



## How Social Cognitive Theory can help oncology-based health professionals promote physical activity among breast cancer survivors



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### A B S T R A C T

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**Purpose:** The majority of post treatment breast cancer survivors do not engage in physical activity (PA) at the recommended level. The promotion of PA among this group has the potential to dramatically improve quality of life and health outcomes. To maximise effectiveness, programs should be theory-based and address key determinants of PA behaviour. Social Cognitive Theory (SCT) has shown particular promise for developing and guiding PA interventions, but future research regarding how each SCT construct relates to PA among this group is needed. This study aims to explore how core SCT constructs impact on PA participation among post treatment breast cancer survivors, and gain greater insights into how to shape PA program strategies that will be appealing and effective for this group.

**Methods:** Post treatment breast cancer survivors were recruited from the Breast Cancer Network Australia's review and survey group. Semi-structured telephone interviews examined PA patterns and SCT constructs and data were analysed thematically.

**Results:** Eight post treatment breast cancer survivors participated in the study. Changes in activity level since diagnosis were common; in most cases this reflected a decline in PA. Key social cognitive and environmental influences on PA were described under the following themes: knowledge, outcome expectations, self-efficacy and personal, behavioural and environment facilitators and inhibitors.

**Conclusion:** The results of this study demonstrate the utility of SCT for guiding PA programs. Insight into how social cognitive factors may influence PA behaviour in this group is offered and direction for how oncology-based health professionals can promote PA among breast cancer survivors is provided.

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### Introduction

There is a steadily growing population of breast cancer survivors worldwide (World Cancer Research Fund/American Institute for Cancer Research, 2007). Unfortunately, for many women survivorship encompasses a significant level of burden and disability both initially and long after the treatment phase is complete (Wolff, 2007). This burden is not currently being addressed as a part of routine cancer care and many survivors have significant unmet needs (Demark-Wahnefried et al., 2000; Jones and Courneya, 2002; Segar et al., 1998; Young-McCaughan & Sexton, 1991). Effective health promotion aiming to improve the quality of life and negate the health risks associated with survivorship among this group is needed.

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One promising cancer control strategy is the promotion of regular physical activity (PA) (Hayes et al., 2009; Schmitz et al., 2010). PA can address both the psychological and physiological burdens presented after breast cancer diagnosis and treatment (Aziz and Rowland, 2003; Chlebowski, 2007). PA may also have an impact on survival, with a growing body of observational research indicating that breast cancer survivors who are active after treatment have a lower risk of cancer recurrence, co-morbidities and death from all causes compared to those who are less active, regardless of cancer stage (Holick et al., 2008; Holmes et al., 2005; Lynch, 2010; Lynch et al., 2010). In recognition of these benefits, detailed PA prescriptions guidelines designed to maximise outcomes for cancer survivors have been published by experts in the field (Hayes et al., 2009; Schmitz et al., 2010). Previous research has shown that a recommendation to exercise from a health professional does lead to increases in PA among breast cancer survivors (Jones et al., 2004). Unfortunately however, at present the

vast majority of survivors do not receive any PA advice or support from their treatment team (Demark-Wahnefried et al., 2000; Jones and Courneya, 2002; Segar et al., 1998; Young-McCaughan & Sexton, 1991) and most do not engage in PA at a level sufficient to improve cancer outcomes (Eakin et al., 2007; Lynch et al., 2010). This may be due, at least in part, to the lack of evidence-based services that effectively promote regular and sustained PA among this group (Hayes et al., 2009). To support oncology-based health professionals promote PA, programs offering PA advice and support to cancer survivors are needed.

There is a growing recognition that theory-based behaviour change interventions are more effective than atheoretical approaches (Glanz and Bishop, 2010). Theories of behaviour change can help pinpoint *what* factors need to be considered before developing the program and can provide insight into *how* to shape program strategies to address these factors. Furthermore, theory-based interventions, unlike atheoretical approaches, can be tested in a way that provides information on *how* or *why* the intervention works. This increases the utility of the findings to others in the field and boosts the overall public health impact of the program (Bartholomew et al., 1998; Michie and Abraham, 2004). Hence, there is a strong rationale for designing PA programs for this group that are developed and implemented based on sound behavioural theories (Glanz et al., 2002).

