Running for the Cause or Walking the Talk?  
The Influence of the Run for the Cure Event on Participants’ Health Practices

by

Kathryn Moncks  
Bachelor of Kinesiology, University of Calgary, 2011

A Thesis Submitted in Partial Fulfillment  
of the Requirements for the Degree of

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ABSTRACT

The aim of the research in this thesis was to describe the motivations and health practices of participants in the Victoria Canadian Breast Cancer Foundation Run for the Cure, a mass physical activity charity event, and follow them forward approximately two and eight months post-event. Physical activity events are now established as part of nonprofits' repertoire of fundraising tools. These types of events can serve as a venue for ‘moving people to trial’ as they attract large numbers and foster mid-intensity participation in a non-competitive and fun environment. Understanding participants’ motives for and experiences in fundraising events can help to enhance the event for both the organization and the participant. Participants in this study were recruited through the Canadian Breast Cancer Foundation’s database of registrants in the 2012 Victoria Run for the Cure. Sixty-four participants completed an online survey gathering demographic, motivation, and health information. Subsequently, twenty-four of these individuals agreed to undergo fitness assessments at two and six months post the event, complete physical activity and healthy eating motivation questionnaires and be interviewed. At T1 participants were not meeting physical activity guidelines and heavier than the average resident in the region. Scores from fitness levels were maintained from two months to eight months post-event, but increased levels of intrinsic motivation for physical activity (Z = .047, p < 0.05), and decreased levels of identified motivation for healthy eating (Z =
.036, p < .05) were found. When looking at interview data, factors that largely guided initial event participation involved altruism, reciprocity, and self esteem. The fostering of autonomy and competence and providing a sense of belonging as a result of participation, helped to maintain commitment for both event participation and physical activity after the event. This research supports the notion that ‘fun runs’, provide an ideal environment to provide a context for health behaviour change at the population level, when SDT constructs and intrinsic and identified regulation are supported, especially for those not currently meeting health guidelines. The study offers practical and feasible strategies for the CBCF and other similar organizations to enhance its mandate, and to promote health and prevent disease.
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Dedication

I would like to dedicate this project to Auntie Donna, who demonstrates strength, unconditional love, and selflessness through her own adversity, and through it all, always gives more than she takes. Her zest for life, ability to see the best in people and every situation, has not only inspired this project, but my career path and my life. Thank you for enriching my life and for always making us such an important part of yours. I love you.
CHAPTER 1: Introduction

Each year, more than one million women worldwide are diagnosed with breast cancer and it is estimated that one in nine women will develop breast cancer in their lifetime (Public Health Agency of Canada, 2009). The most recent Canadian statistics show that in 2008, 5400 people died of this disease, and accounted for approximately 15% of all cancer deaths in women. In 2004, an estimated 166,000 women were living with or surviving from breast cancer in Canada, largely due to early detection and improved treatments over the last few decades (Public Health Agency of Canada, 2009). The current five year survival rate for Canadian women with breast cancer is now over 87%, making breast cancer survivors the largest group of cancer survivors in the country (Public Health Agency of Canada, 2009). Coexisting with this rise in survivors, has been a growing interest of cancer survivorship research addressing post treatment health promotion and an increase in knowledge of the contribution of behavioural risk factors of cancer morbidity and mortality (Aziz, 2002).

There is no single cause of breast cancer, but research suggests that 30-35% of all cancers can be prevented by eating well, being active, and maintaining a healthy body weight (Public Health Agency of Canada, 2009). Specifically for post-menopausal women, modifiable risk factors include obesity and physical inactivity. However, as more evidence demonstrating the importance of regular physical activity (PA) increases, the Canadian population is becoming heavier and more inactive (Centers for Disease Control and Prevention, 2011; Warburton, Nicol, & Bredin, 2006). Studies have shown that physical inactivity doubles health risks and adds a disease burden to society comparable with smoking (Lee et al., 2012), and this inactivity during middle age appears to shorten
the life span (Pate et al., 1995). Not only is regular physical activity and proper nutrition a valuable disease prevention tool, numerous studies have shown that physical activity has far-reaching benefits on those living with certain diseases, including reducing mortality rates, and improving mental health, physical health and quality of life (Penedo & Dahn, 2005). Promoting exercise and healthy lifestyle choices, both among women with breast cancer and those in the general public, are an important aspect of a public health (Kolden et al., 2002). Despite the knowledge of the physical and psychosocial benefits of participation in physical activity, and the potential benefits from regular engagement in a long term physical activity program, most individuals, whether healthy or living with a chronic disease, do not regularly engage in physical activity (Harrison, Hayes, & Newman, 2009; Pollock et al., 1998).

Non-profit organizations across Canada have started to utilize participatory physical activity events such as walking or running races to raise awareness and funds for their charity and research. Large events, such as the Canadian Breast Cancer Foundation’s Run for the Cure (CBCF RftC), attract thousands of participants across Canada, and last year raised $30 million for breast cancer research. In addition to the funds raised, events such as this may also include factors such as attracting new participants to the cause and educating these participants in certain health practices (Prater, 2009).

Recently, researchers have used Self Determination Theory (SDT) as a framework to understand and design interventions that promote the adoption and maintenance of an active lifestyle (Fortier, Duda, Guerin, & Teixeira, 2012; Gunnell, Crocker, Mack, Wilson, & Zumbo, 2013; Ryan, Patrick, Deci, & Williams, 2008).
According to Ryan and Deci (2000a), people vary in their level of motivation, but also in the orientation, or type, of that motivation. Orientation of motivation concerns the underlying attitudes and goals that cause people to take action and according to SDT “social environments that support an individuals’ basic psychological needs - specifically autonomy, relatedness and competence, are assumed to create more autonomous motivational patterns as well as adaptive outcomes” (Fortier et al., 2012, p.2). Therefore, the CBCF RfC and other ‘fun runs’, through participants’ relatedness to the event or the cause, and the non-intimidating distance of the race itself, could be an ideal environment to provide a context for health behaviour change at the population level (Funk, Jordan, Ridinger, & Kaplanidou, 2011). Further, experiences at the event could foster maintenance of physical activity by supporting these psychological needs.

Over the past number of decades, countless interventions addressing behaviour change, both among healthy and recuperating populations, have failed to find a formula for explaining ‘what works’ to ensure long term success (Ferrer, Huedo-Medina, Johnson, Ryan, & Pescatello, 2011; Hillsdon, Foster, & Thorogood, 2005; Johnson, Scott-Sheldon, & Carey, 2010; Lemmens, Oenema, Klepp, Henriksen, & Brug, 2008; Michie, Jochelson, Markham, & Bridle, 2009; Neville, O’Hara, & Milat, 2009; Ryan, Patrick, Deci, & Williams, 2008). In fact, “the available research highlights the difficulties with adopting ‘‘best practices’’ that simply do not meet community needs or oversimplify community realities” (Higgins et al., 2010, p. 280). Further complications arise because intervention evidence established through research can take considerable time to be translated into practice, and so “if we want more evidence-based practice, then we need more practice-based evidence” (Green & Glasgow, 2006, p.128). One solution
may be ‘natural experiments’ or ‘practical trials’ for population health research to study peoples’ life choices (Mercer, DeVinney, Fine, Green, & Dougherty, 2007; Saylor, 2006). Because of its enduring popularity and success in fundraising, the RftC can be seen as an opportune ‘natural experiment’ that may provide insights into these gaps in the literature.

The purpose of this study was to examine one local RftC event in Victoria BC to understand its allure and influence on participants and to understand how such mass public physical activity events may motivate and sustain positive health behaviours. The research questions were: Research question 1): who attended the Run for the Cure, and what were their motives for participating? Hypothesis 1: As this is an exploratory question, no a priori hypothesis is provided. Research question 2): What were the health practices (e.g., physical activity, healthy eating), and motivations for physical activity and healthy eating of participants? Hypothesis 2: Health practices will be more favourable among participants than the general population. Research question 3): Did participants maintain their motivation for particular health practices and their fitness levels following their participation in the event? Hypothesis 3: Participants in the RftC will have maintained health behaviours six months following the RftC.

The thesis unfolds in the following chapters: a review of the literature is presented next, offering a description of the knowledge base on health practices and breast cancer, Self Determination Theory, and the use of physical activity events by non profit organizations. Chapter 3 follows, outlining the methodology of the research, including participant recruitment, and the data collection and analyses strategies used. Both the quantitative and qualitative findings are presented in Chapter 4, organized according to
each research question. Finally, the findings are discussed and interpreted in terms of existing literature in Chapter 5, and limitations of the study. The thesis concludes by offering implications for practice and recommendations for future research.
CHAPTER 2: Review of Literature

The following review of the literature will focus on three topics. The first section will discuss the literature to date regarding current health practices of Canadians, how these health practices contribute to chronic disease and cancer development, the personal factors that affect those practices (in breast cancer survivors and the general population), and review the relationship between specific health practices and breast cancer prevention. The second section will emphasize the connection between exercise participation and maintenance using Self Determination Theory constructs. Finally, the third section will review the relationship between physical activity and various fundraising events and its impact on the organization.

The Relationship Between Health Practices and Breast Cancer

Current health practices. There is an increasing body of evidence indicating that regular participation in physical activity above the recommended levels is associated with a reduced risk of a number of chronic diseases (Bryan & Katzmarzyk, 2011). Despite this accumulating evidence (Bryan & Katzmarzyk, 2009; Statistics Canada, 2013), the latest Canadian Health Measures survey that used accelerometers and self-report questionnaires to capture activity levels, 52.5% of Canadian adults self-reported engaging in the recommended level of physical activity. However, in stark contrast to the self-reported figure, when looking at accelerometry data, only 15% were actually meeting guidelines (Colley et al., 2011). In this same study they found that across all age groups, men engaged in more MVPA than women, with only 14% percent of adult women accumulating more than 150 minutes of exercise per week (Colley et al., 2011). In
addition to not reaching physical activity guidelines, 69% of Canadian adults spend their waking hours in sedentary pursuits, averaging 9.6 hours of sedentary time per day (Colley et al., 2011). Previous research has found that Canadians not reaching minimum PA guidelines are more likely to self-report certain chronic conditions or to report fair/good general health than Canadians meeting the recommendations (Bryan & Katzmarzyk, 2011).

In a recent study on the long term health effects of sedentary behaviour (specifically sitting), undertaken on Canadian adults, it was discovered that greater daily time spent sitting was associated with increased all cause mortality; this observation was consistent even amongst physically active individuals (Bryan & Katzmarzyk, 2011), suggesting that sitting time is an independent risk factor for mortality. However, it is now recognized that even low amounts of physical activity are beneficial while additional favourable outcomes occur with greater involvement in higher intensity activities, with a new ‘high’ level of activity set at 300 minutes per week (Warburton et al., 2006). Strong evidence demonstrates that compared to less active adult men and women, individuals who are more active:

- have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon and breast cancer, and depression;
- are likely to have less risk of a hip or vertebral fracture;
- exhibit a higher level of cardiorespiratory and muscular fitness; and
- are more likely to achieve weight maintenance, have a healthier body mass and composition.
Not only are Canadians failing to meet physical activity guidelines, nutritional practices are also in need of improvement. According to the 2004 Canadian Community Health Survey—Nutrition, Canadians consumed an average of 110 grams (26 teaspoons) of sugar a day, approximately 20% of their total energy intake. While over 30% of this sugar came from vegetables and fruit, 35% came from the “other” foods category, which consists of items such as soft drinks, salad dressings and candy. The top ten sources of sugar accounted for approximately 85% of daily sugar intake, with beverages (milk, fruit juice, fruit drinks and regular soft drinks), representing 35% of that consumed by adults. According to Garriguet (2009), who examined overall diet quality by assessing adequacy, moderation, variety, and balance of food based on a 24 hour food recall, the average Canadian scored 58.8 out of a possible 100, with 1 in 6 scoring less than 50. Canadian women’s (aged 31-70 years) health eating scores hovered around a score of 61. Of the 39% of people who reported eating vegetables and fruit 3 times a day or less, scores were below 50 compared to the fewer than 3% of those who reported eating vegetables and fruit more than 6 times a day. These indexes are designed to inform recommendations about what to eat, how much and what to avoid to help prevent or control chronic conditions and diseases such as osteoporosis, high blood pressure, cardiovascular disease, anemia, diabetes and obesity (Garriguet, 2009).

There is now strong evidence that physical inactivity increases the risk for the development of, and deaths from, many chronic diseases such as coronary heart disease, type 2 diabetes, and breast and colon cancers, as well as shortens life expectancy (Lee et al., 2012). Physical inactivity, along with poor nutrition, tobacco use, and excessive
alcohol consumption are now recognized as common risk factors for non-communicable diseases which are major causes of death and disability for worldwide (United Nations, 2011). Lane, Murphy, Bauman, and Chey (2012) argue that decreased participation in physical activity, increased sedentarism, and changes in diet serve as primary factors for increasing obesity levels (Prentice & Jebb, 2004; World Health Organization, 2010a). Currently in Canada, only 48% of adults have a healthy body weight (Statistics Canada, 2013). Prevalence of reporting no PA increases with age, and is higher among those in the highest BMI category and those in lower income groups (Bryan & Katzmarzyk, 2009). In addition, Ahmed and Shahid (2012) cite growing evidence that high body mass index and obesity and low physical activity, coupled with high intake of fat, meat, and dairy products, play an important role in the development of several malignancies, such as colorectal cancer, breast cancer, uterine cancer, and prostate cancer (Danaei, Vander Hoorn, Lopez, Murray, & Ezzati, 2005; International Agency for Cancer Research, 2003).

**Health behaviours of breast cancer survivors and non-cancer controls.** Due to advancement in screening and effective treatment methods, the number of breast cancer survivors and those directly and indirectly affected by the disease are expected to keep rising over the next two decades. Studies over the last decade have documented that like the general population outlined previously, recent reviews of the evidence suggest that health behaviours among the general population parallel those observed in cancer survivor population, a lifestyle characterized by inactivity, suboptimal fruit and vegetable consumption, and high intakes of saturated and trans fat (Bellizzi, Rowland, Jeffery, &
Earlier studies like the one by Bellizzi, Rowland, Jeffery, and McNeel (2005) found cancer survivors were less likely to meet the physical activity recommendations compared with those with no history of cancer, although when adjusting for demographic and health characteristics, found that cancer survivors were more likely to meet PA recommendations than non-cancer controls. Specifically, they found that 71.3% of breast cancer survivors were not meeting recommendations for PA, a rate that was also found across numerous cancer sites. In a study by Coups and Ostroff (2005) few age-stratified differences in behavioural risk factors were found between cancer survivors and the non-cancer controls: including physical inactivity, low fruit and vegetable intake, high percentage of daily saturated fat intake, and low daily intake of fiber, with the exception of those survivors between the ages of 40-64 years old that demonstrated higher levels of physical inactivity. Studies following cohorts of women with early-stage breast cancer, have also found comparable rates of fat intake, fruit and vegetable consumption and physical activity levels between survivors and the general population one to three years post-diagnosis (Pierce et al., 2007). In the most recent Canadian data looking at physical activity comparison between cancer survivors and those without ever having a cancer diagnosis, those with current cancer had higher odds of being physically inactive than for a respondents who had a previous cancer diagnosis and those who had never been diagnosed with cancer, even when adjusting for sex, age, race/ethnicity, and income (Neil, Gotay, & Campbell, 2013). Regardless of whether or not cancer survivors demonstrate poorer health practices than the general population, current activity levels and other health practices in both groups
are much lower than recommended, and from a public health standpoint, steps need to be taken to improve these practices.

Physical activity does help to decrease mortality in both the general population as well as those already living with cancer, and the benefits of physical activity for chronic disease prevention and survival have been well documented (Penedo & Dahn, 2005). These benefits include: reduced risk of cardiovascular and metabolic disease, and reduced mortality, and are associated with improved cardiovascular fitness, pulmonary function, mental health, self-esteem, and decreased anxiety and depression (Bouchard, Shephard, & Stephens, 1994).

When compared to usual care, physical activity interventions have consistently demonstrated to be more effective for improving health outcomes in cancer survivors (Kirshbaum, 2006; McNeely et al., 2006). Physical activity during cancer recovery and long-term survival has been shown to improve cardiovascular fitness, muscle strength, body composition, fatigue, and other components of quality of life – all aspects of health that are typically diminished in patients with cancer (Courneya, 2003). Among women diagnosed with breast cancer, Irwin and colleagues found that those women who participated in any moderate-intensity recreational physical activity (brisk walking), after diagnosis had an approximately 64% lower risk of death than inactive women. A study of breast cancer revealed that even an increased self-reported physical activity was associated with a decreased recurrence of cancer and risk of death from cancer (Holmes, Chen, Feskanich, Kroenke, & Colditz, 2005). Additionally, there is suggestive evidence for an inverse association between total dietary fat and breast cancer survival and for a
positive association between intake of fruit and vegetables (and their nutrients) and survival (Ingram, 1994; Jain, Miller, & To, 1994; Rohan, Hiller, & McMichael, 1993).

The link between positive health practices and breast cancer prevention. Diet and lifestyle have been associated and often implicated in the risk of developing breast cancer (Brown et al., 2009). Improving health practices can offer protection against the risk of breast cancer, independent of body weight, largely because diet and physical activity can modify circulating gonadal and metabolic hormone concentrations (Ballard-Barbash & McTiernan, 2007; McCarthy, 2007; Pierce, Caan, et al., 2007; Pierce, Stefanick, et al., 2007; Zoeller, 2009). When looking at healthy eating, the results of a recent meta-analysis indicated that a prudent (or healthy) dietary pattern high in vegetables and fruit, may decrease breast cancer risk, and a drinker dietary pattern (diet with more than two alcoholic beverages per day) may increase breast cancer risk (Brennan, Cantwell, Cardwell, Velentzis, & Woodside, 2010).

