

Using a positive self-talk intervention to enhance coping skills in breast cancer survivors: lessons from a community-based group delivery model

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ABSTRACT

Purpose

Cancer survivorship is a distinct phase of the cancer continuum, and it can have myriad associated stresses and challenges. The purpose of the present study was to evaluate the effectiveness of a positive self-talk (PST) intervention in enhancing the coping skills and improving the psychological well-being of breast cancer survivors.

Methods

Participants (n = 38) were recruited from 5 support groups in a small eastern Canadian province. Support groups were randomly assigned to either a control (n = 18) or an intervention (n = 20) condition. Intervention participants were pre-tested, received a 2-hour PST in-person group workshop and a 10-minute "booster" session by telephone, and completed post-test questionnaires 1 month later.

Results

Intervention participants reviewed the workshop favourably. Nearly all participants used the intervention in everyday life, were able to accurately describe how PST works, and found that PST had a considerable impact on their ability to cope with cancer and related sequelae. However, the descriptive findings from the workshop evaluation did not translate into significant differences between the intervention and control groups on the psychometric measures.

Conclusions

The PST intervention, delivered in a community group model, was positively received and effective in teaching participants about PST and how PST can be used to enhance coping skills for breast cancer patients. However, the intervention did not promote significantly greater levels of change in anxiety, depression, mood disturbance, or coping ability for intervention participants. The unique challenges of community-level psychological intervention are explored.

KEY WORDS

Cancer survivorship, coping skills, positive self-talk, community-based intervention

1. INTRODUCTION

Cancer is among the leading causes of premature death in Canada, with incidence and mortality rates being highest in the Atlantic provinces and Quebec. Advances in early detection and treatment strategies have caused mortality rates to decline, resulting in growing numbers of cancer survivors [1,2]. Cancer survivorship is considered a distinct period in the cancer care continuum, during which many cancer patients have to cope with the physical, psychological, and sociological issues resulting from the cancer or cancer treatments [3].

The "cancer survivor" concept is debated in the literature, because many would argue that a survivor is anyone with a history of cancer from the moment of diagnosis onward, but others claim that survivorship should be recognized only after the completion of primary treatment for cancer, or even after 5 years of cancer-free status. The present study operationalized "cancer survivor" as participants who had completed acute cancer treatment. Breast cancer survivors may experience severe stress because of cancer sequelae such as lymphedema, fertility complications, fatigue, fear of recurrence, and negative body image [4–6]. As a result, many cancer patients continue to experience unique psychological and social issues during their survivorship years [7].

1.1 Survivorship Issues and Support

A breast cancer diagnosis can result in a variety of psychological issues, such as increased stress, anxiety,

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depression, and posttraumatic stress disorder [8]. Body image issues may arise because of the nature of breast cancer surgery (for example, mastectomy) or because of premature menopause induced by adjuvant treatments [9–13]. Social issues for breast cancer survivors include difficulty engaging in recreational activities with friends or complications in returning to work [6,14–16]. Cancer surveillance tests may be invasive and stressful [4]. Anxiety and depression are commonly experienced [13] and may be rooted in changes and challenges with intimate relationships, sexuality, intimacy, fertility, and a perceived and actual heightened vulnerability to illness [13,17–19].

Despite knowledge of the well-documented long-term psychological and social issues experienced by breast cancer survivors, health care resources and follow-up protocols are focused primarily on physical needs and challenges. As a result, survivors often turn for psychological and social support to other sources, including social workers and psychologists [20,21], family and friends [22,23], and formal support groups [20]. Support groups are particularly popular with survivors [7,24] because they provide information resources and emotional support, resulting in empowerment, improvement in stress management, and enhanced psychological well-being [24–26]. Given their popularity, support groups may be an appropriate medium through which health professionals can meet the emotional, information, and coping needs of breast cancer survivors.

1.2 Positive Self-Talk

Positive self-talk (PST) is a cognitive psychological technique used to stop negative cognitions that can cause anxiety, depression, and pessimism, and that can interfere with functioning and performance [27]. Positive self-talk has frequently been used by athletes as a cognitive strategy to assist in maintaining focus, enhancing motivation, and coping with negative thoughts, emotions, and events. Researchers have found PST to be an effective performance enhancement strategy in a variety of sports and athletic tasks including dart-throwing [28], leg extension endurance [29], tennis [30], soccer [31], hockey [32], cycling [33], and running [a].

