However, the importance of the group in terms of creating accountability and commitment has less theoretical rationale in the behaviour change literature—a gap that has received increased attention as of late [22] as studies suggest that groups can provide an accountability

and commitment system that may spark motivation and behaviour [12]. Drawing on theoretical perspectives of group cohesion may offer a potential explanation for the role of the group in supporting accountability and commitment. Group cohesion is often considered the ‘glue’ that keeps members motivated to stay with a group [23], especially if members feel united in the pursuit of a group goal and/or if the group satisfies members’ affective needs [24]. This seemed to be the case in this study, which is noteworthy because increased adherence to group sessions may support maintenance to PA post-program [25]. Therefore, it is important that community-based programs draw on these findings to select behavioural support techniques and strategies to facilitate the group environment, structure and processes.

Participants’ outlook on the program and their PA shifted during the program, wherein receiving emotional and informational social support created additional reasons for attending weekly sessions. A meta-synthesis of 8 qualitative studies exploring cancer survivors’ experiences in exercise programs corroborates these findings [12]. Specifically, the authors of the review suggest cancer survivors enrol in exercise groups/classes because they offer a sense of purpose, new goals and a welcome distraction from participants’ disease, whilst the groups/classes themselves offer an opportunity to preserve their sense of normality and reclaim their body through social support. Knowing this, it is important to advertise the individual benefits of the group (e.g. accountability, purpose, increased PA) whilst emphasising group benefits once the program has commenced (e.g. social support) when promoting group-based PA programs. However, in contrast to the meta-synthesis [12], participants in this study did not discuss any changes/improvements in their thoughts and feelings towards their appearance. This topic may not have arisen during the interviews because the education sessions were focused on the importance of PA for health and wellbeing generally. In the future, researcher may wish to explore whether participants would benefit from discussion of topics related to appearance.

### Practical implications

In line with previous research [26], findings suggest a group-based format is appropriate and beneficial for educating cancer survivors on behavioural support for PA. Although this study focused on describing participants’ experiences of the program in general, this is a significant finding as many group-based PA programs do not incorporate behavioural support to promote long-term maintenance [27]. Yet, program adherence (average percentage of sessions attended: 53.1%; 4.75/8 sessions) is lower than adherence rates reported for other walking programs (80–95%) [28, 29]. It is important to note that the adherence rate in the current study was tracked by the facilitator

whereas it has been self-reported previously, which has been shown to be highly variable [30]. Similarly, program attrition was 21.4% such that three participants dropped out of the program, whereas Pernar et al. [28] and Matthews et al. [29] reported 0% and 6% attrition, respectively. Pernar et al. [28] delivered a walking program on hospital grounds with patients undergoing treatment, and Matthews et al. [29] tested a self-guided walking program. It is possible that the higher attrition rate in this study may be related to the community-based nature of the program which may increase the likelihood of experiencing common barriers to participation including competing priorities, time constraints and location concerns [31–33]. Nevertheless, future programs should incorporate strategies, such as those mentioned above, to promote adherence and retention to the program.

Whilst participants enrolled into this study (and program) appreciated the program on various accounts, recruitment and enrolment proved difficult over the 28-month period and was substantially lower than other walking group programs for cancer survivors [28, 29]. This may, in part, be due to the community-based passive recruitment strategies used herein versus the use of active recruitment (i.e. direct contact via recruitment letters or phone calls from hospital registries) [28, 29]. Thus, exploring additional means of recruitment will be necessary when attempting to recruit large numbers to test effects of facilitator-led, group-based PA programs incorporating behavioural support within the community.

The limitations of this study should be acknowledged when interpreting the results. First, the first author facilitated the walking program and interviewed participants. Although this allowed for prolonged engagement with participants, it is possible some participants may have been reticent to share critical views of the program. Second, the sample was largely composed of middle-aged to older women diagnosed with breast cancer, who were married, White and had post-secondary education; this sample is not representative of the wider demographic of cancer survivors. Finally, participants were on average less than 12 months post-treatment; thus, cancer survivors further into survivorship may have experienced the program differently.

### Conclusion

Given the importance of promoting PA adoption and maintenance amongst cancer survivors, identifying strategies to promote positive experiences within group-based PA programs and equipping survivors with the knowledge, confidence and skills to maintain PA post-program is vital. Based on the findings of this qualitative study, group cohesion and behaviour change theories may be useful for designing,



delivering and evaluating group-based PA programs for cancer survivors. Further, it may be necessary to advertise the individual health benefits of group-based programs to foster enrolment but encourage social connections once the program has started to support retention to the program. Finally, researchers and community organisations are encouraged to use active recruitment strategies to increase the number of participants who enrol into such programs.

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## Declarations

**Ethics approval and consent to participate** All procedures performed were in accordance with the ethical standards of the University of Ottawa Research Ethics Board (H-05–18–681) and with the 1964 Helsinki Declaration and its later amendments/comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

**Consent for publication** Informed consent was obtained from all individual participants included in the study to publish de-identified data.

**Competing interests** The authors declare no competing interests.

**Author contribution** JP designed and delivered the walking program; collected, analysed and interpreted the data; drafted the manuscript; and approved the submitted version of this manuscript. JB oversaw all aspects of the walking program design and delivery, contributed to the interpretation of the data, critically revised and edited the manuscript and approved the submitted version of this manuscript.

**Data availability** The data cannot be shared as participants were assured that their data would be kept private and confidential to the extent permitted by law and that only the research team would have access to the data.

**Code availability** Not applicable.

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