In the latest review of PA and breast cancer risk all types of recreational activity sustained throughout the lifetime have been shown to have the strongest evidence for the most benefit, however activity done in postmenopausal period has been shown to reduce breast cancer risk even more than activity done before menopause (Friedenreich, 2011). In addition, the effect of PA appears to be somewhat stronger in normal weight women, in women of non-white racial background, with hormone receptor negative tumours, in women without a history of breast cancer and women who have given birth to children. An earlier review by Friedenreich and Cust (2008) reported that physical activity was
associated with a 25 to 30% decrease in breast cancer risk across 70 studies with 83% of the positive studies reporting a dose-response.

Looking specifically at exercise dosage, another systematic review reported a 15 to 20% reduction in risk of breast cancer with higher physical activity, and a risk reduction of about 6% per hour of physical activity, although the association was stronger for post-menopausal breast cancer than pre-menopausal (Monninkhof et al., 2006). In the most recent study following a large group of post-menopausal women without any form of cancer, recreational physical activity was inversely associated with breast cancer incidence. The most active women (those reporting >42 MET-hours/wk) had a 25% lower risk of breast cancer relative to women in the least active category (0-7 MET-hours/wk). More importantly, they found that walking was inversely associated with breast cancer risk, and among the 47% of women who reported walking as their only activity, those walking >7 hours per week had a 14% lower breast cancer risk relative to women walking less than 3 hours per week (Hildebrand, Gapstur, Campbell, Gaudet, & Patel, 2013). Walking on average at least one hour a day was modestly associated with lower risk, even in the absence of other recreational physical activities. Given that more than 60% of women report some daily walking, promotion of leisure time walking may be an effective strategy for increasing physical activity for those at risk of developing breast cancer in their lifetime (Hildebrand et al., 2013). In a statement made by Gillian Bromfield, Director of Cancer Control Policy of the Canadian Cancer Society:

A large body of evidence has accumulated over the last 30 years showing that about half of cancers can be prevented. Even greater gains can be made in reducing cancer rates if more is done to help Canadians embrace healthy
lifestyles…and to make healthy choices easy choices (Canadian Cancer Statistics, 2012, p.1).

**Self Determination Theory, Health Behaviour Adoption, and Maintenance**

Self Determination Theory (SDT) is a motivational theory that has received significant research attention and support in predicting physical activity in the context of health behaviour change. Although Psychological Continuum Model (PCM) has been used to conceptualize active and passive participation in events, and recognizes that needs and motives satisfied through event participation interact with one’s self-concept and values, it does not fully address how meaning underlies attachment to a behaviour or event (Filo, Funk, & Brien, 2009). SDT on the other hand distinguishes between different types of motivation based on the different reasons or goals that give rise to a particular action (Deci & Ryan, 1985).

**Intrinsic and extrinsic motivation.** The highest level of self-determination is intrinsic motivation where behaviours or tasks are performed for their own inherent rewards, such as enjoyment or challenge (Fortier et al., 2012). In contrast, extrinsic motivation refers to doing something because the outcome will lead to a separate consequence (Ryan & Deci, 2000a). According to SDT individuals become more autonomous (or self-determined) to engage in behaviours over time as their extrinsic motives or reasons become more internalized, or valued (Ryan & Deci, 2000b). Facilitation of the internalization process has been found to “nurture more autonomous
motivation with an ensuing predictive influence on adaptive outcomes such as behavioural engagement and well-being” (Deci & Ryan, 2008, p.2).

Within SDT, a second sub-theory referred to as Organismic Integration Theory (OIT), proposes that extrinsic motivation can vary greatly in the degree to which it is controlled or autonomous, and proposes a continuum for the internalization of motivation. Internalization is the “process of taking in a value or regulation”, and integration is the “process by which individuals more fully transform the regulation into their own so that it will emanate from their sense of self” (Ryan & Deci, 2000b, p.71). The distinct forms of extrinsic motivation from least to most autonomous are: external, introjected, identified, and integrated (Ryan & Deci, 2000b). These regulations are defined in terms of the exercise domain by Wilson, Rodgers, Blanchard, and Gessell, (2003): External regulation involves exercising to satisfy an external demand; introjected regulation involves exercising to avoid negative feelings or to support conditional self-worth; and identified/integrated regulation refers to participating because one values the important benefits associated with exercising, but differs from internal regulation because of an expectation of a separable outcome from the behaviour.

A recent study by Gunnell, Crocker, Mack, Wilson, and Zumbo (2013) reported that a number of researchers using OIT have found that more self-determined motives (also known as regulations) are positively associated with physical activity, well-being, and psychological need satisfaction. OIT, by identifying different types of extrinsic motivation, illustrates how non-intrinsically motivated behaviours can become truly self-determined or integrated (Ryan & Deci, 2000b). Knowing how to promote more active and volitional (versus passive and controlling) forms of extrinsic motivation is an
essential strategy for successful health behaviour adoption and maintenance (Ryan & Deci, 2000b; Teixeira & Carraça, 2012).

According to SDT, social environments that support an individual’s basic psychological needs (specifically, autonomy, relatedness and competence) are assumed to foster more autonomous or internal motivational patterns (Ryan, Williams, Patrick, & Deci, 2009). Specifically, SDT argues that these three basic psychological needs are essential to psychological health and the development of internal motivation (Teixeira & Carraça, 2012). Autonomy refers to the degree of volition one feels in pursuing the activity and the need to feel congruence between an activity and one’s values (Deci & Ryan, 1985). Competence is the desire to interact effectively with the environment and to attain valued outcomes (Deci & Ryan, 2000). Relatedness refers to the perceptions of personal and meaningful connection with others (Teixeira & Carraça, 2012). These basic psychological needs must be supported in order for people to integrate a regulation, grasp the meaning of the behaviour, and synthesize that meaning with respect to their other goals and values (Deci & Ryan, 2000).

According to Fortier et al. (2012) people initially perform extrinsic actions because their behaviours are prompted, modeled, or valued by significant others to whom they feel (or want to feel) attached or related. This suggests that the need to feel belongingness and connectedness with others is centrally important to initiate internalization of regulations. Perceived competence is also a function of the relative internalization of extrinsically motivated activities. People are more likely to adopt activities of relevant social groups value when they feel efficacious with respect to those activities (Deci & Ryan, 2008). Events and activities that emphasize group cohesion,
social networks, and relatedness, are important for adherence to exercise in both the cancer survivor and the general population. Interventions have shown that an emphasis of group cohesion helps to build a feeling of collective efficacy, because of the shared competence expressed by participants through which they believe they can successfully respond to the demands of their situation (Midtgaard, Rorth, Stelter, & Adamsen, 2006). As discussed by Fortier et al. (2012), when individuals choose to be a part of these social contexts by their own volition, they are more autonomously motivated and “experience self-endorsement of their actions” (p.2).

Mullan and Markland (1997) found that the use of more self-determined identified and intrinsic forms of behavioural regulation distinguished those in the action and maintenance stages from those in the preparation and pre-preparation stages, when comparing levels of motivation to different stages of change. Given the significance of internalization for personal experience and behavioural outcomes, the critical issue becomes how to promote autonomous regulation for extrinsically motivated behaviours, specifically in the context of health improvement (Fortier et al., 2012). Understanding these different types of extrinsic motivation, and what influences them, is important for health promoters and organizations because behaviours like healthy eating and physical activity are not always inherently interesting or enjoyable, and the value of the behaviours are not often adopted spontaneously (Ryan & Deci, 2000b). The process of creating more autonomous motivation in social contexts has been described by (Ryan & Deci, 2000b):
Contexts can produce external regulation if there are salient rewards or threats and the person feels competent enough to comply; they can yield introjected regulation if a relevant reference group endorses the activity and the person feels competent and related; but contexts can only yield autonomous regulation if they are autonomy supportive, thus allowing the person to feel competent, related, and autonomous (p. 73).

A theory-based study incorporating the variables suggested above will provide further insight into the mechanisms of physical activity participation and health behaviours and will allow specific recommendations for future health promotion and fundraising event initiatives in the future. Not only will this research help to guide new recommendations, but will help to achieve some of the research goals already outlined in the literature. These goals include: developing interventions to promote exercise for the primary (i.e., general public) and secondary (i.e., persons at high risk) prevention of cancer, determining if physical exercise is associated with cancer screening behaviours, determining if cancer prevention is a meaningful source of motivation for physical exercise in the general public or high-risk groups, and testing community-based interventions to promote physical exercise in cancer survivors (Courneya & Friedenreich, 2001).

Fundraising and Physical Activity

In 2007, 56% of Canadians donated to a health organization an average of $99, 11% of whom sponsored someone in a special fundraising event (Hall, Lasby, Ayer, &
An increasingly popular variation of a special event involves some type of physical activity and the use of physical activity event as fundraising events has spread rather quickly since the mid-1990s (Scott & Solomon, 2003; Bauman et al., 2009; Wharf Higgins & Lauzon, 2003). Successful special events raise money for a cause, and simultaneously create publicity, attract members and volunteers, educate participants, and enhance relationships (Seltzer, 2001). In addition to serving charitable organizations’ needs for monies and publicity, physical activity fundraising events can also serve as a venue for “moving people to trial physical activity, usually in a spirit of social participation with friends” (Bauman, Murphy, & Lane, 2009, p. 45).

Investigating such motives, researchers have found both recreation-based and charity-based motives to be relevant for participants and their ‘attachment’, or in the case of self determination theory ‘relatedness’, to an event. This relatedness, in turn, contributes to participation in future events, and could help to foster continued positive health behaviours beyond initial participation (Bauman et al., 2009).

Physical activity events are now established as part of nonprofits’ repertoire of fundraising tools (Wharf Higgins & Lauzon, 2003), and as the marketplace for charitable donations becomes increasingly competitive and cluttered, organizations such as the CBCF must regularly engage their public to create brand loyalty as well satisfy multiple motives of existing and new donors (Filo, Funk, & Brien, 2008) to enhance the effectiveness of the event for both the organization and the participant (Scott & Solomon, 2003). A special event, such as the RftC, could be an opportunity for participants to fulfil personal needs while simultaneously contributing to a cause (Prater, 2009). Previous research suggests that participants’ motives can relate to fitness and social reasons,
reciprocity (giving back to a charity that helped them), self worth/self-esteem, helping others, raising awareness, because these events are fun, contribute to improve charity and society, and provide possible connections to, or experiences with the physical activity component of an event (Filo, Funk, & Brien, 2010; Lane et al., 2012; Wharf Higgins & Hodgins, 2008).

Participation in special events that incorporate physical activity could provide donors with leisure activity, social interaction, and may serve populations typically struggling to engage in an active lifestyle. For example, a participant in a run/walk event could have a personal need to exercise regularly; using the run/walk as a motivational goal, the participant meets the need to exercise while simultaneously providing support to a cause of personal importance (Prater, 2009). The opposite could be true for people who are considered ‘low active’, where physically participating in a cause of personal importance, as a result also becomes more physically active. In a cycling study completed by Bowles, Rissel, and Bauman (2006) results indicated that one month post event, almost 50% of people who self rated as ‘low’ active prior to the event were confident they were ‘high’ active, and was confirmed by the increase in the number of cycling trips and minutes being active at follow up in that study.

Despite charitable organizations’ reliance on special events as a fundraising tool, neither the marketing or physical activity literatures comment on the effectiveness of physical activity events to meet the goals of charitable organizations. As already alluded to, such events should also serve to facilitate audiences’ information and learning needs, and modify their behaviours (Kotler & Lee, 2008). With the exception of a handful of studies, the marketing research is virtually silent about the benefits of physically
participating in cause-related fitness events from the consumers’ perspective (Bowles, Rissel, & Bauman, 2006; Prater, 2009; Wharf Higgins & Hodgins, 2008; Wharf Higgins & Lauzon, 2003).

In addition to a lack of research is the observation that “the health sector has generally failed to engage with the opportunities provided by mega-events to market the [physical activity] message, and has not evaluated the health impact of events” (Murphy & Bauman, 2007, p. 199). What remains to be known is the public health applicability and impact of mass events and if they can influence participants’ physical activity and other health promotion practices following the event (Bowles et al., 2006; Lane, Murphy, Bauman, & Chey, 2010; Murphy & Bauman, 2007). The undeniable and enduring success of the RftC in capturing the attention, sympathies, and financial contributions of Canadians for almost two decades suggests that it is a ‘best practice’ for CBCF. Rather than test a researcher-defined intervention to inform evidence-based practice, it could be argued that studying established community initiatives to gather practice-based evidence might better serve the needs of the organization as well as the participants. Because it can take up to 17 years for ‘best practices’ established through research and disseminated through the literature, guidelines or textbooks to be taken up in practice, it has been argued that “if we want more evidence-based practice, then we need more practice-based evidence” (Green & Glasgow, 2006, p.128). Thus, population health research is now drawn to the advantages of ‘natural experiments’ or ‘practical trials’ as important contexts for understanding peoples’ life choices (Mercer, Devinney, Fine, Green, & Dougherty, 2007; Saylor, 2006). As such, the CBCF RftC is an opportune ‘natural experiment’ that will provide insights into these gaps in the literature.
CHAPTER 3: Methodology

Research Design

The study of the CBCF Run for the Cure event can be considered a ‘natural experiment’ as it unfolded in real time and under real conditions. The local Victoria event served as an intense case study (Patton, 2002) for the national RftC campaign. Within this overall design, a nested cohort, prospective and mixed methods design (Creswell, Clark-Plano, Guttman, & Hanson, 2003) was used with a sub-sample of participants. Specifically, I employed a hybrid of the explanatory sequential design collecting quantitative survey data first, mixed with a convergent design when both quantitative fitness and questionnaire data were collected simultaneously as interviews were conducted (Fetters, Curry, & Creswell, 2013). The use of multiple methods within a single research study enabled me to capitalize on the more objective advantages of the quantitative findings (i.e. surveys, fitness assessments) while not relinquishing the richness and depth of qualitative findings (i.e., observations, interviews) (Harwell, 2011). According to Fetters et al., (2013) and Tarrow, (2004), mixed methods design increases inferential leverage so that a more unique understanding when investigating “multifaceted phenomenon” (Fetters et al., 2013, p.18), such as the RftC experience. The nested cohort prospective study focused on first-time participants, but because of the limited sample of first-time participants, some non-first time participants were included. These participants were followed one month post-participation in the RftC to six months after the initial testing date. This chapter unfolds in the following sections: sample and recruitment strategies, participants, data collection methods, ethics information, evidence of data quality and data analysis procedures. The data collection methods are further
sectioned into participant demographics and physical activity information, motivation questionnaire data, and fitness assessment data.

**Sample and Recruitment Strategies**

The first step in data collection involved recruiting participants via email invitation sent out by the communications office of the Canadian Breast Cancer Foundation once the Run for the Cure event had been completed. This occurred in November 2012. All RftC participants were sent an invitation to participate in the study, including a link to my contact information (Appendix A). Registrants who contacted me were provided with a Fluid Survey link to complete the online survey. Fluid survey is an online questionnaire tool that is used to build and administer web based questionnaires, and is compliant with Canadian privacy (all data resides on Canadian servers) and accessibility standards. Participants who responded to the survey were then invited to be part of the nested cohort sample, consenting to the fitness assessments, motivation questionnaires and/or interviews. Participants who completed the survey could enter to win a draw prize of a $50 gift certificate to the Running Room or donation to the CBCF.

**Participants**

Sixty-four Run for the Cure participants filled out the online survey. Of these participants, 25 followed up to participate in the interviews (n = 25), the fitness assessment (n = 23) and/or the motivation questionnaires (n = 24). Two participants who initially agreed to be part of the nested cohort were subsequently excluded because they
were unable to complete the fitness testing. The majority of the participants that completed the interviews and fitness assessments were female (n = 24) and were 45 years of age on average. One participant was unable to complete T2 fitness testing due to health complications, and T2 motivation questionnaires were returned via email. An additional participant was included into the study in March, and her T2 fitness data and motivation questionnaires, as well as an interview, were included in the analysis.

**Data Collection**

**Event observation.** Details of the RftC event (e.g., weather, facilities, processes, etc.) were documented in order to provide context for understanding participants’ experiences. I attended the event on September 30 as an observer. Photos that obscured participants’ faces to protect their identity but captured event details were also taken.

**Modified system for observing play and recreation in communities (SOPARC).** The established reliable and valid direct observational instrument SOPARC (McKenzie, Cohen, Sehgal, Williamson, & Golinelli, 2006) was adapted to create a tool that recorded the built and natural environmental variables, types and levels of physical activities, and other relevant details pertaining to the day of the event.

**Online survey.** An online survey was completed by participants to gather information on socio-demographics (e.g., age, sex, education, income), health status, physical activity and healthy eating practices, as well as psychographics related to motivation for participation. Informed by the literature, respondents were also asked
questions regarding their motivations to participate and fundraise for charity. The CBCF requested a bank of questions be included in the survey relating to mammogram screening knowledge and practices, as well as how participants became aware of the RftC.

**Canadian community health survey (CCHS).** Also included in the online survey, specific questions were asked in order to measure socio-demographic and health variables including general health; chronic conditions; food choices, and fruit and vegetable consumption. Self-reported daily fruit and vegetable consumption scores were combined to determine whether or not participants were meeting the recommended five or more servings per day.