One theory that has shown particular promise in this field is Social Cognitive Theory [SCT] (Bandura, 1986, 2004). SCT recognises the important dynamic and reciprocal relationship between behavioural, personal and environmental influences on behaviour, and offers ways of translating knowledge about these determinants into effective strategies for promoting behaviour change (Bandura, 2004; Baranowski et al., 2002). According to Bandura (2004), the core determinants that influence an individual's behaviour include *knowledge* of the health risks and benefits (which is a pre-condition for change), *self-efficacy* (a person's confidence in their control over performing a particular behaviour, which plays a central role in behaviour change), *outcome expectations* about the expected costs and benefits of performing the behaviour (which impacts on motivation), *goals* people set for themselves and their plans for achieving set goals (which provides self-incentive and guides action), and perceived *facilitators* and *impediments* to making behaviour changes, which can be behavioural, personal and/or environmental in nature (Bandura, 2004).

Whilst SCT is a promising theory and has been used to guide effective interventions (Demark-Wahnefried et al., 2006; Matthews et al., 2007; Pinto et al., 2005; Rogers et al., 2009), the application of SCT to the promotion of PA among breast cancer survivors is still in its infancy (Pinto and Ciccolo, 2011). For interventions to be evidence-based, further research is needed to explore what specifically should be addressed within each construct (i.e., to operationalize SCT for intervention development). For example, whilst the construct *outcome expectations* indicates that breast cancer survivors beliefs about the costs and benefits of participating in PA will impact on motivation, evidence is lacking regarding *what* specific outcome expectations may be particularly important to consider in this group (Rogers et al., 2004). Pioneering qualitative research by Rogers et al. (2004) has explored each SCT construct among breast cancer patients during the treatment phase, but no such studies have been conducted during the distinct 'survivorship' phase (the period following first diagnosis and treatment and prior to the development of a recurrence of cancer or death) (Courneya and Friedenreich, 2007; Feuerstein, 2007). As PA promotion can help negate many of the burdens and risks associated with survivorship in this phase, it is important that attention is focused on the specific factors (within each SCT construct) that may impact on or be related to PA in this group so that they can be addressed.

The current study aims to address this knowledge gap by exploring SCT constructs among post treatment survivors using a qualitative framework similar to Rogers et al. (2004). The secondary aim is to synthesise this information in a way that will be useful for intervention developers and health practitioners working within oncology.

## Method

### Recruitment

English speaking women aged over 18 who had been diagnosed with breast cancer and who were not currently undergoing 'active' cancer treatment (defined as surgery, chemotherapy, radiotherapy) were eligible to take part in the study. There were no other exclusion or inclusion criteria. Before approaching potential participants an estimate of the required sample size needed to reach saturation was conducted (Mason, 2010). Several factors known to impact on saturation were considered, including the scope of the study, the nature of the topic and the likely quality and amount of data obtained by each participant (Morse, 1994, 2000). As the present study builds on previous research, is narrow in scope and as high quality data is expected due to the sampling frame, it was predicted that a relatively small sample would be required. As a precaution, we aimed to recruit double the minimum sample size (i.e., at least six participants; Morse, 1994) recommended for qualitative research.

Participants were recruited from the Breast Cancer Network Australia's (BCNA; [www.bcna.org.au](http://www.bcna.org.au)) review and survey group, which consists of over 800 volunteers that meet the study eligibility criteria. As a response rate of approximately 28% was expected (based on previous research with this sampling frame) no other sampling frames were considered. In an attempt to recruit twelve participants, forty four women were randomly selected and sent a study information pack and consent form by BCNA on behalf of the research team. Information packs were re-sent two weeks thereafter to provide non-responders with the opportunity to take part in the study. Importantly, more invitations could be sent to other BCNA review and survey group members if requested by the research team. This was not necessary as theoretical saturation was reached after eight interviews.

### Procedure

Semi-structured, telephone interviews were conducted and audio-taped. Telephone interviews were chosen over other interview methods due to the geographical dispersion of participants and evidence that this type of analysis can provide rich and detailed data (Sturges and Hanrahan, 2004; Sweet, 2002), comparable to the data obtained from in-person interviews (Sturges and Hanrahan, 2004) (viewed as the "gold standard" for qualitative research (McCoyd and Kerson, 2006)).

Prior to conducting interviews with participants, practice interviews were conducted with two consumer representatives (including a BCNA consumer advocate) to provide the interviewer with an opportunity to practice interview skills and refine the interview materials if necessary. All interviews were conducted by one researcher (CS) who holds behavioural science qualifications and has experience working with cancer survivors. Each interview ran for approximately 45 min.

### Discussion guide

Interview questions exploring SCT constructs were adapted from Rogers et al. (2004) qualitative study among breast cancer

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