Interventions using PST have also been successfully administered in health care settings, teaching children to enhance coping with painful medical procedures [34], helping adults to increase adherence to rehabilitation programs [35], and reducing symptoms when given as part of group therapy for breast cancer patients [36,37]. These techniques have also been shown to be effective in addressing many common survivorship issues, including fatigue, anxiety, and depression [38,39]. Follow-up interventions of this type may assist breast cancer survivors to cope effectively with stressors related to cancer or its treatment, including anxiety, depression, and fatigue. Previous work by Moorey and Greer has provided a strong foundation for psychological interventions with cancer survivors [38].

Adjuvant psychological therapy (APT) is a brief, problem-focused cognitive behavioural therapy program designed to address the unique needs of cancer patients and survivors [38]. In previous applications, the program involved working with patients individually, 1 hour each week for 6–8 weeks [38,40,41]. Patients fostered their coping skills by building on identified strengths, challenging their automatic thoughts, and learning progressive muscle relaxation techniques [40]. Compared with control patients, patients who received APT showed greater improvements across all measures and had significantly higher scores on "fighting spirit" and significantly lower scores on helplessness and anxiety [40]. The APT program demonstrated effectiveness in improving psychological outcomes, but its widespread applications were not tested. For instance, the program was offered only to those who demonstrated a particularly high level of distress (anxiety or depression). Other issues such as return to work, financial difficulties, non-cancer medical concerns (such as menopause), and concerns about friends or family members becoming ill are also important to cancer survivors, but such issues may not translate into "abnormal levels" of anxiety and depression [7].

Given the limited resources in the public health care system, it is not easily feasible to offer one-on-one APT to cancer patients [40]. Additionally, the province of New Brunswick does not have a centralized cancer care centre, thereby presenting another barrier to delivering an APT program. Despite those limitations, it may be possible to modify the current APT model to enhance efficacy for cancer survivors who do not suffer from psychological morbidity and thus to cost-effectively present a program in settings that lack centralized psychosocial cancer care. Offering PST workshops in group settings, with a focus on teaching specific skills, may assist cancer survivors in dealing with the many cancer and treatment-related sequelae they encounter during their survivorship years.

2. METHODS

We hypothesized that participants who took part in a community-based PST intervention workshop would develop PST skills and would be able to apply them in everyday life.

The impact of the workshops would be further evidenced by a reduction (relative to a control group, as measured by standardized questionnaires) in anxiety, depression, problems faced, problem intensity,

[a] Hamilton RA, Hussey K, Scott D. Inside the athlete's mind: applying the think aloud technique to athletic performance. Presentation at the annual meeting of the Canadian Society for Psychomotor Learning and Sport Psychology; November 2006; Halifax, NS.

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and mood disturbance, and in an increased ability to cope with survivorship issues.

2.1 Study Design

Our study was reviewed and approved by the Dr. Everett Chalmers Regional Hospital Research Ethics Committee (2008-008). This quasi-experimental interventional study assessed the impact of a PST intervention on anxiety, depression, mood, and coping in cancer survivors. Participants were divided into two groups, intervention and control, and they were measured on two separate occasions 1 month apart. (T1 and T2) Upon completion of both data collection sessions, the control group also received the workshop.

2.2 Study Setting

New Brunswick is a relatively small province in eastern Canada; nearly half its 730,000 inhabitants live in rural areas.

2.3 Inclusion Criteria, Exclusion Criteria, and Participant Recruitment

Members of 5 breast cancer support groups across the province of New Brunswick participated in the project. Of the participating groups, 3 were based in rural communities, and 2, in urban centers. Support groups were randomly assigned to either the intervention (3 groups) or the control condition (2 groups). All members of the support group who had been diagnosed with cancer were considered eligible for participation. Support group leaders were contacted by telephone or e-mail as an initial point of recruitment contact. Full details of the project were provided to the leaders to share with the members before they agreed to participation. In some cases, researchers gave a brief presentation to the support group describing the workshop and study before members agreed to participate.