**Body mass index (BMI).** BMI was calculated based on online survey respondents’ answers to the individual questions on height and weight. Kilograms per metre squared (kg/m²) was calculated by the research assistant during data cleaning to come up with BMI scores for each of the participants that completed this question (underweight = <18 m/kg², normal = 18-24.99 m/kg², overweight = 25-29.99 m/kg², obese = 30+ m/kg²).

**International physical activity questionnaire (IPAQ).** The short form of the International Physical Activity Questionnaire (IPAQ) was included in the online survey and was used to determine the volume of reported physical activity was calculated using the amount of energy required for each activity, as measured in METS (multiples of the
resting metabolic rate). This questionnaire has been deemed to be reliable and valid across a number of populations for use in adults between 15 and 69 years of age (IPAQ Research Committee, 2005). It assesses three specific types of activity: walking, moderate-intensity activities (e.g., carrying light loads, bicycling at a regular pace, or doubles tennis), and vigorous-intensity activities (e.g., heavy lifting, digging, aerobics, or fast bicycling). Respondents reported frequency and duration of walking, moderate, and vigorous intensity activities over the past seven days that occurred in longer than 10 minute bouts. A total score of MET-minutes per week was calculated to classify a participant in one of three categorical levels of physical activity: low, moderate, or high. The ‘high’ category included persons with a total PA score of at least 3000 MET-minutes per week, whereas the ‘moderate’ classification necessitated a score of at least 600-MET-minutes per week. The ‘low’ category is simply defined as not meeting the requirements for classification for either of the ‘moderate’ or ‘high’ categories. In addition to MET-minutes per week, minutes of MVPA were calculated from IPAQ to determine if participants were exceeding guidelines (>300 min of MVPA/week), meeting guidelines (>150 min of MVPA/week), or not meeting guidelines.

However, the IPAQ Research Committee, (2005) and Bauman et al., (2009) presented an alternative interpretation of IPAQ data, proposing that only participants categorized as ‘high’ active meet minimum PA requirements. Although, high active reflects physical activity levels greater than those recommended as standard or minimum, it provides more accurate estimates of sufficiently active for participants who detail the specific nature and extent of their engagement in PA, as per the IPAQ instrument. Bauman et al., (2009) also noted that ‘high’ active is more suitable and appropriate as a
unit of comparison for assessments of PA levels across various population groups and sub groups. Therefore each group (low, medium, and high active) was identified separately in the results section.

**Canadian Society of Exercise Physiology: Canadian physical activity and lifestyle assessment (CSEP: CPAFLA).** Fitness assessments were conducted on a sub-sample of 24 participants (22 first time participants). The assessments took place in the McKinnon building at the University of Victoria and were individually scheduled with each participant at their convenience. The researcher who is certified as a CSEP-Certified Personal Trainer carried out the CPAFLA protocols. The measurement protocols for assessing body composition, aerobic fitness, and musculoskeletal fitness were taken from the Canadian Physical Activity, Fitness and Lifestyle Approach (Canadian Society for Exercise Physiology, 2003). Please refer to Appendix C for a full description of the assessment protocol.

Health benefit ratings were derived from anthropometric measurements of BMI and waist circumference. Aerobic fitness was measured using the modified Canadian Aerobic Fitness Test (mCAFT), or the Rockport 1-mile Walking Test. Muscular strength was assessed by measuring grip strength and the number of push-ups performed. Muscular endurance was measured with the partial curl-ups test, which required participants to perform as many partial curl-ups as possible in one minute. According to the definitions in the CPAFLA, participants were assigned ‘health benefit ratings’ of excellent, very good, good, fair or needs improvement, based on their score for each fitness test (aerobic fitness, flexibility, muscular strength, and muscular endurance, as
well as sex and age (Canadian Society for Exercise Physiology, 2003). These data provided objective indicators of the participants’ health status.

**Modified behavioural regulation in exercise questionnaire (BREQ).**

Motivation questionnaires on physical activity and healthy eating were also included in the fitness testing session and were framed, based on, and adapted from the BREQ (Mullan & Markland, 1997). Two separate questionnaires were administered, one for physical activity and one for healthy eating. Respondents chose a number on a 7-point Likert scale on how much they agreed or disagreed with the statements provided (1-Strongly Disagree, 4-Neutral, 7-Strongly Agree). Subscale scores were created by taking the mean of the relevant item scores for each BREQ subscale. Each participant received a score for each subscale by averaging responses to each of the items that make up that subscale – for example, the average of all items representing introjected regulation would represent the score for that subscale.

**Relative Autonomy Index (RAI).** In addition to assigning individual scores, subscales can be combined to form a RAI (Wilson, Sabiston, Mack, & Blanchard, 2012; Wilson & Rogers, 2008). To form the RAI, the external subscale is weighted -2, the introjected subscale is weighted -1, the identified subscale is weighted +1, and the intrinsic subscale is weighted +2 (Grolnick & Ryan, 1989). Using the means from each of the four subscales, weighted mean scores were summed to determine whether or not participants had more controlled motivation or more autonomous motivation. The more controlled the regulatory style represented by the subscale, the larger its negative weight;
and the more autonomous the regulatory style represented by a subscale, the larger its positive weight (Wilson et al., 2012).

**Interviews.** Open-ended, semi-structured interviews with a sub-sample of 24 participants (22 first time participants) were used to further explore their experiences with the RftC and to inquire about participants’ motivations for participating in the event, about their experiences with their participation in the Run for the Cure, future intentions in event participation, and about suggestions for improvements of the event. Interviews took place at a location that was convenient to each participant. A 10-question interview guide, framed by SDT, was used to focus the interviews. Less structured interviewing allowed me to understand, rather than explain, complex human behaviour related to participation (Fontana & Frey, 1994). The order of the questions varied within each interview as the interviewer followed the lead and flow of the participants. The interviews lasted anywhere from 6 minutes to 20 minutes. Interviews were audio recorded and transcribed verbatim for a total of 24 interviews.

**Ethics**

Ethical approval for this study was obtained from the Ethics Review Board at the University of Victoria. Participants were informed of the provisions taken to safeguard privacy and anonymity (Thomas, Nelson, & Silverman, 2005). Participation in the online survey was voluntary and respondents could opt out of any part of the survey at any time. In keeping with the ethics protocol and maintain online respondents’ anonymity, once the winner of the draw prize was announced, all emails were deleted from record. Therefore
we were unable to compare fitness testing and motivation questionnaires with online survey responses. In regards to the nested cohort, written informed consent and PAR-Q clearance was obtained from participants prior to the fitness assessment and motivation questionnaires. All interview notes and audio recordings, participant consent forms, fitness assessment results, and information to track participant identification were locked and stored in a filing cabinet at the University of Victoria.

**Data Analysis**

**Quantitative data.** Several analyses were performed on the data gleaned from the online survey, fitness assessment scores and motivation questionnaires. The online survey responses, fitness data, and answers to the motivation questionnaires were downloaded into excel, cleaned, coded and formatted for input into IBM SPSS. Descriptive statistics, as well as mean and standard deviations, were calculated to capture who was involved in the RftC and their reasons for doing so, and to characterize continuous variables from both the online survey and the fitness assessment.

Non-parametric two related samples procedures were used to determine the mean difference scores between fitness ratings and motivation for both physical activity and healthy eating between T1 and T2. The most important advantage of designing an experiment around related samples is that such a procedure allowed the researcher to avoid problems associated with variability from participant to participant (Howell, 2011). Related-samples designs have a considerable advantage over independent samples in terms of power, or the ability to reject a false null hypothesis (Howell, 2011). A second advantage of related samples over two independent samples is the fact that related
samples allowed the researcher to control for extraneous variables (Howell, 2011). A third advantage reflects that fewer participants are required compared to independent-sample designs for the same degree of power (Howell, 2011).

Chi-square and cross tabs were used as a significance test to determine whether differences exist between groups of participants completing different numbers of RftCs and layering in whether participants were regular donors or not. The purpose was to see if genuine difference between two (or more) items existed, or whether it is just due to chance (Howell, 2011). It can be used with data that have been measured on a nominal (categorical) scale and makes no assumptions about the distribution of the population. Other statistics assume certain characteristics about the distribution of the population such as normality. Chi-square, like any analysis has its limitations. One of the limitations is that all participants measured must be independent, meaning that an individual cannot fit in more than one category. If a participant can fit into two categories a chi-square analysis is not appropriate. Another limitation with using chi-square is that the data must be frequency data. Although a non-parametric analysis, chi-square also assumes the sample has been randomly selected. A chi-square test does not give much information about the strength of the relationship therefore Cramer’s V, Phi and Contingency Coefficient were calculated to determine the strength of the relationship for the nominal categories.

Paired sample Wilcoxon signed rank tests were used to measure changes in physical fitness and motivation for healthy eating and physical activity from T1 to T2. As the Wilcoxon signed-ranks test does not assume normality in the data, it can be used when this assumption has been violated and the use of the dependent t-test is
inappropriate (Howell, 2011). It is used to compare two sets of scores that come from the same participants. This can occur when we wish to investigate any change in scores from one time point to another, or when individuals are subjected to more than one condition.

**Qualitative data.** A Phenomenological-Hermeneutic approach informed by the methods of Grounded Theory was used in the analysis, where the purpose is to “elicit meaning or the essence of the experience for the participant” (Morse, 2008, p.727). The analysis involved multiple readings of each transcript to capture several levels of interpretation and meaning. Qualitative research is often criticized as biased, small scale, anecdotal, and/or lacking rigor; however, when it is carried out properly it is unbiased, in depth, valid, reliable, credible and rigorous (Anderson, 2010). Although the terms reliability and validity traditionally have been associated with quantitative research, increasingly they are being seen as important concepts in qualitative research as well. Examining the data for reliability and validity assesses both the objectivity and credibility of the research (Anderson, 2010). Validity relates to “the honesty and genuineness of the research data, while reliability relates to the reproducibility and stability of the data and refers to the extent to which the findings are an accurate representation of the phenomena they are intended to represent” (Anderson, 2010, p.2). For this research study, the process of open coding was used, where the concepts naturally emerged from the raw data and were later grouped into conceptual categories. As these concepts were built directly from the raw data, the process itself ensures the validity of the work. The goal of this method is to build a descriptive, multi-dimensional preliminary framework for later analysis, improving the reliability of the findings.
Trustworthiness describes the overall quality of the results of a qualitative study and is considered present when the “data collected generally are applicable, consistent, and neutral” (Thomas et al., 2005, p.357). To provide evidence of trustworthiness, this study used triangulation of data collection methods which can be defined as “the combination of methodologies in the study of the same phenomenon” (Murphy et al., 1998, pg. 182). This study used interviews, field notes from the event, fitness testing, and motivation questionnaires to collect data to explain and describe descriptions of the participants and their motivation towards participating in the RftC event, in physical activity, and healthy eating.

I transcribed twelve interviews and relied on a research assistant to transcribe the remaining. However, I read each participant’s transcript to obtain a look of the interview as a whole. This was followed by a line-by-line analysis and open-coding for commonalities with the transcripts. From here, axial coding was used to identify relationships between the open codes. Codes were subsequently grouped into categories that pertained to the research questions, which can be defined as “a collection of similar data sorted into the same place” (Morse, 2008, p.727). Thematic analysis within each transcript and across the twenty four interviews was conducted in which experiences and perceptions that were common throughout the interviews were organized into themes, which are defined by Morse, (2008), as “meaningful essence that runs through the data” (p.727). In grounded theory, themes are used in the later phase to tie the categories together and they are the basic strategy of analysis in phenomenology. To move the data beyond a classification of themes, I recontextualized data with existing self determination theory constructs to comment on the implications of the study’s findings into practice.
The software NVivo10, a computer software program for qualitative data analysis, was used to assist with data organization and management.
CHAPTER 4: Results

This chapter presents the results from the data collected through observations, online survey, motivation questionnaires, fitness assessments and personal interviews. Following a description of the results from the online survey to help understand who participates in the CBCF RftC and why, the nested cohort of first-time participants is presented, including the results of T1 and T2 fitness assessments and motivation questionnaires. Finally, findings from the interview data are presented.

Data were collected from September 2012 through May 2013. An email invitation was sent out through the CBCF communications office, but it is unknown how many people received the email. We do know that 3,698 people participated in the RftC in 2012, and that 64 individuals completed the online survey. Of those people that provided responses to the online survey, 24 participated in fitness testing, motivation questionnaires and/or interviews.

Event Observation

Observations of the event were documented using a modified version of SOPARC at the location of the RftC, at the University of Victoria between the hours of approximately 8:00am and 10:00am. The weather was sunny and the temperature moderate, providing an ideal context for PA participation. Participants were shirts that identified who they were running for and survivors, if they chose to be identified, were wearing bright pink shirts. Higher proportions of middle-aged women were observed, however the event was not exclusive to this demographic, and the event welcomed participants of different fitness levels, ages, and both men and women. Groups of three or
more participants were most likely to be walking, and those that were running were often on their own or in pairs. Many booths were available prior to, and after the event, which included information about the CBCF, a booth for the Running Room and a survivor’s tent, among others. A group warm-up was led prior to commencement of the ‘race’ as well as inspirational speeches from community members and CBCF RftC organizers and volunteers. A survivor’s march at the end of the race, where survivors who were also participating in the event were recognized, concluded the event. Field notes revealed that information provided at the event concerned breast cancer awareness, fundraising and screening. Very little promoted health practices and the pamphlets that did were brief confusing (Figure 1).

Figure 1. Sample of Canadian Breast Cancer Foundation’s risk factors for breast cancer brochure.
Online Survey Results

**Description of participants.** As previously mentioned, each of the participants in this study was also a participant in the Victoria CBCF RftC. Results from the survey questions asking about demographics, medical conditions, lifestyle factors, and participation in charitable events are outlined in Table 1. Scores representing physical activity level, as calculated based on participant responses to the IPAQ short form, are also included. The majority of participants were female (93%), between the ages 35-54 (53%) and earning less than $51,000 per year (57%). Fortythree percent of respondents were participating in the RftC for the first time, and 59% of respondents considered themselves regular donors to the CBCF. Sixty three percent of respondents did not train for the event, and 49% reported that they walked or mostly walked the route. Figure 1 and Figure 2 describe the self-reported physical activity levels of the respondents (ACSM and WHO guidelines, and IPAQ guidelines respectively) in relation to the BMI categories.
Table 1

*Online Survey Demographics, Medical, Lifestyle and Factors, and Participation in Charitable Events Data, Victoria, Canada, 2012*

<table>
<thead>
<tr>
<th>Category</th>
<th>Variable</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
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<tr>
<td>Gender</td>
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<tr>
<td></td>
<td>Female</td>
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<td></td>
<td>35-54</td>
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<td>18-20</td>
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<td></td>
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<td></td>
<td>earn over $100,000</td>
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<td>1-2 years of college, university or a technical degree</td>
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<td>graduate degree</td>
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<td><strong>Health ratings, physical activity and healthy eating</strong></td>
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<td></td>
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<tr>
<td>Meeting fruit and vegetable guidelines</td>
<td>Yes</td>
<td>61.6% (37)</td>
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<td></td>
<td>No</td>
<td>38.3% (23)</td>
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<td>Minutes per week of MVPA</td>
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<td>150-300 minutes/week</td>
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<td>&lt;150 minutes/week</td>
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<td>Category</td>
<td>Variable</td>
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<td>---------------------------------</td>
<td>--------</td>
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</tr>
<tr>
<td></td>
<td>Moderate (600-2999)</td>
<td>56% (36)</td>
</tr>
<tr>
<td></td>
<td>Low (&lt;600)</td>
<td>17% (11)</td>
</tr>
<tr>
<td>Average time spent sitting in a 24 hour period</td>
<td>6 hours or less</td>
<td>39% (24)</td>
</tr>
<tr>
<td></td>
<td>More than 6 hours</td>
<td>53% (34)</td>
</tr>
<tr>
<td>Health rating compared to others you know who are the same age</td>
<td>Excellent</td>
<td>19% (12)</td>
</tr>
<tr>
<td></td>
<td>Good</td>
<td>68% (42)</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>11% (7)</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>2% (1)</td>
</tr>
<tr>
<td></td>
<td>Very Poor</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Run for the Cure Participation</td>
<td>Did you participate in any training prior to the event?</td>
<td>37% (21)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>63% (36)</td>
</tr>
<tr>
<td></td>
<td>While completing the race you…</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ran only</td>
<td>29% (17)</td>
</tr>
<tr>
<td></td>
<td>Mostly ran</td>
<td>19% (11)</td>
</tr>
<tr>
<td></td>
<td>Mostly walked</td>
<td>15% (9)</td>
</tr>
<tr>
<td></td>
<td>Walked only</td>
<td>34% (20)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>3% (2)</td>
</tr>
<tr>
<td></td>
<td>Number of years participating in the event</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; year</td>
<td>43% (27)</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; year</td>
<td>13% (8)</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; year</td>
<td>6% (4)</td>
</tr>
<tr>
<td></td>
<td>4 or more years</td>
<td>38% (24)</td>
</tr>
<tr>
<td>Participation in Other Charitable Events and Causes</td>
<td>You are a regular donor to the CBCF (ie. donate at least once a year)</td>
<td>59% (37)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>41% (26)</td>
</tr>
<tr>
<td></td>
<td>You are a volunteer/participant in charitable community organizations and/or events throughout the year</td>
<td>55% (35)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>45% (29)</td>
</tr>
</tbody>
</table>
Figure 2. Body mass index categories vs. World Health Organization guidelines for moderate to vigorous physical activity.