2.4 Measures

The Profile of Mood States–Short Form (POMS-SF) consists of 30 items constituting 6 subscales measuring 6 distinct and transient mood states. The subscales of the Short Form have been found to be internally consistent (Cronbach alpha: 0.78–0.90) and valid [42–44]. The POMS-SF has been suggested for use as a measure of distress after psychological interventions and of quality of life after cancer therapy [42].

The Hospital Anxiety and Depression Scale (HADS) was developed by Snaith and Zigmond [45] to identify and quantify symptoms of anxiety and depression in medical patients. In a review of international experiences with the HADS, Herrmann [46] reported that the HADS consistently shows acceptable internal consistency ratings for both the anxiety (Cronbach alpha: 0.80–0.93) and depression (Cronbach alpha: 0.81–0.90) subscales. This 14-item scale has also shown acceptable test–retest reliability, with stability in the measurement noted over short periods of time [46]. Herrmann's review [46] also reported acceptable factorial, construct, and concurrent validity.

The Rehabilitation Survey of Problems and Coping (R-SOPAC) is a 25-item self-report survey focusing on health-related problems, symptoms, and coping ability. Participants are asked to rate a broad range of physical, emotional, and cognitive problems in terms of intensity and also to rate the degree to which they are able to cope with these symptoms. The R-SOPAC began as a clinical tool, but has been effectively used in research studies [47].

The Workshop Evaluation and PST Application Questionnaire was designed for the present study as a means of evaluating the effectiveness of the workshop and application of the PST techniques by participants. Participants were asked to describe if and how they applied PST in their lives, the aspects of the workshop that were most effective, and the effectiveness of the PST intervention in helping them to cope with their cancer survivorship issues. Demographic data was also collected for descriptive purposes.

2.5 Data Collection and Intervention Protocols

At the beginning of the first session, the study was fully explained in all groups, and informed consent was obtained from the participants.

2.6 Intervention Group Protocol

Upon completion of the consent forms and questionnaires (T1), the PST workshop commenced. The workshop duration was 1.5 hours. It followed a basic framework including

- discussion of the challenges faced by breast cancer survivors;
- discussion of various ways to cope, and identification of PST as an emotion-focused coping strategy;
- completion of an exercise identifying events that cause negative thinking, the negative thoughts themselves, and the resultant emotions;
- development of a thought-stopping strategy;
- discussion of appropriate PST replacement statements;
- implementation of PST replacement statements through exercises;
- demonstration of relaxation and breathing exercises; and
- development of a proactive strategy for PST.

An electronic slide presentation, video, and 8-page workbook were designed for the study.

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Two weeks after the workshop, participants were contacted by RH (the workshop leader) to participate in a telephone refresher call. During the refresher session, the principles and approaches of PST were reviewed, and participants were invited to discuss any challenges they may have encountered. Participants were asked if they applied PST in those situations, and if not, how they might apply PST in the future. All questions and concerns were addressed before the refresher session ended. Refresher sessions lasted 10 minutes on average.

The final meeting with intervention group participants was held 1 month after the first intervention, during a regularly scheduled support group meeting. During that meeting, participants completed the questionnaire package (T2) and also completed the workshop evaluation document. Participants were given a debriefing form and were thanked for their participation.

2.7 Control Group Protocol

At the first meeting with each control group, participants completed consent forms and the questionnaire package (T1). At the second session, 1 month later, participants again completed the questionnaires (T2). Once the T2 assessment was completed, participants received the PST workshop as an unmeasured service.

2.8 Analysis

Descriptive statistics summarize the data and describe the sample. Differences between the intervention and control groups were compared using a series of independent-samples *t*-tests. Change scores from T1 to T2 on each dependent variable were used to assess the effectiveness of the intervention, and *t*-tests were conducted for HADS–Anxiety, HADS–Depression, R-SOPAC–Number of Problems, R-SPOAC–Average Problem Intensity, R-SOPAC–Average Ability to Cope, and POMS–Total Mood Disturbance. The workshop evaluation was analyzed by coding the responses to open-ended questions and by compiling descriptive statistics. All data were analyzed using the Statistical Package for the Social Sciences (version 15.1: SPSS, Chicago, IL, U.S.A.).