Figure 3. Body mass index vs IPAQ classifications for high active, moderate active, and low active individuals.
When comparing these demographic data with recent reports on South Vancouver Island, BC and Canadian demographic statistics (Statistics Canada, 2013), respondents self-reported that they were healthier and had lower BMI (Figure 3). In regards to LTPA (leisure time physical activity), the RftC participants reported less LTPA than residents of South Vancouver Island, were on par with residents from BC, and accumulated more LTPA than the average Canadian (Figure 3).

Results indicated that the number of RftCs, and the motivation question ‘participating in the RftC says a lot about me’ were significantly correlated (rho = .208, p < .05), suggesting that the more RftCs they had participated in, the more they identified with the event. The number of RftCs respondents had participated in was positively correlated with the amount of money raised (rho = .427, p < .01), suggesting that the more times a person had participated in the RftC, the more money they raised in 2012. In regards to participant demographics, the less education the participants had, the more RftCs they had completed (rho = -.253, p < .05). It is also important to note that as the age of participants increased, so did the number of RftCs respondents participated in (rho = .392, p = .001). However, income was not related to number of RftCs, respondent’s self-reported health, or education levels (although education approached significance at rho = .230, p = .08).

The relationship between health rating and money raised was also found to be significant: those who rated their health better compared to others also raised more money (rho = .281, p < .05). The results also showed that as BMI increased, self-rated health decreased (although this correlation only approached significance, rho = -.247, p = .053).
Figure 4. Health of RftC participants compared to health of people of South Vancouver Island, British Columbia and Canada (%).

Respondents’ motivations for participating in the CBCF RftC are outlined in Table 2. Forty one percent of respondents agreed that fundraising on behalf of CBCF allowed them to support a quality charity, and 32% strongly agreed that it was worth their while to fundraise for the CBCF. For the respondents being a participant in the RftC was very important to them (43% strongly agreed), and when comparing the RftC to other events that the respondents had participated in and fundraised for, 33% strongly agreed that the RftC was very important to them. Of the 64 respondents, 95% agreed that it was likely they would participate in the 2013 CBCF RftC.
Table 2

**Motivation for Participating in the RftC**

<table>
<thead>
<tr>
<th>Motivation Questions - n (%)</th>
<th>Likert Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>(7=Strongly Agree, 4=Neutral, 1=Strongly Disagree)</td>
</tr>
<tr>
<td>39. One of my reasons for participating in the Run for the Cure was to gain a feeling of belonging:</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(11%)</td>
</tr>
<tr>
<td>46. I feel good after raising funds and making a donation to the CBCF:</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>(26%)</td>
</tr>
<tr>
<td>47. I raised funds on behalf of CBCF because their goals are consistent with my values:</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>(16%)</td>
</tr>
<tr>
<td>48. I raised funds on behalf of CBCF because I feel a need to help others:</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(21%)</td>
</tr>
<tr>
<td>49. Fundraising on behalf of CBCF allowed me to support a quality charity:</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>(26%)</td>
</tr>
<tr>
<td>Table 2 Cont’d</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Motivation Questions - n (%)</td>
<td></td>
</tr>
<tr>
<td>Likert Scale</td>
<td>7</td>
</tr>
<tr>
<td>7=Strongly Agree, 4=Neutral, 1=Strongly Disagree</td>
<td></td>
</tr>
<tr>
<td>51. It was worth my while to fundraise for the CBCF:</td>
<td>18 (32%)</td>
</tr>
<tr>
<td>52. Being a participant in the Run for the Cure was very important to me:</td>
<td>25 (43%)</td>
</tr>
<tr>
<td>53. Compared with other events… was very important to me:</td>
<td>19 (33%)</td>
</tr>
<tr>
<td>54. Participating in the RftC says a lot about who I am:</td>
<td>8 (14%)</td>
</tr>
<tr>
<td>55. Participating in the RftC made me feel more committed to giving to good causes:</td>
<td>11 (19%)</td>
</tr>
<tr>
<td>56. It is highly likely that I will participate in the 2013 CBCF RftC</td>
<td>32 (55%)</td>
</tr>
</tbody>
</table>
Fifty percent of respondents agreed that participating in the CBCF RftC was definitely a better way to fundraise compared to other ways that they could donate or raise funds for a charity (Table 3). Table 4 illustrates the correlations between the question ‘the RftC a comparatively better way to fundraise’ and motivations related to a number of the motivation questions. Correlations were strongest between the question ‘RftC is a comparatively better way to fundraise’, and 1) ‘because CBCF goals are consistent with my values’ (rho = .484, p < .000); 2) ‘I feel good after raising funds and making a donation to the CBCF’ (rho = .404, p < .01); 3) ‘compared to other events RftC is important to me’ (rho = .383, p < .01); 4) ‘allows me to support a quality charity’ (rho = .397, p < .01); and 5) ‘participating made me feel more committed to giving to good causes (rho=.336, p<0.01).
Table 3

Compared to Other Ways That You Can Donate or Raise Funds for a Charity, the Canadian Breast Cancer Foundation CIBC Run for the Cure was...

<table>
<thead>
<tr>
<th>Likert Scale</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely a better way</td>
<td>29 (50%)</td>
</tr>
<tr>
<td>Maybe a better way</td>
<td>15 (26%)</td>
</tr>
<tr>
<td>Neutral</td>
<td>11 (19%)</td>
</tr>
<tr>
<td>Not really a better way</td>
<td>2 (3%)</td>
</tr>
<tr>
<td>Definitely not a better way</td>
<td>1 (2%)</td>
</tr>
</tbody>
</table>
### Table 4

**Correlations Between the Question, ‘the RftC a Comparatively Better Way to Fundraise’**

*and Other Motivations for Participation*

<table>
<thead>
<tr>
<th>Question</th>
<th>Correlation (rho)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel good after raising funds and making a donation to the CBCF</td>
<td>.404**</td>
</tr>
<tr>
<td>Because CBCF goals are consistent with my values</td>
<td>.484*</td>
</tr>
<tr>
<td>I feel a need to help others</td>
<td>.297***</td>
</tr>
<tr>
<td>Allows me to support a quality charity</td>
<td>.397**</td>
</tr>
<tr>
<td>Worth my while to fundraise</td>
<td>.311***</td>
</tr>
<tr>
<td>Being a participant is important to me</td>
<td>.277***</td>
</tr>
<tr>
<td>Compared to other events RftC is important to me</td>
<td>.398**</td>
</tr>
<tr>
<td>Participating made me feel more committed to giving to good causes</td>
<td>.336**</td>
</tr>
</tbody>
</table>

*p < .000, **p < .01, ***p < .05

Crosstabs and chi-square analysis procedures found no significant differences when looking at the association between the number of RftCs and motivation questions.

However, when layering in whether participants were regular donors or not, the following were significant. For regular donors, the number of RftCs was strongly associated with being motivated to gain a feeling of belonging ($\chi^2= 27.520$, p = .025). For non regular donors, the number of RftCs was strongly associated with being motivated to raise funds because of a need to help others ($\chi^2 = 26.058$, p = .011). For regular donors, the number
of RftCs was strongly associated with the motivation to participate because the RftC is very important to them ($\chi^2 = 22.139, p = .036$).

**Nested Cohort Results**

The majority of the participants that completed the interviews and fitness assessments were female (n = 24) and were 45 years of age on average, with an average BMI of 26.9 (SD=4.6) at T1. Results of the data collected for the nested cohort is presented in order of the fitness assessments, physical activity motivation questionnaire, and finally healthy eating motivation questionnaire.

**Fitness assessment.** Results from the CPAFLA protocols are presented in Table 5. Body Composition score was determined by summing the measured BMI + WC scores. Aerobic rating was determined from one of two field submaximal aerobic tests (Rockport Step test or the 1-Mile Walk Test). Musculoskeletal fitness was determined by a combination of scores, specifically from grip strength, push ups, sit and reach and partial curl ups. Healthy Back Fitness was determined from waist circumference, sit and reach, and partial curl-ups scores. From T1 to T2 the change in participant’s Aerobic Rating approached significance ($Z = 1.93, p < 0.07$). No other changes in fitness scores were significantly different.
Table 5

*Average Scores from Fitness Assessment Based on CSEP CPAFLA Protocols, T1 and T2*

*Measurements*

<table>
<thead>
<tr>
<th>Categories</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5=Excellent, 4=Very Good, 3=Good, 2=Fair, 1=Needs Improvement)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>26.90 (4.6)</td>
<td>25.90 (4.2)</td>
</tr>
<tr>
<td>Body Composition Rating</td>
<td>3.04 (1.6)</td>
<td>3.35 (1.5)</td>
</tr>
<tr>
<td>Aerobic Fitness Rating</td>
<td>2.52 (1.5)</td>
<td>3.22 (1.4)</td>
</tr>
<tr>
<td>Musculoskeletal Fitness Rating</td>
<td>2.57 (0.8)</td>
<td>2.87 (1.1)</td>
</tr>
<tr>
<td>Healthy Back Fitness Rating</td>
<td>2.87 (1.5)</td>
<td>3.17 (1.4)</td>
</tr>
</tbody>
</table>

**Motivation for physical activity.** The questions that most strongly motivated participants (rated a 6 or higher on the 7-point Likert scale) towards physical activity are outlined in Table 6. The questions that did the least to motivate participants towards physically activity are presented in Table 7. Between T1 and T2, the questions ‘because it’s fun’, and ‘because I like to do this activity’ were significantly different (Z = -3.21, p < .001) and (Z = -2.15, p < .032), respectively. Two questions approached significance ‘because I like to do this activity’ (Z = -1.896, p < .058), and ‘because it makes me happy’ (Z = -1.71, p < .088).
Table 6

*Questions Identified as Being the Strongest Motivation for Physical Activity Between T1 and T2 Ranked From Most Important to Least Important*

<table>
<thead>
<tr>
<th>Strongest Motivation (T1)</th>
<th>Mean (SD)</th>
<th>Strongest Motivation (T2)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I want to maintain my physical strength to</td>
<td>6.74 (.689)</td>
<td>Because I want to be physically fit</td>
<td>6.79 (.415)</td>
</tr>
<tr>
<td>live a healthy life</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Because I want to maintain my physical health and</td>
<td>6.74 (.541)</td>
<td>Because I want to maintain my physical strength</td>
<td>6.79 (.509)</td>
</tr>
<tr>
<td>wellbeing</td>
<td></td>
<td>to live a healthy life</td>
<td></td>
</tr>
<tr>
<td>Because I want to be physically fit</td>
<td>6.67 (.702)</td>
<td>Because I want to maintain my physical health and</td>
<td>6.75 (.532)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wellbeing</td>
<td></td>
</tr>
<tr>
<td>Because I want to have more energy</td>
<td>6.54 (1.021)</td>
<td>Because I want to improve my cardiovascular fitness</td>
<td>6.46 (.884)</td>
</tr>
<tr>
<td>Because I want to improve my cardiovascular fitness</td>
<td>6.33 (1.007)</td>
<td>Because I want to have more energy</td>
<td>6.42 (.717)</td>
</tr>
<tr>
<td>Because I want to keep up my current skill level</td>
<td>5.96 (1.398)</td>
<td>Because it makes me happy</td>
<td>6.29 (.751)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Indicates significance.
Table 6 Cont’d

<table>
<thead>
<tr>
<th>Strongest Motivation (T1)</th>
<th>Mean (SD)</th>
<th>Strongest Motivation (T2)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I want to look or maintain weight so I look better</td>
<td>6.00 (.834)</td>
<td>6.00 (0.78)</td>
<td>* &lt; p. 05</td>
</tr>
</tbody>
</table>
Table 7

*Questions Identified as the Least Motivating for Being Physically Active*

<table>
<thead>
<tr>
<th>Least Motivating (T1)</th>
<th>Mean (SD)</th>
<th>Least Motivating (T2)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Because I want to be with my friends</td>
<td>3.92 (1.998)</td>
<td>Because I want to meet new people</td>
<td>3.79 (1.693)</td>
</tr>
<tr>
<td>Because I will feel physically unattractive if I don't</td>
<td>3.87 (2.074)</td>
<td>Because I will feel physically unattractive if I don't</td>
<td>3.75 (1.871)</td>
</tr>
<tr>
<td>Because I want to meet new people</td>
<td>3.83 (1.614)</td>
<td>Because my friends want me to</td>
<td>2.58 (1.932)</td>
</tr>
</tbody>
</table>

*Strongest Motivation for Physical Activity (T1)  Mean (SD)*

*Because my friends want me to*  2.78 (1.704)

*When deconstructing the physical activity questions into the OIT constructs guided by BREQ, a significant increase in the mean score for intrinsic motivation was found (t = .047, p < 0.05). On average, participants were more physically active because of autonomous motivation than controlled motivation, at both T1 (M = 6.0, SD = 3.6) and T2 (M = 6.53, SD = 4.0) (Table 9).*
### Table 8

**Mean Scores for SDT Categories Determined by BREQ Scoring T1 and T2**

**Measurements for Physical Activity**

<table>
<thead>
<tr>
<th>Categories</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>Extrinsic Motivation for PA</td>
<td>2.78 (1.7)</td>
<td>2.58 (1.9)</td>
</tr>
<tr>
<td>Introjected Motivation for PA</td>
<td>4.34 (2.1)</td>
<td>4.70 (1.6)</td>
</tr>
<tr>
<td>Identified Motivation for PA</td>
<td>5.63 (1.0)</td>
<td>5.64 (0.7)</td>
</tr>
<tr>
<td>Intrinsic Motivation for PA</td>
<td>5.22 (1.3)</td>
<td>5.58 (0.9)*</td>
</tr>
<tr>
<td>RAI Score for PA</td>
<td>6.00 (3.6)</td>
<td>6.53 (4.0)</td>
</tr>
</tbody>
</table>

*\(p < .05\)

**Motivation for healthy eating.** The questions that most strongly motivated participants towards healthy eating are outlined in Table 9. The questions that had the least impact on participants’ healthy eating motivation are presented in Table 10. Only one question significantly changed from T1 and T2, which was ‘I don’t see why I have to’ \((Z = 2.0, p< .046)\). Three questions approached significance, ‘I have no desire to eat healthy foods’ \((Z= 1.89, p < 0.059)\), ‘I eat healthy because I value my health’ \((Z= -1.89, p<0.059)\), and ‘because I have to’ \((Z = -1.76, p<0.079)\).
Table 9  
*Questions Identified as Being the Strongest Motivation for Healthy Eating Ranked from Most Important to Least Important*

<table>
<thead>
<tr>
<th>Motivation (T1)</th>
<th>Mean (SD)</th>
<th>Motivation (T2)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I eat healthy because I value my health</td>
<td>6.79 (.415)</td>
<td>It's good for me</td>
<td>6.67 (.565)</td>
</tr>
<tr>
<td>It's good for me</td>
<td>6.67 (.565)</td>
<td>I eat healthy because I value my health</td>
<td>6.58 (.584)</td>
</tr>
<tr>
<td>It's important to me</td>
<td>6.58 (.717)</td>
<td>It's important to me</td>
<td>6.42 (.776)</td>
</tr>
</tbody>
</table>

Table 10  
*Questions Identified as Being the Least Motivating for Healthy Eating*

<table>
<thead>
<tr>
<th>Least Motivating (T1)</th>
<th>Mean (SD)</th>
<th>Least Motivating (T2)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>So others won't be disappointed in me</td>
<td>2.21 (1.744)</td>
<td>Because others tell me too</td>
<td>2.21 (1.318)</td>
</tr>
<tr>
<td>Because others tell me to</td>
<td>2.04 (1.268)</td>
<td>So others won't be</td>
<td>2.21 (1.693)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>disappointed in me</td>
<td></td>
</tr>
<tr>
<td>So others don't judge my eating habits</td>
<td>1.92 (1.613)</td>
<td>So others don't judge my eating habits</td>
<td>1.88 (1.393)</td>
</tr>
<tr>
<td>So others will like me</td>
<td>1.75 (1.225)</td>
<td>So others will like me</td>
<td>1.52 (0.947)</td>
</tr>
</tbody>
</table>
When comparing mean scores of healthy eating motivation constructs based on BREQ scoring, there was a significant decrease in identified motivation from T1 to T2 ($Z = .036, p < .05$). On average, participants had more autonomous motivation for healthy eating at T1 ($M = 7.06, SD = 2.0$) and T2 ($M = 6.67, SD = 2.9$) (Table 12).

Table 11

*Mead Scores for SDT Categories Determined by BREQ Scoring, T1 and T2

Measurements for Healthy Eating

<table>
<thead>
<tr>
<th>Categories</th>
<th>T1</th>
<th>T2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extrinsic Motivation for HE</td>
<td>2.59 (1.1)</td>
<td>2.58 (2.0)</td>
</tr>
<tr>
<td>Introjected Motivation for HE</td>
<td>5.89 (1.0)</td>
<td>5.79 (1.2)</td>
</tr>
<tr>
<td>Identified Motivation for HE</td>
<td>5.84 (0.6)</td>
<td>5.57 (0.7)*</td>
</tr>
<tr>
<td>Intrinsic Motivation for HE</td>
<td>6.14 (.8)</td>
<td>6.02 (.9)</td>
</tr>
<tr>
<td>RAI Score for HE</td>
<td>7.11 (2.0)</td>
<td>6.67 (2.9)</td>
</tr>
</tbody>
</table>

*p < 0.05

When looking at the correlations between the fitness assessment scores, and BREQ scores for physical activity and healthy eating, the only significant relationship was between T1 intrinsic motivation mean score for physical activity and rating for musculoskeletal fitness ($\rho = .451, p < .05$), suggesting that the more intrinsically motivated the participant was, the higher their musculoskeletal rating.
Themes from Qualitative Data.

An examination of the transcripts revealed thirty-three open codes that described and illuminated the experience, meaning, and the psychosocial impact of the RftC event. These open codes were then divided into 20 categories and 10 subcategories which are described and illustrated with participant quotes. Categories were then interpreted through self determination theory lens using the constructs of autonomy, competence, relatedness, and considered through the OIT continuum of motivation from intrinsic to extrinsic motivation in order to conceptualize the categories into four primary themes.
Figure 5: Brief description of themes and identification of categories, and subcategories from qualitative data.
Themes 1 through 3 describe motivations for event participation and the experience of the event, which answers the first research question: who attended the Run for the Cure, and what were their motives for participating in the event? Theme four helps to answer the second and third research questions, and describes the respondents’ health practices and their motivations for being physically active and if participants maintained their health practices after the event.

**Theme 1: It’s for me and the cure.** An important motivation for participating in the Run for the Cure was that the event itself was important and meaningful to the individual at three different levels: fulfilling personal needs, because of somebody important to them, or participating for the greater cause. Each of the categories are further described by a set of sub-categories that emerged from the transcripts.

**1.1. Fulfilling personal needs.** Five sub-categories comprise Fulfilling Personal Needs: being actively involved in the event, seeing the event as a personal cause or challenge, accomplishing a goal, because it worked into fitness motivation and schedule, and participating for own health and wellbeing. Olivola (2010) would consider these to be self-interested goals, where participation is motivated primarily by benefits for the decision maker.

**1.1.1. Active involvement.** For these participants, active involvement - taking the time to raise funds and/or having the opportunity to be physically active as a result of participation, made the event more meaningful. Not taking the ‘easy way’ to contribute to
a cause made the RftC that much more important, and made the event better compared to other ways that they have donated to charities in the past. This echoes results from a study by Wharf Higgins and Lauzon (2003) where, regardless of whether people were participating for the cause or for the event, participants’ suggested that “[They liked] to do something, rather than just donate money” (p. 371). Additionally, a study by Wharf Higgins and Hodgins (2008) found that participants felt that “it’s better because I participate. The fact that ‘I’m getting off my butt’ motivates [their] sponsors to support it more so than if I just showed up on their doorsteps and asked for money” (p.57). Within the RftC study, many referred to participation as more challenging than “just writing a cheque” (Participant 11). For example respondents commented:

[I] Like[d] the aspect of this [the Run for the Cure] where [they were] actually doing something physical, healthy, physical things as [they worked] towards that. The other is more just volunteering time … (Participant 14).

I think that is was my own participation. So that was different and better. And also it was the first time I actually had to solicit donations (Participant 9).

To me I think it is because I get more emotionally involved in it, it’s not just writing a cheque, that’s the easy part. It’s getting emotionally involved, it’s training to get through that 5K run every year. Getting emotionally involved with the whole team, it’s a little different than writing a cheque and saying I’ve done a good thing (Participant 11).
This one was different that I personally took a hand in it. Canvassed around the neighbourhood and contacted all of my colleagues at work and friends and any way I could get it so this one was a personal effort for me where as other ones were just writing a cheque or, you know, making a promise over the telephone (Participant 4).

Figure 6. Active involvement.

1.1.2. Personal cause. Respondents noted that the event also “had personal significance” (Participant 18). As in the Filo et al. (2008) study, individuals referred to participation in the event as “highly personal” and they reflected on the greater
importance and meaning the event had taken on in their lives and their efforts to ensure that other were aware of their participation. Physically participating not only made the event day more meaningful, but also made the donations and fundraising more meaningful too. For some, asking for donations and fundraising for the event became easier because it was personally significant to them, which in turn made people around them more likely to donate to their cause. Finally, as also noted in the RftC, participants in the Filo et al. (2009) study felt that they were “making a difference through participation” (p. 373).

I felt like I could actually make a difference. Not just with fundraising, but just with awareness within my community (Participant 24).

It was a personal cause, I had family members that supported, and I also asked more broadly for support because it was for a personal cause I guess… I'm part of a running group, and I don’t typically go to other races because they don’t really, some of them are to raise funds for other things, but when I saw this one I thought ‘yes this is one I really want to support’ because I can (Participant 8).

Well you have a more personal connection because you are involved in the walk, right? And you see people who have the affliction, and disease. So, it makes your donation more personal (Participant 13).
So the motivation was really personal. It was touching everybody I started knowing...so in the end it became very personal and as a result I couldn’t not do it (Participant 20).

1.1.3. Personal challenge. Using the RftC as a personal challenge, “to know if I could run 5k” (Participant 21), was another sub-category common among the low active participants (those self-reporting in the interviews that they had started to become more physically active in the past 6 months to a year). (Filo et al., 2008; 2009) also discussed this ‘competency motive’, and the fact that it was the ““physical thing that got me here first” (p.375), as the potential for physical achievement offered by the events was highlighted. This theme is further validated in a report by Lane, Murphy, Smith, and Bauman (2010) that found 30% of participants in their study (participants of the 2007 and 2008 Flora Women’s Mini Marathon in Dublin, and the 2007 Evening Echo in Cork) took part because the personal challenge. For low active RftC participants it was very important to know that they were capable of completing the event on their own.

I think it was just something that personally challenged me. I had done like a little bit of running with a friend who has been trying to help motivate me. But this is something I could really do for myself, originally she was supposed to do the run with me, but couldn’t, so it was just really important for me to be able to do it by myself and show myself that this is something I can do, when I really want to do it (Participant 6).
Because I was a couch potato. And I don’t like running much, or I didn’t like running much, because it was always hard going, but it was possible of this little act that I did for nine weeks (couch to 5K program). And I did it. In very little steps, so it was like...just every time I achieved it, I was like ‘I think I can do this. I can do this the next time.’ And then I start to look forward to it, and then it’s getting really exciting...so, ya then it was like ‘I’m going to sign up, I’m going to do this. I wanted to do the events before. And you can walk them, and I’ve walked things before just because I could, but I wanted to be able to kind of challenge myself a little bit to see if I could. But quietly on my own, which is why I didn’t do it with anyone else, because I didn’t want to, I just wanted to see if I could (Participant 10).

Because I’m trying to find ways to build up, and increase my fitness continually and keeping pushing myself with challenges (Participant 14).

1.1.4. Goal accomplishment. Participants also noted that the event had personal significance because inevitably challenging themselves and completing the event helped them to accomplish a personal goal. In the literature, there is evidence that people gain more satisfaction from achieving difficult goals (i.e. those involving effort and pain) than they would if it is achieved with ease, and that people derive more meaning and value as a result (Olivola, 2010).

The physical act of crossing the finish line was an important aspect of this subcategory, and helped to characterize the meaning of accomplishing goals as a part of
this event. Again, for these respondents that were new to being physically active, accomplishing this goal on their own was an important way for them to verify their perceived competence with physical activity, fostering autonomy for this particular health behaviour.

It was very significant to me. It was the first time I took up running seriously. I noticed a lot of improvements throughout, so it was kind of an apex in my newly revived training routines. So it was a goal to accomplish. I had never run 5k before. So it was a big event that I was looking forward to, and I performed better than I though so it was a boost there for continuing on (Participant 9).

I’ve never run before, and I didn’t know I could run and so last summer I could run a kilometer. Last summer. That’s as far as I could go. Then I found out I could run three kilometers and then I was talking to a co-worker who ‘well there is a 5 km coming up’… So I didn’t know if I could run 5 km. I thought ‘well, I’ll run like a km and then I’ll walk’, right? And thought, ‘that’ll be alright, you know’. And so I came and I ran the whole way so it was just like, ‘who was that?!’ So ya, it was quite inspiring, amazing to find out that I could actually run for 5 km without stopping (Participant 16).

A cancer survivor in the (Filo et al., 2009) study, noted that “if you can survive cancer, you can run a 5K, you can pretty much do anything else” (p. 374). In addition, for one respondent in the RftC that was a cancer survivor, crossing the finish line was about “wanting to get to the end….just because I had it in my mind that this is it, that this will
be the change, this will symbolize the change [from being a patient to a survivor]” (Participant 24).

1.1.5. For my own health and well-being. A handful of respondents chose to participate in the event as opposed to choosing another way of donating to the CBCF because of the physical and psychological benefits attributed to being physically active. Participants in the Filo et al. (2009) study also “[did it] obviously for the physical benefits and health” (p.375). Participating in the RftC manifested as a way for these respondents to help themselves. From a self determination theory perspective, this external form of motivation is considered identified because there is a conscious value of the activity prior to participating (Ryan & Deci, 2000).

From a selfish point of view, there were benefits for me physically (Participant 10).

It was for my own health and well-being. I struggle with anxiety and I noticed the running helped me and why not participate in a community event for a good cause, and it’s made a big difference (Participant 21).

1.1.6. Worked into my fitness schedule. For the active respondents (i.e., those participants stating in their interview they had been regularly engaging in regular physical activity for a long time), participating in the Run for the Cure was an easy way for them to “put that bad habit to good use” (Participant 20), and was just a small part of what they were already doing as a part of a fitness routine, and worked into the grander scheme of their fitness motivation. Participants in the Filo et al. (2009) study also described their
attachment to the event in terms of their alignment with the activity in general, and that “cycling is a big part of my life so I think it’s easier for me to connect with the event because of that” (p. 375).

I’ve, we’ve, been working on fitness…I mean I’m still working on it, but I'm down like 80 pounds and continuing down and stuff life that, so part of that is going in all of these runs (Participant 14).

And then we got an email from the Breast Cancer Foundation and the tag on it was about the run. I thought, ‘I run, let’s put that bad habit to good use’. So then I decided I was going to do it (Participant 20).

I really don’t know. I just enjoy doing it. I like the walking, I love walking (Participant 25).

1.2. Because of somebody important to me. The second category captured personal reasons that motivated involvement in the RftC, specifically because it was important for the participant to help or support somebody else. In the literature, this is labeled altruistic motivation, defined as "enhancing the welfare of those in need, even at the expense of a person’s own interest" (Kottasz, 2004, p.13). In a study by Filo et al. (2008), individuals also viewed their registration and participation as a means to satisfy an inherent need to help and support others, specifically, cancer survivors.
1.2.1. About supporting family and friends. The first sub category was about “channel[ing] [the participant’s] energy into something that was meaningful for the connection that [they] had with [a] friend” or family member (Participant 10). It was a way for respondents to reach out to the people in their lives that were important to them. For this sub-category the cause itself was not the reason for their participation, but showing support for somebody else by participating in the event was.

It’s interesting, because if I am doing a run, I am doing it to compete and I want to run fast and this had to be a completely different shift for me, and be like ok no I’m going to run just with friends, slowly, lots of walking, and at first that was really hard but I think once how happy our friends are once they do complete it ok no this is fine to do, we will do another one like it, so we can all do it together (Participant 1).

Most of all, to support this one friend because this is an event that is important to her (Participant 3).

With a co-worker that has breast cancer, even though cancer doesn't run in my family…she had just finished her chemo, it just was close to her heart ( Participant 15).

1.2.2. Support the struggle, the pain, and the suffering of a loved one. This sub-category furthers the psychological and emotional support for a friend/family member by physically participating and having an active role in fundraising as a way for them to
support the struggle, pain and suffering of a loved one. Similarly, for participants in both the Filo et al. (2008; 2009) studies, “the charity was significant, it’s a real motivator when you’re on the road and you’re struggling past your normal capabilities, you think about the people you know who have cancer and what they have to put up with. It makes the aches and pains and all that kind of stuff so trivial. And that empowers you to go on” (p.517). This inspiration allowed participants to push through the challenges presented during the event, both for both the physical and fundraising aspects (Filo et al., 2009). Within the field of cancer research, Powe and Finnie (2003) have found that for cancer survivors and their families regardless of treatment progress, cancer is commonly associated with death, pain and suffering. For the participants in this study, whether they were cancer survivors or not, participating in physical activity, or in this case a physical activity event, was a form of coping or controlling something that is uncontrollable in their lives (Powe & Finnie, 2003).

My mom is a breast cancer survivor and she’s had a rough time, so it was just good for all of us to be reminded of, you know, to work towards a cure. She’s done chemo and everything, and has thus far been cured. But I actually left home during her chemo treatments and I think I felt a residual guilt for that. And this is the first time I went out to show her how much it meant (Participant 6).

I have a family member that was just recently diagnosed and so she’s going through diagnosis, and surgery, and now she is going through treatment chemo, and she’ll have radiation. Just a lot of pain, and a lot of suffering. For me it was a way to support her in her struggle (Participant 8).
It was extremely meaningful. I kept thinking of the people as I was running and kept thinking, ‘oh this is hard to run this run, but it’s not near as hard as someone struggling with breast cancer (Participant 21).

1.2.3. Responsibility to family and the community. A handful of respondents felt as though participation in the event was a responsibility they had to their family or community that motivated their participation in the Run for the Cure. In the Filo et al. (2008) study, individuals viewed participation as a way to ‘support all cancer survivors’ or made mention that they felt they were riding “on behalf of the entire cancer community” (p.515). From a cancer survivor perspective, inspiring others was important, and “encouraging other people who are going through what I’ve already been through and let them know that there’s a light at the other side of the tunnel” (Filo et al., 2009, p.370), paralleling the experiences of participants in the RftC.

Ya and even the wider community around us, we are both two people, it’s a private company that does bootcamps and classes, but they are our friends too right. So that wider community wanting to be a role model for them [other cancer survivors], she’s done it and I feel like that is my job to as well (Participant 3).

I don’t give to this as a charity, I see it as almost a social obligation. Typing your story online all that kind of stuff, people started emailing back with their stories and all of a sudden it sort of became a responsibility to go and do this (Participant 12).
1.3. For the greater cause. Participating because the cause itself was important to the individual is the final category within the theme of fulfilling personal needs. There were two sub-categories that fell under this category and include ‘supporting females and breast cancer as a whole’ as well as knowing the fundamental ‘importance of raising funds’.

1.3.1. About supporting females and breast cancer. It was recognized that “not only was the RftC about friends and family, it was about supporting females and breast cancer” (Participant 1). Filo et al. (2008) refer to this as ‘reciprocity’, which represents the notion that participants will benefit from the charity’s activities and services, and ‘the need to help others’ which relates to the altruistic notion that giving to charity can improve the lives or well-being of others. It was a way for these respondents to “improve the charity itself” (Filo et al., 2008, p.515), not only contributing to the health of those people living with cancer, as well as those people that may or may not receive a diagnosis of cancer in their lifetime. Motivation for participation and effort at the day of the event was improved with this thought in mind.

I think that on nobody in particular, but I think it was a definite feeling including individually myself, but also as a team that the whole event, that this was in some way contributing to the health of cancer survivors as well as those people that may not, in the future, but it was, the survivors and the victims of, were kinda in your mind. So, I think that might have helped, although there was nobody in particular that I was thinking of (Participant 9).
1.3.2. I know how important the funding and research is. The desire to improve the charity embodies the notion that event participants view their donation as a means to push the charity toward success (Filo et al., 2008), and as a way to make a difference in the world by raising awareness and supporting a worthy cause (Filo et al., 2009). Specifically, supporting females and breast cancer was accomplished by recognizing how important the funding and research is specifically to improving outcomes of a cancer diagnosis. These respondents directly attributed being able to see the results to the success of their own fundraising efforts and the research. “I want to participate…because I believe in this cause and I believe in, that research helps. But [I] also [participate] for the cure – the Run for the Cure” (Participant 18).

We also have another two mutual friends that have breast cancer. I don’t have any one personally in my family that has this. I did just lose my husband two years ago to colorectal cancer. I know how important the funding is, because, at least the funding for this breast cancer for sure. Because you can see the results, they are really getting some good results. I’m not sure I feel the same way about colorectal cancer (Participant 2).
Really it all started the research, this is something that has affected our entire family, even though we have all survived it. Which is amazing, considering we know the number of years it’s gone on. Of course treatments have changed over the years, but we have all managed to get through it. It’s for research, I have a daughter, I have grand-daughters, and I’d like the research to continue to make sure that if they do have this, that we are able to do something about it (Participant 11).

Figure 8. I know how important the fundraising and research is.

Theme 2: The cause, camaraderie and community. The second theme is largely based on feeling connected or related, whether that was feeling physically connected to people in the participant’s social circle as part of a team or a group, or the feeling of
being connected to others with the same goals or experiences, and feeling like a small part of a large entity. These categories are discussed further below.

2.1. Being part of a team or group. Participation in the RftC for some respondents was largely a result of being a part of a team or a group of people they already had relationships with. Filo et al. (2008) used the term ‘social affair’ to describe how participants looked forward to participating with family and friends. For RftC participants, the cause was a ‘one off’ because of their value for group participation.

So it was not, it wasn’t particularly about, I mean yes I wanted to raise some money because that’s the point of it, but the reason I went was to be a part of a group to support a friend…Because I was asked to, part of it was the group participation without a doubt and it was just, it was discreet and it was a one-off. Those things are important to me (Participant 12).