A priori sample size calculations were conducted. Using an anticipated 0% change in the control group and 20% improvement on each variable in the intervention group, it was determined that 45 participants were required for 80% power. We therefore recruited 65 participants into the study.

3. RESULTS

3.1 Profile of Study Population

Of the 65 participants recruited to participate, 38 successfully attended and completed all data collection or intervention sessions (Table I). The average age of the women in the sample was 60.6 years. Of the 38 participants who completed both the pre- and post-tests, 71.1% were married, 10.5% were divorced, 10.5% were widowed, and 7.9% were single. On average, participants reported that it had been 4 years since their cancer diagnosis. Although participants had, on average, completed acute treatment 2.6 years earlier, approximately 10.5% of the sample had yet to finish their last treatment. Most of the participants (81%) had been members of a support group for more than 1 year, and 84.6% had children.

3.2 Workshop Evaluation: Hypothesis 1

The 20 intervention participants were invited to complete a workshop evaluation questionnaire in addition to the other psychometric measures. Table II summarizes the results of the workshop evaluation.

The workshop evaluation served as an important tool in assessing hypothesis 1, which stated that participants would be able to develop and apply PST skills in their everyday lives. Although the analysis is descriptive, results are supportive of hypothesis 1. As presented in Table II, all participants reported enjoying the workshop (100%), most appropriately recalled content taught in the workshop (95%), and a preponderance described using PST to help cope with a life stressor (75%).

3.3 Psychological Impact: Hypothesis 2

Change scores from T1 to T2 were used to assess the impact of the PST intervention. For each of the dependent variables, differences in the change scores between the intervention and control participants were tested for significance using one-way analyses of variance. See Table III for a breakdown of all means and significance tests.

The HADS was used to assess anxiety and depression in the participants. Reductions in anxiety and depression were observed in the intervention and the control groups. From T1 to T2, anxiety scores declined by 14.0% in the intervention group; they declined by

TABLE I Breakdown of participant recruitment and retention

Group	*Participants [*n *(%)]*[a]			
	Recruited	*Retained*	*Excluded for*	
			Drop-out	*Missing data*
Control	30	18 (60)	8 (27)	4 (13)
Intervention	35	20 (57)	15 (43)	0 (0)
TOTAL	65	38 (58)	23 (35)	4 (6)

[a] Because of rounding, percentages may not all add to precisely 100%.

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TABLE II Workshop evaluation completed by 20 participants in the intervention

Evaluation item	*Responses (n/20)*	(%)
Aspects of workshop most preferred (20 of 20 identified at least 1)[a]		
Presenter	10	50.0
Interactions with other survivors	10	50.0
Videos, workbooks, presentation	19	95.0
Aspects of workshop least preferred (9 of 20 participants identified at least 1)[a]		
Completing forms[b]	3	15.0
Length of workshop (too long)	3	15.0
Discussion	2	10.0
Skills taught (relaxation)	1	5.0
Skills that participants identified learning (19 of 20 participants identified at least 1)[a]		
Relaxation skills	5	25.0
Positive self-talk (PST) skills	18	90.0
Positive re-framing	11	55.0
Identifying thoughts and feelings	5	25.0
Stopping cues	2	10.0
Number of negative events in the last month (18 of 20 (81.8%) reported experiencing at least one negative event)[a]		
Personal medical issues (for example, follow-up cancer tests, re-diagnosis)	10	50.0
Non-medical personal issues (for example, daily stresses, financial pressures, public speaking)	3	15.0
Issues concerning other people (for example, worry about family members, friends who have been diagnosed with chronic or critical illnesses)	7	35.0
Use of PST (15 of 20 individuals indicated that they used at least one aspect of PST)[a]		
Relaxation skills	5	25.0
Distraction	1	5.0
Identifying and dealing with negative thoughts	14	70.0
How helpful was PST?		
Average score (scale 1–5)	3.7	
Did PST make you better able to cope?		
Average score (scale 1–5)	3.4	
How often did you use PST?		
Average score (scale 1–5)	2.5	
Percent who said they would recommend the workshop		100
Percent who reported enjoying the workshop		100

[a] Multiple responses possible.
[b] Completing forms was not a part of the workshop intervention, but rather of data collection.

TABLE III Means (intervention and control) for pre-test (time 1), post-test (time 2), and change scores, with significance values for change score comparisons on each of the dependent variables

Variable	*Time 1*	*Time 2*	*Change*	p *Value*
Mood disturbance (POMS)				
Control (*n*=15)	20.27	20.77	0.50	0.629
Intervention (*n*=18)	16.31	18.72	2.42	
HADS (anxiety)				
Control (*n*=18)	6.33	6.08	–0.25	0.303
Intervention (*n*=20)	7.50	6.45	–1.05	
HADS (depression)				
Control (*n*=18)	3.39	3.36	–0.03	0.484
Intervention (*n*=20)	3.15	2.80	–0.35	
Number of problems				
Control (*n*=18)	14.23	12.77	–1.45	0.111
Intervention (*n*=18)	13.44	14.11	0.67	
Mean problem intensity				
Control (*n*=18)	2.59	2.74	0.15	0.609
Intervention (*n*=18)	2.29	2.24	–0.05	
Average coping ability				
Control (*n*=18)	3.98	4.04	0.06	0.298
Intervention (*n*=19)	3.76	4.17	0.41	

POMS = Profile of Mood States; HADS = Hospital Anxiety and Depression Scale.

3.9% in the control group. However, that difference between the groups was not statistically significant ($p = 0.303$). A reduction in the depression score of 11.1% was observed for the intervention group compared with 0.9% for the control group, but, again, the difference was not statistically significant ($p = 0.484$). Similarly, significant differences were not observed between the groups on the dependent variables from the POMS and the R-SOPAC questionnaires.

4. DISCUSSION

The present study attempted to build on previous research by Moorey and Greer [38], whose work with APT demonstrated effectiveness in enhancing the psychological well-being of cancer survivors [38]. The PST intervention used in the present study was a simplified and generalized version of cognitive behavioural techniques [27,39]. We hypothesized that delivering such an intervention in a group setting to breast cancer survivors could enhance coping skills; reduce anxiety, depression, and mood disturbance; and reduce the number of problems experienced by participants.

Participants demonstrated an understanding of the intervention taught, described using it, and expressed satisfaction with the improvement in their ability to deal with psychological stressors, thereby supporting hypothesis 1. However, these subjective impressions

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of effectiveness did not result in measurable improvements on the psychological measures. Statistical power was not deemed to be an important factor, because the actual sample size approximated the *a priori* sample-size calculations; alternative explanations for the incongruence between subjective and objective results are therefore offered.

First, the length of the measurement period may have been too short for the impact of the intervention to be fully realized. The T2 assessment was carried out 1 month after the intervention. This period may have been inadequate because participants may still have been developing their skills and may not have been able to fully apply PST to their lives at that point. The measures may have lacked appropriate sensitivity to capture meaningful changes within the month. Even though participants described understanding and applying PST, its impact on psychological well-being may have been obscured by the brief measurement period.

A second reason that a positive subjective appraisal of the PST workshop was not accompanied by meaningful psychological change may be the specific measures chosen. The HADS and POMS assess general psychological phenomena, but general psychological change is unlikely in a short period of time. Despite the specificity of the R-SOPAC, several participants found the questionnaire difficult to understand, resulting in inconsistent completion of that measure. The combination of the measures chosen and the difficulties encountered by participants in completing the measures may have been precursors to the lack of significant findings. The minimal change observed may also have been a result of using measures designed to capture changes in psychological phenomena rather than changes in performance. Researchers supporting the efficacy of brief PST interventions have predominantly conducted studies with athletes, in whom the effectiveness of PST is measured in terms of performance on tasks such as improved race completion times in cycling [33] and in running [a]. Similarly, studies using PST in health care settings largely use performance-based measures (such as increased adherence to rehabilitation programs) to determine the success of the intervention [35]. Thus, it may be beneficial to include both behavioural and psychological measures in future studies.