It was lots of fun doing it as a team. We’ve done lots of runs, just me and a couple members of the family but we were like a huge team (Participant 14).
2.2. Running for the cause. Once at the event, many respondents reported the feeling that “everyone running for a cause or for one main reason” did “improve their motivation” (Participant 1). Although some respondents reported in their interviews that they were not participating because they had personally been affected by cancer, this was the inherent assumption by the majority once they had arrived at the event. “A lot of people with like minded goals, who also want to donate and just getting out there and showing what we can do. That means a lot” (Participant 15). Wharf Higgins and Lauzon (2003) also found that from a participant perspective that “participating in [the event] made [them] feel good as a member of the community. There’s hundreds of [people], working together as a community for one common purpose” (p. 369). This sentiment was
also reflected elsewhere (Filo et al., 2008; 2009) where “individuals believed that participants [were] all of a similar mindset, leading to a greater connection to both the other participants and the event” (p. 371), building camaraderie they felt with other participants, and tying them together through their shared values and mutual support of the charity.

The camaraderie, that fact there was so many people out there doing this for the cause. That was pretty amazing (Participant 2).

I really liked the feeling that everyone was there for one main reason. There is power in that, you know what I mean? (Participant 14)

It’s quite invigorating to be out walking with that many people and it’s a little scary in some ways to think that everybody that’s out there walking has in some way been touched by cancer somehow. That just blows my mind. Absolutely blows my mind (Participant 25).

I think it’s better because I think the cause itself, breast cancer is something that has touched a lot of people, it’s pretty rare that you meet someone who has no one in their life that hasn’t ha a problem with it or encountered it (Participant 6).

It was very meaningful; I felt that I was connecting with lots of people who had similar stories and experiences (Participant 10).
2.3. Sense of community. For respondents, the sense of community as a result of participation was very meaningful. Whether participating alone or with a group of people they already knew, respondents felt that they were connected to the people around them. Participant 10 described this sensation as “belonging to a group of strangers with similar experiences and stories,” echoing others’ experiences of a sense of community and solidarity among participants unacquainted with each other (Filo et al., 2009): as though the event caused “13,000 strangers to become connected. Immediately” (Filo et al., 2008, p.516). For cancer survivors, as described by Filo et al. (2008), individuals mentioned attending the event to ‘share stories’ about their experiences with cancer. Sharing stories allowed the cancer survivors and their loved ones to better manage the challenges that accompany their experiences with the disease. This was demonstrated by one of their participants that said “for me personally, it’s been meeting other survivors and having
that common bond”. Wharf Higgins and Lauzon (2003) identified this feeling as a reward for participation or “purposive benefits” (giving back to the community, sense of community spirit and pride, and participating as a way to connect with the community).

[My motivation was] I would say, to be connected with a community of other survivors, particularly people that are fit (Participant 3).

[It] was very emotional for lots of people and even though I was on my own I felt very connected to the group of gazillions of people (Participant 4).

And I started a Facebook group and everybody that had anyone that was a cancer survivor gave me their name and who they were and we made a scroll and we brought the scroll with us …. So it was meaningful, not just for me and my journey, but our small community (Participant 24).

*Figure 11. Sense of community.*
2.4. Sea of humanity. Sense of community was further illustrated by quotes from four different respondents. This was a powerful in vivo category, as “sea of humanity” describes more than the vast number of people, but is defined as “the human race, the condition or quality of being human” (Merriam-Webster Online Dictionary, 2013). This sentiment is also reflected in the study by Wharf Higgins and Lauzon (2003) when they described a ‘sense of collective action’ which was highly visible at events they attended, and served as positive reinforcement: “Seeing all these other people out here makes me feel like we’re making a difference” (p. 371). RftC participants spoke of the sea of humanity in the following ways:

- It was phenomenal to see the river of humanity walking along there. There was just thousands of people (Participant 2).

- Like coming out onto the roadway where you could see everybody going in different directions, but it was just like so many people bopping up ahead, I’d never seen that before. And you could see a whole stream of that, it was just, that was pretty amazing (Participant 16).

- I guess it’s always been, especially when you see, when you kind of get to the top of, I guess it’s, Gordon Head Road and you just see this sea of people going both directions and it’s pretty inspiring and it’s, you know, moving and ya, I don’t really have a word to describe the Run (Participant 23).
Theme 3: Experiencing the event matters. A few categories emerged in regards to the participant experience at the Run for the Cure that captured how the event itself impacted the participants, and the types of factors that made the event enjoyable and stand out among other events that they would normally participate in. The event experiences are factors that did not influence first time participants’ to sign up for the event but are things that influence attachment to and continued participation in the event.

3.1. Bright pink everything. Respondents related success of the CBCF and the RftC with the visibility and their awareness of the number of the survivors attending the event. Seeing the “sea of pink”, improved the motivation of respondents during the event and made their donations more meaningful. Many respondents highlighted the importance of “the bright pink everything” and how the colour makes the RftC “such a
visible event” (Participant 10), emphasizing the visibility of the fundraising efforts, the organization, as well as the survivors in pink shirts that were in attendance.

And I think it’s because they do raise so much money and it is such a visible public event with the pink (Participant 12).

I mean everyone was so dressed up and decked out in pink and we did that too and that was a lot of fun (Participant 1).

Figure 13. Bright pink everything.

Respondents attributed the visibility of the survivors, who at the event were wearing pink shirts, to the success of the organization. This aspect enhanced the
experience for participants, as well as deepened the meaning of their participation and fundraising efforts. Like participants in this study, Filo et al. (2009) found that for individuals who did not have cancer they drew inspiration from participating alongside survivors. This fostered a greater sense of relatedness in terms of contribution to the organization, and a sense of community with the other participants.

There are survivors that are on this walk, you know, it is very different than the other charities. What I got out of the walk/run was just seeing so much success. So many survivors (Participant 2).

You see the sea of pink shirts, you realize how many people it affects, you see people who are looking healthy, I can now almost spot the ones that are going through it, they have the bloated look like I got with the chemo and the steroids, hair’s gone. And then I think for them to see people in pink shirts who are looking healthy and running (Participant 11).

To describe the day, it was an incredible feeling to be out there running, with, seeing the survivors, there was a woman that was at the survivor tent, and she, see I’m breaking up even talking about it, she just lost her mom to it… (Participant 15).
3.2. **Awareness.** Not surprisingly, given its mandate as an awareness and fundraising vehicle, the enduring success of the RftC across the country has served to heighten the awareness for breast cancer and screening methods for breast cancer prevention and early diagnosis, as well as the need for to raise funds to find a cure. However, this heightened awareness for the need for fundraising was not exclusive to breast cancer as one respondent stated that she was “maybe somewhat more interested, somewhat more aware, in breast cancer specifically, but then raising awareness for other causes as well or events or needs” (Participant 8).

It’s always a good reminder [of breast health practices], because if that wasn’t in October I would forget to go get my yearly exam done (Participant 4).
Raising awareness … of this event and the need and the statistics around the issue for women, cancer rates, death rates, and survival rates and that sort of thing (Participant 8).

Well I think they are, just because it’s connected to me, not just because of a personal reason but because of the promotion that they do, the companies that take it on board. In the banks, when you go in the banks and there is merchandise everywhere. So you are kind of flooded with it, but not under pressure, like, ‘I can do this’. It makes it do-able to the ordinary Missus (Participant 10).

3.3. Diverse group of people. Many respondents had an attraction to this event, and valued this event because it is “attended by a diverse group of people” (Participant 13). For the non-first time participants, they have “noticed that over the years that it has changed from mainly middle-aged to older women to including an assortment of young people including a lot of men” (Participant 13). Participants like the idea “that it’s a run that everybody can participate in” (Participant 26), and therefore the inclusivity of the event is a very valuable aspect of the success of the event.

And it was, you know people were there with their strollers and they were walking, they had their dogs with them, stuff like that right? And so it’s a family event, which it should be (Participant 16).
3.4. Easy to participate. Many respondents enjoyed this event because it was easy to participate. This not only referred to the physical activity portion of the event but the fundraising for this event and the ease of committing to being a participant, even when comparing to other events. Participants appreciated the range of options for participation in all facets of the event: the distance (1k or 5K), sign up fee (paying $40 or fundraising $150), and if participants did decide to fundraise (which they didn’t have to), the reputation of the RftC, awareness of breast cancer, and as well pursuing a physical personal challenge, made it easy to raise funds and ask other people for support.
I guess the example I would use it, it was easier to participate if I compare it to my husband and when he did the ride to conquer cancer because he had to raise a large sum of money to participate (Participant 4).

And the other thing was, because we were all joking about it, was, ‘oh we are going to do a team thing and see how much we can get as a team’, and then we realized that we mostly hit each other up like the whole team, so it was like let’s just pay 40 dollars (Participant 14).

I felt more active because I was working hard at improving my own health and people seeing how hard I was working and were willing to donate and were proud of how I was doing and that made it easier and more meaningful (Participant 21).

So it was an easy kind of thing to do. The run part was easy (Participant 20).

3.5. *Put the fun into the fundraiser.* The sense of community, the ease of participation, and the positive atmosphere made this a fun event that “even though people are wearing pictures of people that died or, you know… it made you want to be a part of that kind of energy” (Participant 10). Again, this category spans not only the activity itself (actively participating in a physical event), but also the fundraising portion of the event for those that chose to do so. Respondents stated that they “enjoyed the run itself, [it] was quite exciting…it was fun, actually the fundraising was fun as well and trying to
get people to participate” (Participant 8). The enjoyment that one feels because of the event, improves intrinsic motivation for event participation, because the event itself and each of the aspects, are inherently enjoyable, regardless of the separable outcome of being physically active or raising money for a cause (Ryan & Deci, 2000).

It has to be an event that people want to be at right. So I think the party atmosphere is part of it and that’s good, it’s a fun thing to do with your family and stuff (Participant 3).

Vibrant with lots of energy, it was a happy thing you know? Even though people are wearing pictures of people that died or, you know, it was a very positive event and it made you want to be a part of that kind of energy (Participant 10).

Celebratory, though provoking, positive, poignant, I’ve already used moving in the first one, so I would say all of those I think the experience stands along. I mean, I think that’s why people do it because the experience is terrific (Participant 12).
3.6. More inspirational and personal stories.

Probably more of the, and I don’t know if this is available, but for me I’d love to hear more of the personal stories. Ya, whenever I hear what people have gone through, then I just like to be able to relate to people I don’t want to get a free t-shirt, I don’t do it for the donut at the end. I just want to hear what other people have been through (Participant 4).

But definitely people sharing their stories I think is a really positive motivation, that for me when I was there and they had the shirts to fill out, and just seeing that makes you want to do it not just for yourself but for everyone,
so I think ya, sharing of people’s stories impacted, either by the disease or by
the charity/organization (Participant 6).

3.7. Would like to see the latest research on breast cancer. Even though
respondents felt that the survivors at the run were a demonstration of the success of the
organization, many felt that they would like to know exactly where the dollars they have
raised are going. As one respondent stated “honestly I don’t know even really know
much about their research and what they have accomplished with the money that has
been raised. Obviously a substantial amount of money has been raised but maybe that’s
something you could actually do, is say what kind of research has come out of all the money that has been raised, it might make me more include and want to maybe donate in the future” (Participant 1). The transparency of the fund allocation is not only important in terms of fundraising motivation, but also in terms of health promotion. Thousands of dollars are allocated towards breast cancer prevention every year, again providing an opportune to time to not only make the fundraising efforts known to the RftC participants, but to translate the knowledge gained from the results from these studies into public health practice, and from the interviews, it is clear that this information is wanted from the organization.

Kinda been having a dilemma about mammogram and the thermograms, you know, because of the radiation and you read this and then you read too much and…drive yourself crazy (Participant 10).

I mean you don’t want them to spend money on advertising because that is administrative costs. I wouldn’t mind seeing, say, the latest research on breast cancer health or treatment as, sound bytes or something that they might want to send out to people that have registered, and that might actually encourage other people, ‘well look I’ve done the breast cancer walk, they have my email, and now I am receiving this really important information; right? Regarding treatments or breast health (Participant 13).

From their answers in the interviews, the intrinsic meaning and the emotion of being a part of the larger community presents a unique opportunity for the positive
health behaviour message to be presented to participants, as the participants are feeling competent, and they are relating to the people, as well as the event. Autonomy could be fostered in this instance if health messages are coming from these survivors, the organization, and entities in general that participants see as role models or those they deem qualified to be give this type of information. More importantly, respondents noted that the wanted more inspirational and personal stories to enhance their feeling of relatedness to the breast cancer, the cause, the event, and the people that have been affected by the disease.

**Theme 4: RftC as a motivational cue - maintenance and motivation.** In the interviews, participants were specifically asked whether or not they had maintained their exercise routine since the RftC event, which for 23 participants ranged anywhere from two to three months post-participation, and 1 which entered the study in March at six months post-participation. Sixteen participants reported maintaining their routines, while six admitted to not being able to sustain their physical activity practices. The RftC had helped influence breast health practice motivations according to twelve participants, while ten others reported it had not helped them to stay motivated. The first category in this theme reflected how the RftC served as a convenient target event for participants’ training schedule.

**4.1. Fitting in.** For the most part, the RftC influenced participant’s health practices by acting as a reminder to continue with their current health practices. For participants that fell into this category, RftC was not an instigator of these health
practices, but typically fit into their larger fitness motivation, and was at an opportune time to challenge themselves physically in an easy way.

I would say, ya, definitely helped to reinforce and maintain and you know what that experience that friend that I had, at the run, it makes me even more motivated to show up at the running groups or classes that I know she is going to be at (Participant 3).

I found the speakers at the beginning, I found that really inspiring. So I already knew a lot about good health and that just…it made me go home and think about it more for sure (Participant 4).

Probably the activity and the healthy eating have certainly increased over the last few years for me. I’ve really tried to make more conscious choices to do that. But the run itself didn’t really change that. It helped me participate in a different way but I think it’s something I would have come to on my own too so (Participant 23).

Well when I did the Run for the Cure, I was just starting into the half-marathon training. I ran a half in November. And then after ran that, I really dropped off…so I’m really just coming back from that, which is one of the reason I don’t think marathons is a good idea because I got burnt out and then I didn’t want to run at all (Participant 26).
4.2. Keep the ball rolling. Participating in the RftC helped some of the participants aim to improve the frequency of participation in physical activity events, either through similar ‘fun runs’, or more competitive races for the near future.

Well ya, since then…out of the motivation that I got and wanting to keep it, I went and signed up with the Vancouver Island, I think is, Running Association, I think it’s called, or health association, where they have running races between January 1 and end of March…There is eight races in total, so I signed up for all of those, the last one being a half marathon. So that’s going to be my routine in between training, a race, training, a race, now ‘til the end of March (Participant 9).

Contemplating going in the half marathon, the goddess run, that would be a training goal for the next seven months I guess (Participant 8).

My daughter just signed up for the island race series, which leads up to a half marathon. And I am going to be participating in about half of those ones. And we, all the fun runs and stuff we always sign up for now. (Participant 14).

4.3. Would like to try something new. It is evident that participation in the RftC provided some respondents with the confidence to not only complete a 5K walking or running event, but also with the confidence that prompted them to try something different and new.
Partly to keep myself motivated but also continue to challenge myself and try different things and stuff. Ya, so now I have all different kinds of challenges. I know, I’ve discovered these things that I never knew I liked (Participant 14).

I look forward to doing more events. We’ve actually looked into doing one in July. And just trying different types of events, like triathlons or things like that (Participant 21).

4.4. It’s important to keep up with positive health practices. Most that reported that they had maintained their exercise routine since the RftC had also indicated that they had been regularly physically active long before their participation in the RftC. These participants are well aware of the benefits of physical activity, whether they valued the physical or the psychological benefits, and have made it part of their daily lives for at least six months.

I find that if I don’t because of the previous nerve damage and because of the broken ankle/foot that I had, if I don’t maintain this then I can actually feel my health deteriorating. I can feel, my foot hurts more, I have to keep up with a lot of walking and a healthy lifestyle or it’s, I can actually feel it reversing itself, so it’s important for me to keep it up (Participant 2).

I think my health practices have stayed the same. As a distance runner, I think they were already fairly good, so no, the RftC didn’t make me change anything (Participant 20).
Whether or not some participants felt as if the RftC directly influenced their breast health practices, disease prevention, wanting to train for a bigger event, or trying a new form of physical activity was something that many participants said motivated them to be physically active.

4.5. Writing on the wall. For those that said that the RftC had not influenced their breast health practices and were continuing to be physically active, it seemed that another instrumental moment in their lives had motivated them to improve their breast health practices, and “It’s not something I have gained from participating in this. It just was more from doctors and from my environment” (Participant 2). This subcategory captures more extrinsically motivated reasons for participating, as a result of witnessing relatives deal with breast cancer or learning of a biological predisposition to chronic disease.

I started to think about the healthy eating as soon as my mom past away and I started throwing away all of the bad stuff out of my cupboard (Participant 7).

I think because of history of breast cancer in my family I wanted to take a more proactive road to my own health, and so far I’ve been okay…and I just think, work harder now and prevent that when I get older (Participant 23).

The writing is on the wall for me and that sort of stuff. And then when I went and got checked out. I discovered that ‘no’ I was pre-diabetic and that was what was affecting my heart rhythm and all that sort of stuff. I mean it wasn’t
an immediate thing but now I think, when I look back now, that was a turning point where I realize that ‘oh, I’ve been given a second chance. I better do something (Participant 14).

4.6. Screening. Whether or not participants stated that the RftC had influenced their physical activity or healthy eating practices, awareness of the importance of screening was noted by a large number of participants as a learning outcome of the RftC.

I’m going to be booking a mammogram as well, so it has, everything about it that one’s helped (Participant 15).

Oh ya, I was holding off, I was thinking I might go have one of those. And then…actually reading some stuff at the Run for the Cure and talking to people there who were promoting and they… you know, it made me go and get the mammogram. Although now I only have to have it every two years now that I’m 50 (Participant 10).

I guess it reminds me to do self-examinations again. I tend to not do it as often and then when it gets closer to the time, I’m like, ‘ah, damn, I should probably do that (Participant 22).

In summary the findings, although specific to participants of the Victoria Run for the Cure, demonstrate that this event is an effective tool for physical activity participation. Furthermore, positive physical activity and healthy eating practices not only
occurred on the day of, but were high before the event and/or following the event. There were many consistencies found in this study that resonate with earlier ones (Filo et al. 2008; 2009; Wharf Higgins & Hodgins, 2008; Wharf Higgins & Lauzon, 2003).

Participants signed up for the event for a number of reasons, including the benefit for themselves as individuals, to support a loved one, or to support the cause. It was an easy event to participate in, attended by a diverse group of people, and the visibility of the event made it an enjoyable experience. Seeing the survivors and the sea of pink made the event and their fundraising or donation efforts that much more meaningful to each of the participants and this translated into improvement and maintenance of motivation for physical activity and further fundraising.
CHAPTER 5: Discussion

This study described participants in the RftC community charity event with a total target population of 3,968 participants in Victoria alone. In 2012, the BC/Yukon Region had over 22,000 participants and contributed to a regional fundraising total of $3.63 million. Across Canada, the RftC attracted over 170,000 participants in 60 communities for a remarkable single-day experience that inspires, informs, and celebrates; thus providing an opportune avenue to promote healthy lifestyles to a large number of participants.

As presented in chapter one, a number of non-profit organizations have started to utilize participatory physical activity events such as walking or running races to raise awareness and funds for charity and research. Despite the large body of literature promoting exercise and healthy lifestyle choices as important aspects of public health, many individuals do not regularly engage in physical activity, and organizations do not capitalize on the opportunity for health promotion at these events (Kolden et al., 2002). Over the past number of decades, countless interventions addressing behaviour change among both healthy and recuperating populations have failed to find a formula for explaining ‘what works’ to ensure long term success (Ferrer, Huedo-Medina, Johnson, Ryan, & Pescatello, 2011; Foster, Hillsdon, & Thorogood, 2009; Johnson, Scott-Sheldon, & Carey, 2010; Lemmens, Oenema, Klepp, Henriksen, & Brug, 2008; Michie, Jochelson, Markham, & Bridle, 2009; Neville, O’Hara, & Milat, 2009; Ryan et al., 2008)

SDT helps to describe the motivation for interest in, and commitment to, certain health behaviours through relatedness, competence, and autonomy, and by characterizing the amount of motivation for a particular activity. Unlike other health behaviours which
are less intrinsically satisfying (teeth brushing, wearing a seatbelt), intrinsic motivation can be targeted to a considerable extent in the case of PA by honing in on people’s natural interest and enjoyment in any number of activities (Fortier et al., 2012). Using a mixed-method approach to answer the research questions, the aim of this study was to identify who participated in the RftC and their motivations for: event participation, physical activity participation and healthy eating. This chapter begins with a discussion of the results that answer the three research questions, and their contribution to the existing literature. The first research question examined who participated in the RftC and explored participants’ motivations for participating in the event. The second research question, examined the physical activity and healthy eating practices of participants. Third, reasons for continued participation (physical activity, healthy eating) were explored. The remainder of the chapter is divided according to implications for practice, the limitations, and recommendations for future research.

**Who Participated in the RftC?**

Respondents to the online survey who participated in the 2012 Victoria RftC event were mainly female, middle aged, earning less than $51,000 per year, and over half reported completing on to two years of university, college or less. The majority (84%) of the respondents to the online survey were not breast cancer survivors, and 72% had had a family member or friend with breast cancer, with 52% knowing a family member or friend that had died from the disease. The majority of respondents were first time participants, or had participated for more than four years, and more than half were regular donors to the CBCF.
Just over half of the online survey respondents self-reported BMIs in the ‘normal’ range, and were considered sufficiently active to receive health benefits by population standards. For the nested cohort, the average BMI was determined to be in the ‘overweight’ category. Approximately 60% of online survey respondents reported engaging in 150 minutes of MVPA in a week or more, compared to the 66% of residents on Vancouver Island (Statistics Canada, 2013). Thirty eight percent of the online survey respondents were classified as low active and not meeting physical activity guidelines, and on average those that participated in the fitness assessment had a ‘Fair’ to ‘Good’ rating across all forms of fitness ratings at both T1 and T2. We found that participants in the RftC demonstrated similar health practices as the Canadian population, but had poorer health practices than the regional average (Statistics Canada, 2013): further support that RftC and fun runs attract more than just the habitual exercisers. In addition to low levels of physical activity, and low fitness ratings, over half of respondents reported that they were sedentary (sitting) for more than six hours per day. When looking at healthy eating practices, just over half of the online survey respondents reported getting more than five servings of fruit and vegetables on a daily basis.

Personal characteristics such as age, gender, BMI, self-rated health (SRH), and SES, are commonly cited correlates of physical activity and health behaviours both in Canada and other developed countries, and the demographic data collected from this study reflects similar patterns (Ahmed & Shahid, 2012; Aparicio-Ting, Friedenreich, Plotnikoff, & Bryant, 2013; Pan et al., 2009; Colley et al., 2011, Bryan & Katzmarzyk, 2011; Plotnikoff, Mayhew, Birkett, Loucaides, & Fodor, 2004). For example, results from the Survey of Lifestyle, Attitudes and Nutrition in Ireland (Morgan, McGee,
Watson, Perry, & Barry, 2008) indicated that among the lowest social classes in their sample of adult females, low SES women were less likely to consume five or more daily servings of fruit and vegetables, and more likely to be physically inactive. Specifically in Canada, Pan et al, (2009) found a linear relationship between age and PA levels, and an inverse relationship between PA levels and education for the total sample and for women, but the association was not significant for men. As mentioned in Chapter 2 in a study looking at Canadian adults, not only did women engage in less MVPA than men, but overall both men and demonstrated less than 15% of participants were engaging in minimum weekly PA after looking at accelerometry data, even though over 50% self-reported sufficient activity levels for health (Colley et al., 2011). In addition to this, those reporting not being physically active at all increases with age, and is highest amongst those in the highest BMI category and in lower income groups (Bryan & Katzmarzyk, 2009).

Not only is SRH a correlate of physical activity and health behaviour, health-related quality of life (HRQL) and SRH complement mortality and morbidity, and commonly act as measures in tracking changes and disparities in population health (Zack, Moriarty, Stroup, Ford, & Mokdad, 2001). When looking at participants of the Victoria RfC, 68% rated their health as ‘Good’, and few rated their health between Very Poor to Fair. In a recent study by Herman, Hopman, Vandenkerkhof, and Rosenberg, (2012) on Canadian adults that examined the associations of leisure time PA and BMI with HRQOL, results showed that BMI and PA were strong independent predictors of adverse HRQOL; however, when taken in combination, PA emerged as the more important factor. An active individual’s weight status seemed to have little association with self-
rated health and PA, but for inactive persons, there was a greater likelihood of fair/poor SRH, regardless of their weight status (Herman et al., 2012), confirming results from Pan et al., (2009) study, that also suggested that both men and women who had a poor self-rated health were less likely to have sufficient PA than those who reported good health status across all age groups. However, studies such as Zack et al. (2001) found that women report poor health on measures of HRQOL and SRH compared to men within the same age groups. This information underlines the importance of effective, tailored health promotion messaging at the time of the event for participants that are of low SES, are not meeting physical activity guidelines, those reporting low SRH, and those that struggle with conflicting information about how much activity they need for some health benefits.

The relationship between physical activity maintenance, walking, and training before the event. During the interviews (at T1), 67% (n = 16) participants reported that they had maintained their exercise routine since the RftC, and 25% (n = 6) had not. In a study by Barnett, Gauvin, Craig, and Katzmarzyk (2008), lower education was associated with lower adherence to physical activity, whereas higher levels of education were related to regular participation in physical activity, and enhanced maintenance of physical activity. Lane et al. (2012) found that the most notable predictors of PA relapse after the event were having no tertiary education, living in a rural area, and having above normal BMI. The majority of participants reported walking or mostly walking on the day of the event, and many online respondents reported that they did not train for the event. Lane et al. (2012) found that walking the event was related to lower physical activity levels at both time points (before and three months post-
event), and was the most consistent predictor of relapse. Limited training before the event was also a significant predictor of relapse (Lane et al., 2012).

Wilson et al. (2003) found that at mid intensities like walking, identified regulation was a significant predictor of participation, and for MVPA, both identified and intrinsic regulations were significant predictors of participation. Silva et al., (2010) also found a positive influence of intrinsic motivation on structured physical activity and a neutral or negative influence of external and introjected regulation on physical activity. However, in their intervention, identified regulation was not a significant predictor of physical activity in the presence of intrinsic motivation.

When looking at long term exercise adherence, Wilson et al. (2003) found an increase in intrinsic motivation at the end of the 12 weeks for those who participated in MVPA prior to the intervention, and found an increase in identified regulation for physical activity six months after the intervention had completed. When looking at the RftC sample, identified/integrated as well as intrinsic motivations were also the most important forms of regulation for physical activity and healthy eating in this sample. Further proof of this trend, in a study that examined the RAI across stages of change, behavioural regulation became more self-determined as people became more committed to exercise (Mullan & Markland, 1997). For example, those in the action or maintenance stage of change had a significantly higher index of self determination (or RAI score) than those that exercised less frequently.

A review of SDT, PA, and exercise by Teixeira and Carraça, (2012) also showed consistent support for a positive relationship between more autonomous forms of motivation, and exercise participation. They found that identified regulation tended to
predict initial/short term adoption more strongly than intrinsic motivation, and intrinsic motivation on its own was more predictive of long term exercise adherence. Although physical activity levels were not measured in the nested cohort, and a significant difference between intrinsic or integrated/identified regulation and physical fitness was not found in this study, the increase in intrinsic motivation and an increase in aerobic fitness suggests a similar pattern.

Motivation for healthy eating showed that participants were largely motivated by identified and introjected regulation at T1 and T2. There were no significant changes in answers to the questions for HE motivation from T1 to T2, although ‘I have a desire to eat healthy foods’ (identified), ‘I eat healthy because I value my health’ (identified), and ‘because I have to’ (introjected) approached significance. Participants were the least motivated to eat healthy by external regulation. From T1 to T2, there was a significant decrease in identified motivation, although participants continued to be more autonomously motivated towards healthy eating. According to the BREQ calculation, although not significant, there was a decrease in self-determined motivation in HE at T2, demonstrating that influence for improving motivation decreased for HE between T1 and T2. Perhaps, experiencing successful and positive behaviour changes with PA could serve to promote individual competency and motivation for healthy eating. As individuals realize the benefits associated with PA, they may be more inclined to increase these benefits by improving their dietary behaviours.

**Physical activity and breast cancer risk.** Studies have found that those that are more socioeconomically disadvantaged and living in underserved communities, are at
greater risk of developing certain types of cancer. SES, in particular, appears to play a major role in influencing the prevalence of behavioral risk factors for cancer, for example, tobacco smoking, physical inactivity, obesity, excessive alcohol intake, and poor SRH (Ahmed & Shahid, 2012). In addition, the higher risk of cancer in disadvantaged groups can be linked to food insecurity and meager access to elements of a healthy diet, such as fresh fruits and vegetables, and to facilities for physical fitness (Ahmed & Shahid, 2012).

A study by Hildebrand, Gapstur, Campbell, Gaudet, and Patel, (2013) examining factors that determined breast cancer risk, recently found that the most active women (those reporting more than 42.0 METhrs/wk) had a 25% decreased risk of breast cancer compared to the least active. Sitting time was not correlated with physical activity. Walking was inversely associated with breast cancer risk. Among women who reported walking as their only activity, those walking seven or more hours per week had a 14% lower breast cancer risk relative to women walking three hours or less per week. Without any other recreational physical activities, walking on average of at least one hour per day was associated with a modestly lower risk of breast cancer, and more strenuous and longer activities lowered the risk even more (Hildebrand et al., 2013). Looking at sedentary time independent of physical activity, results from two other studies suggest that amount of sedentary time may be positively associated with breast cancer risk (George et al., 2010; Kruk, 2009).

When looking at RftC participants (both men and women; although majority women) in our study, only 27% were considered to be highly active based on their MET-hr/wk in MVPA. In the RftC study, we are unable to comment on the relationship
between physical fitness ratings and reported PA maintenance from the interview data, as relative questions about current exercise behaviour were asked, and were not based on maintaining a minimum level of physical activity or fitness. However, in regards to the nested cohort, although results indicated that participants largely maintained their fitness levels following the RftC event (T1 and T2), the scores ranged from Fair to Good, indicating the majority of participants would benefit from an increase in both aerobic and musculoskeletal activity on a weekly basis. Because moderate physical activities, such as walking, are commonly preferred to more vigorous forms of PA for women (Marcus & Forsyth, 1998), promotion of leisure-time walking at the event, and continued support to encourage physical activity practices before and after the event by targeting identified and intrinsic motivation, may be particularly relevant and effective for this population for long term behaviour change.

**What Were Their Motivations for Event and Physical Activity Participation?**

Decisions about whether, when, how, and how much to donate are more likely to be governed by a mix of personal and pro-social goals than by either set of goals alone (Lane, Murphy, Bauman, & Chey, 2012), and predicted this event served as an opportunity for participants to fulfill personal needs while simultaneously contributing to a cause (Prater, 2009). Differences in personal values may help explain preferences for donating to certain charity types, because giving to a specific genre of charity provides the donor with the opportunity to express his or her particular values (Wymer, 1997). Eighty-five percent of respondents reported that being a participant in the RftC was important to them, and 72% agreed that even compared to other events, the RftC was
very important to them. Just under half of respondents agreed that participating said a lot about who they were.

In congruence with Filo et al. (2008) and as outlined by the first theme, three factors emerged that contributed to charitable giving: specifically self esteem, reciprocity, and altruism. Self-esteem depicts the intrinsic benefit of feeling better about oneself as a result of a donation to charity. Reciprocity represents the notion that participants will benefit from the charity’s activities and services. The need to help others relates to the altruistic notion that giving to charity can improve the lives or well-being of others.

**Self-esteem.** Not only did the data find that fundraising for, and participating in, the RftC was a worthwhile endeavor, but overall, participants believed that the RftC was a comparatively better way to fundraise. Addressing self-esteem, participants reported feeling good after raising funds and making a donation to the CBCF. For participants in the RftC, and other fun runs “having a reason to exercise other than your own fitness can make you feel particularly good [about participating]” (Tufts University Health & Nutrition Letter, 2004, p.2).

**Reciprocity.** There were many categories that reflected the reciprocity of the RftC event for participants, including ‘fulfilling personal needs’ (i.e., for my own health and well-being), and ‘fitting in with my current fitness routine’. When looking at reciprocity in the literature, Kottasz (2004) found that men were more likely to respond to communications efforts which suggested personal benefits for themselves. Wharf Higgins and Lauzon (2003) found that several participants in their study were willing to pay a
higher registration fee (in a return for a tax receipt) rather than pursue and collect pledges as the fundraising component. However, perhaps because of the low SES of the sample, RftC participants were pleased that it was not their own money and felt ‘it was a better way to spend time for a charity than spending time volunteering’. Because of reciprocity, RftC was a better way to give to a cause because they could physically participate and raise funds, as opposed to spending their own money or volunteering their time, and reap the benefits of being physically active for a cause.

**Desire to improve charity.** Most survey respondents agreed that fundraising on behalf of CBCF allowed them to support a quality charity and a third strongly agreed that it was worth their while to fundraise for the CBCF. From the online survey data, correlations were strongest between the questions ‘RftC is a comparatively better way to fundraise,’ and ‘it allows me to support a quality charity.’ The RftC provided them an opportunity to give to charity, but unlike (Filo et al., 2008) it was not because they had benefited from the organization, or to improve the standing or profile of the organization.

The desire to improve the charity embodies the notion that event participants view their donation as a means to push the charity toward success. Again, in contrast to Filo et al. (2008), participating and fundraising for the RftC was not seen as a means to ensure that friends and loved ones were exposed to CBCF or raise awareness of what the organization had to offer to participants. The event was seen as more of an intermediary channel with the ultimate goal of getting funds to the appropriate researchers although many were skeptical about where the money actually went, but hoped that the money raised went towards cancer research.
Interviewees, in particular, voiced the need for transparency for how the funds would be spent by the CBCF. Kottasz (2004) reported that younger people were found to be less likely to give and more suspicious of institutions and fundraisers. It is evident from the literature (Kottasz, 2004) as well as from the RftC interview and survey data, that a detailed explanation of how the funds raised are to be used and the reputation of the charity itself are important aspects influencing the decision to participate. A request for detailed information on how their donations would be used confirms the need for charities to have extensive and effective marketing and communication strategies that provide clear and up-to-date information about their operations (Kottasz, 2004). This is one practical recommendation that the CBCF may want to consider in order to improve future RftCs.

Although the benefits of participating from the organization were not a reason to be involved in the RftC, interview respondents identified the opportunity for obtaining knowledge as something they would like to have access to, for example, “now I’ve done the breast cancer walk, they have my email, and now I am receiving this really important information right? Regarding treatments or breast health” (Participant 13).

**Altruism.** Altruistic motivation has the ultimate goal of enhancing welfare of those in need even at the expense of the person’s own interest, in other words “what someone cannot do for themselves, he or she can often do for others” (Tufts University Health & Nutrition Letter, 2004, p.2). Supporting the struggle, pain and the suffering of a loved one, was a reason for participants to attend the RftC, and both Filo et al. (2009), and Filo et al. (2008) found similar results. Kottasz (2004) found that higher income
earn ers donated more generously to charity, and that their motivations for giving was not only to assist the reduction of suffering, but also to initiate longer-term social changes. When considering men and women separately, Kottasz (2004) found that women preferred fundraising appeals which emphasized helping others.