A third explanation for the lack of significant psychological change may be the relative psychological well-being of these participants. Many participants scored at the lower end of the measures, resulting in a floor effect for change. Moorey and Greer targeted participants meeting criteria for the degree of psychological challenge being experienced [38]. The present study attempted to incorporate a broader audience and to increase the accessibility of follow-up support for survivors in rural areas by targeting pre-existing groups. However, it appears that a floor effect may have limited the impact of this well received and actively applied intervention. From a statistical standpoint, the floor effect is a negative occurrence; in reality, however, low levels of psychological morbidity in breast cancer survivors is a welcomed observation. Researchers and interveners may wish to emphasize the subjective viewpoints of participants who have little room to improve psychometrically, but who still see value in participating in this type of intervention.

Finally, the present study focused on discrete elements of cognitive behavioural therapy to the end of creating a streamlined, accessible, and efficient workshop delivery model. The intervention length (90-minute workshop, with a 10-minute refresher call) was brief, and this brevity may have influenced its effectiveness. Longer or more frequent refresher calls, or face-to-face follow-up sessions with the groups may have helped participants to further develop their PST skills and to actively apply them to problems. For example, studies reporting the successful use of PST with groups involve more frequent sessions and regular contact with participants [36,37]. However, studies in other disciplines have found that "time-limited" PST interventions have a beneficial impact on sports performance [31,33,a]. Moreover, as more elements—for example, more refresher calls or face-to-face follow-up sessions—are added to the model, the more difficult it becomes to implement the program, especially in rural areas. Although the difficulty of implementing the intervention is not a valid concern for researchers, it does present significant challenges when considering the intervention in a health services delivery capacity. This tension is indicative of the struggle involved in taking clinically oriented therapies such as PST to the community and offering them in a group-delivery model.

More specifically, although the support groups in the current study convened in major regions, many participants still had to travel various distances to attend the groups. Participants reported that attending additional meetings would be difficult given the travel requirement, particularly during winter months. There was also significant variability across the participants: recency of diagnosis, type and degree of reported difficulties, pre-morbid coping skills. Given the varied needs and interests of support group members, it may be difficult to provide adequate programming in a short-term format that addresses such diverse needs. Thus many challenges remain in providing community-based interventions to meet the varying needs of cancer survivors.

4.1 Directions for Future Research

Although the present study did not find significant changes in the psychological well-being of participants, important first steps were taken with this intervention. Future research may wish to build on the present findings by extending the assessment time

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for the study and having short "booster" sessions carried out at support group meetings. Such sessions may clarify and provide additional support for the use of PST to solve psychosocial problems related to (breast) cancer, while the support group continues to run additional programs simultaneously. An extended time period for delivery of the program may make attrition more likely; however, participants completing the program will have more opportunities to develop their coping skills, thereby positively influencing their quality of life and well-being.

4.2 Relevance to Cancer Survivors

Once acute cancer treatment ends, cancer survivors report a varied range of issues. Researchers have demonstrated that psychological counselling and interventions can be effective in helping cancer survivors to cope with such issues, with a possible positive impact on psychological well-being. The present study has demonstrated that psychological skills can be taught to cancer survivors in a support group setting and that survivors respond well to this method of psychological intervention. When survivors are experiencing intense psychological challenges, they will most likely benefit from individualized psychological therapy; however, when psychological issues are less acute, survivors may wish to enhance their psychological skills, coping, and well-being through community-based interventions such as the one presented in this study.

5. CONCLUSIONS

The PST intervention as applied was well received, retained, and applied by participants. Participants engaged willingly with the content and expressed a need for this type of workshop because they continually need to cope with cancer survivorship issues. However, those subjective appraisals of the intervention did not equate to significant psychological change for the participants. Community-based psychological interventions present unique challenges; however, by incorporating the modifications proposed in this paper, the potential still exists to effectively target survivors in community-based programs. Enhancements to workshop delivery in community-based settings may help to maximize the psychological impact of this well-received PST intervention.

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7. CONFLICT OF INTEREST DISCLOSURES

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