Although the differences between gender did not appear significant in the RftC, for non-regular donors the number of RftCs was strongly associated with being motivated to raise funds because of altruism, as indicated by the question ‘I raised funds on behalf of CBCF because I feel a need to help others’. Data found that the RftC was “not only … about friends and family, it was about supporting females and breast cancer” (Participant 1), also representing altruism and the belief that their efforts, both physically and monetarily could improve the lives or well-being of others (Filo et al., 2008). In this study, three quarters of respondents were motivated to raise funds on behalf of the CBCF because of their perceived need to help others, results mostly likely influenced by the large number of women that participated in this study. The benefits of physically participating in the event go both ways for both the participant and the organization. The ability for low active participants to be a part of the RftC demonstrates one mechanism that should be further explored when designing health promotion campaigns.

Another explanation for differences in charitable donation motivations in this sample compared to others, as described by Kottasz (2004), is that lower socioeconomic groups donate to charities because they are better able to empathize with others who have found themselves in similar situations. Interviewees also stated that participating in and fundraising for the RftC made them more aware of charities in need, and the effort that it takes to fundraise for these charities. In addition, participating in the RftC made online
survey participants feel more committed to giving to good causes, and 16% of interview participants said that the RftC motivated them to do more charitable things. Many organizations are concerned that big visible events such as the RftC detract from funds being allocated to their smaller charities. This demonstrates that within the sample of RftC participants, this is not the case.

**Participating with family and friends.** Although most participants that filled out motivation questionnaires were not motivated to be physically active with friends in their daily lives, many did participate in the RftC to be with friends or family on the day of the event. These results confirmed Bauman, Murphy, and Lane's (2009) notion that events such as the RftC, “move people to trial physical activity, usually in a spirit of social participation with friends” (p. 45) for both previously active and inactive participants participated socially with friends, or as a social responsibility to a loved one or their community.

Perhaps charitable health and sport agencies, can build on this relatively robust link between participation and the benevolent nature and altruism of communities to generate greater allegiance to physical activity and population level behaviour change (Lane et al., 2012). Participants’ attachment to the RftC event is evident as they return year after year. Indeed, the “attraction process embodies how an individual perceives a charity sport event can provide benefits and satisfy needs through event participation and charitable giving” (Filo et al., 2008, p. 503). As such, the CBCF can position the attraction outcomes and integrate them into a participant’s self-concept and values
leading to attachment outcomes where the event takes on emotional, functional, and symbolic meanings for the participant.

**Sense of belonging.** Because extrinsically motivated behaviours are not inherently interesting and thus must initially be externally prompted, relating to family, peer group, or society can facilitate internalization by providing a sense of belonging and connection (Ryan & Deci, 2000a). For regular donors, the number of RftCs participated in, was strongly associated with being motivated to gain a feeling of belonging. The more one internalizes the reasons for an action and assimilates them to the self, the more one’s extrinsically motivated actions become self-determined promoting maintenance of the behaviour (Ryan & Deci, 2000b). Social environments that support an individuals’ basic psychological need specifically (i.e., autonomy, relatedness, and competence) are assumed to foster more autonomous motivational patterns as well as adaptive outcomes (Fortier et al., 2012). When an event satisfies a person’s basic psychological needs, it takes on greater meaning for an individual by aligning with core values (Filo et al., 2008), and the symbolic and functional meaning associated with the event could also offer a framework for leveraging charitable events to increase participation in physical activity.

**External regulation, relatedness & continued event participation.** According to Ryan and Deci, (2000b) a person may originally be exposed to an activity or event because of an external regulation (e.g., such as helping others), however, in the absence of autonomy, the behaviour will not be internalized (Wilson et al., 2003). In regards to the RftC, participants were autonomously motivated to participate because they chose to
fundraise for the RftC over other events because of “an emotional symbolic and functional meaning to the event” (Lane et al., 2012, p.59). Results indicated that the number of RftCs participants had attended, and the motivation question ‘participating in the RftC says a lot about me’ were significantly correlated, suggesting that participants increasingly identified with the event each successive year they were involved. Over half of the online survey respondents, and the majority of the interview participants said they would participate again. By attracting participants year after year, it is clear that the RftC has already accomplished the internalization of motivation for event participation.

**Putting the fun in to the fundraiser.** ‘Putting the fun in to the fundraiser’ captured participants’ experiences that raising monies did not have to be relegated to knocking on doors or selling raffle tickets. Wharf Higgins and Lauzon (2003) also identified this same experience but from the perspective of the organizers. “We’re trying to put the fun back in fundraising” (p. 372), when commenting on the reasons for one organization to host an 8km walk. Organizations recognized that “it may be the end of door to door fundraising as we know it – people are nervous of opening their doors” (p. 372), and as such, PA events were regarded as superior relative to the other forms of solicitation. The increased profile, celebratory function, and social cohesion that is fostered among volunteers, staff and participants, in addition to the increased amount of revenue raised, contribute to this superiority (Wharf Higgins & Lauzon, 2003).

**Easy to participate.** Olivola (2010) argued that people will contribute more to a cause if participating is painful and effortful than if the contribution process is easy and
enjoyable. However, in events like the RftC that appear to attract more than the regular and fit exerciser, tasks that are too effortful and painful in comparison to current health practices could reduce competency and detract a large number of low active participants from ‘trial PA’. The ease of participation in the RftC, from both a fundraising and physical activity standpoint, improved the competence for both tasks.

**Providing an optimal challenge.** Perceived competence must be accompanied by a sense of autonomy in order for the enhanced feelings of competence to result in an increased intrinsic motivation. Using a walk or run with a variety of options (distance, timed or not timed), offers people choice to participate at a level they feel capable of, framed as a personal challenge that can be accomplished on their own. Within this study, RftC was a personal challenge for interviewees and was used to determine their level of competence with the task of running 5k, as they wanted to ‘see’ if they could run that type of distance. For participants in the Filo et al. (2008) study, distance was also mentioned as a way to test their fitness: “When I first heard about this challenge, and it being six miles or whatever it is, I felt that was a good goal for me, I’m trying to get in shape” (p. 513). As stated in the results section, this theme is further validated by Lane, Murphy, Bauman, and Chey, (2010), who found participants were also motivated because it represented a personal challenge.

Unlike other fundraising ‘runs’ that use chips to clock participants’ finishing time, the 2012 RftC remained one of the few (like Terry Fox) events that celebrated participation over performance (in 2013, four cities across the country introduced chip timing). For low active participants, however, this technological advance might not be
welcomed if they fear coming across the finish line ‘last,’ inhibiting their intrinsic motivation and perceived competence through perceptions of demeaning evaluation for the task (Ryan & Deci, 2000b). The highest level of self-determination is intrinsic motivation where behaviours, such as PA, are performed for inherent rewards, such as enjoyment or challenge. A physical activity intervention by Silva et al. (2011) that explicitly emphasized enjoyment, mastery, and challenge rather than the outcomes of exercise, intrinsic motivation was a more significant predictor than identified regulation of MVPA (Teixeira & Carraça, 2012). Accordingly, optimal challenges, and freedom from demeaning evaluations are all predicted to facilitate intrinsic motivation, and therefore continued participation in physical activity beyond the day of the event (Ryan & Deci, 2000a). Breaking down large, long term goals into smaller, short term goals allows people to build on small successes, such as completing a 5K, leading to greater feelings of control or mastery (Michie, 2008). Given the central role competence plays in predicting physical activity and well-being, health practitioners may wish to strive towards increasing individuals’ perceptions of competence.

However, Mullan and Markland (1997) argued that intrinsic motivation alone is unlikely to sustain long term engagement in exercise given all of the organization and commitment it entails because sustaining a physically active lifestyle presumably requires a high degree of effort. Therefore, regulation by identification may be more important than exercising for fun and enjoyment or to challenge oneself (Edmunds, Ntoumanis, & Duda, 2006). Because health promotion campaigns typically market exercise more in terms of health related outcomes than in terms of its intrinsic values, and because some people may never reach a point where they value physical activity for the sheer
enjoyment of it, research shows that the primary source of self-determined motivation among active individuals might derive from helping participants to see regular physical activity as within their control, important and aligned with their own values in order to help promote adherence over time (Fortier et al., 2012).

**Sense of community.** Participants described their sense of relatedness to the event in terms of its importance and meaning for participation, and highlighted the sense of community they felt toward other participants at the event as a result of taking part in something significant with a large group of similar minded people (Filo et al., 2009; Lane et al., 2012). A sense of community as a result of participation was reflected in a number of papers including Wharf Higgins and Lauzon (2003) who identified: giving back to the community, a sense of community spirit and pride, and participating as a way to connect with the community, were all considered rewards for participation. However, unlike Filo et al. (2008), Filo et al. (2009), and McDonough, Sabiston, and Ullrich-French (2011), who also mentioned a sense of community experienced by the participants in their study, RftC participants did not see ‘belonging to a group of strangers’ as a pseudo-family, and the RftC was not seen as a venue for participants to meet new people, as reflected in both the interviews and the online survey.

**Role model.** ‘Bright pink everything’ was described by the visibility of the survivors at the event. A similar theme was proposed by Murphy and Bauman, (2007) when they suggested that the success of elite athletes, who are viewed as role models by spectators at mass events such as the Olympics may have a ‘trickle down’ or
demonstration effect on participation where non participants are encouraged to become more active. In the behaviour change literature in terms of self-efficacy, this demonstration effect is also known as vicarious experience, in which observing a peer succeed at a task can strengthen beliefs in one’s own abilities (Ashford, Edmunds, & French, 2010). In the case of the Run for the Cure, as well as in the study by Filo et al. (2009), participating alongside these survivors and others that are seen as role models, enhanced this demonstration effect, and this made the event that much more meaningful, which may help non active and active participants alike, improve their competence towards physical activity. In addition to serving basic psychological needs for effort, the success of the event was personified by the survivors also participating in the event, which could further influence commitment to participation in the RftC, and in turn financial contributions to the CBCF.

**Improved competence and intrinsic motivation as a result of the RftC.** It seems sensible that, because of the non-competitive and enjoyable nature of mass physical activity events, they have potential to encourage citizens to trial new behaviours. It was interesting that the RftC not only opened people’s eyes to other charitable organizations, but from a PA perspective, other events and activities as well. Like competency, self-efficacy or the self-confidence that one can overcome barriers to be physically active, is the psychological factor most consistently linked to PA behaviour (Aparicio-Ting et al., 2013). The Pan et al. (2009) study found that higher self-efficacy, or competence in SDT, was consistently related to higher PA across gender, age group, education level and family income level. When looking at competence and autonomy in
the exercise domain, although relatedness is not always a predictor of intrinsic motivation for exercise due to the ability to enjoy exercising alone, perceived need-support (which concerns the quality of the social environment), has been found to mediate the effects of several interventions (Fortier et al., 2012; Markland & Tobin, 2010; Silva et al., 2008: 2010:2011). These interventions fostered competence and autonomy in a variety of ways, that included: providing options for decisions regarding PA, encouraging individuals to act for their own reasons, giving opportunities to engage in activities that participants enjoyed most and, that were optimally challenging. Results from Silva et al. (2008) outline that specifically for individuals who are overweight/obese, feelings of choice and volition about what types of activity are engaged in, as well as perceptions of competence that they can effectively perform the chosen activities, are important to the development of self-determined motivation towards exercise. By fostering competence and providing a context that is autonomy supportive, factors such as intrinsic motivation and minutes of MVPA can be significantly increased (Fortier et al., 2012).

Many RftC participants noted the fitness and health related benefits of participation and an interest to discover new types of activities or further challenge their current skills. This shows that their experience at the RftC added meaning to the associated physical activity, improved intrinsic motivation, and demonstrates that the RftC had the potential to not only motivate those otherwise un-interested in physical activity to take part but to further engage participants in greater amounts of physical activity. Controlling contexts may yield introjected regulation if they support competence and relatedness, but only autonomy supportive context will yield integrated regulation (Ryan & Deci, 2000a), emphasizing the importance of PA promotion of a variety of
activities at the RftC or similar ‘fun runs’ in order to encourage further PA promotion beyond the day of the event.

RftC can be framed as an opportunity for both exercisers and non-exercisers. It is a personal challenge for people moving towards physical activity and through goal accomplishment, is a way for those individuals to improve their competency. Based on participants’ responses of either wanting to maintain their motivation for physical activity or try something new, it is recommended that the CBCF provide information on other events going on in the area. Perhaps it’s a role best assumed by the public sector to disseminate a list of other physical activity events (fundraising or not), and physical activity and healthy eating tips while participants are most receptive to this messaging. Deci and Ryan (1985) maintain that long lasting behaviour change depends on autonomous and internal regulation and as such, community level events, such as fun runs and walks, could be used as part of integrated physical activity strategy if they attract less active and novice individuals to participate on a regular basis.

Limitations

The long tenure and popularity of the RftC strengthens the external validity of the study in that this is not a researcher-defined intervention, and offers an opportunity to collect practice-based evidence about the event and its participants. However, there are a number of limitations to this study that should be noted. Firstly, not having control over the ‘intervention,’ as in this natural experiment, limits internal validity. Second, in keeping with ethical procedures, participants in this study volunteered to complete the online survey, fitness assessments and interviews and therefore were not randomly
selected. The willingness of these individuals to be in the study may indicate a greater degree of motivation toward the event and healthy practices. It might be the case that SDT-based PA interventions differentially affect participants who voluntarily consent to being involved in a trial, namely in the sense that they are already more autonomous than non-participants or are becoming so. Moreover, they already - quite literally - exercise their autonomy in agreeing to participate in the study in the first place. Although difficult to address, it is a limitation that future researchers should consider (Fortier et al., 2012). A third limitation was that self-reporting of behaviour changes and the possibility of response bias inherent in gathering self-reported physical activity and nutritional data (Connor Gorber, Tremblay, Moher, & Gorber, 2007; Peterson et al., 2008). In an attempt to address the response bias, more objective health measures were taken, and the responses were calculated for further health classification. For example, participants in the online survey gave their height and weight, but BMI was calculated by the research assistant to establish a classification. Care was taken to adopt and adapt survey items previously used and/or validated in the literature (IPAQ, CCHS). Fourth, the small sample size of participants who completed fitness testing may have precluded finding increases in aerobic fitness associated with an improvement in intrinsic motivation. Fifth, a measure of back extension was not included in the study due to the need for transportability of the fitness equipment, and the option for fitness testing to be performed offsite, and thus the Healthy Back Fitness Ratings could be higher than they might normally be. Thus, a complete fitness assessment, as recommended by CSEP, was not conducted on participants although composite scoring is available within CSEP procedures that accommodate a lack of certain fitness measures. Sixth, as with other
cross sectional studies, the significant statistical correlations found here suggest only that relationships among some of the variables exist; we cannot assume that the relationships establish cause and effect. Finally, we cannot presume that the results – quantitative and qualitative – are generalizable to other RftC participants in Victoria and across the country.

**Future Research**

Further knowledge about public health applicability of mass events is needed, and methods for attracting less active and novice individuals to participate remain to be developed. The results from this study begin to address this gap. It is interesting to note that regardless of the influence of RftC on physical activity or healthy eating practices, participants were acutely aware of the importance of screening. Perhaps the success with which the RftC prompts screening can also be achieved with other self-care practices, such as physical activity or healthy eating.

Results indicate that providing support for autonomy, structure, and involvement will encourage individuals to develop more autonomous regulations, setting the ground to the discovery of personal meaning and enjoyment of exercise. Continuing with recommendations for future research by Silva et al. (2008), by enhancing the understanding of the mechanisms by which an intervention works in promoting targeted outcomes, and allowing experimental testing of key relationships in a controlled fashion prior to their application in real settings, results from this study as well as other randomized controlled trials, can provide ways to develop and implement intervention programs that enhance autonomous motivation and significantly contribute to the development of more cost-effective interventions (Silva et al., 2008).
More longitudinal and prospective design studies should be considered for future research following participants beyond six months, perhaps following participants forward to subsequent participation in RftCs, or other events, and how motivations change over a longer period of time. Performing fitness assessments on a larger nested cohort, and comparing these results with different participant demographics, fundraising behaviours, as well as self reported stages of change are also important for future research (Mullan & Markland, 1997). As the importance psychological health is emerging as a very important aspect of whole person care, it is recommended to investigate how events such, as the RftC that serve an important portion of population, improve quality of life, psychological health and well-being, and not just physical health after participation.

Future research may also wish to consider quasi-experimental designs where participants and non-participants, prescribed and preferred exercise programs, as well as other characteristics of the social context outlined by SDT (e.g., perceptions of autonomy support) on both motivational development and health behaviours are compared. As well, exploring the influence of other physical activity fundraising events that are not sponsored by health organizations or relate to health promotion practices (e.g., golf for literacy, swim for hospice etc.) would provide a means to disentangle the influence of the event and its cause on motivations for healthy practices. Including a number of other validated instruments such as psychological needs satisfaction, such as BREQ or BREQ-2 scale, and measuring weekly activity of participants through self-report questionnaires (IPAQ or LTEQ), and accelerometry may be important to look at in future research to establish congruity of qualitative and quantitative data.
There is also currently a lack of longitudinal or experimental studies to determine whether differential benefits for intrinsic and integrated regulation might emerge over time, and therefore to promote optimal behavioural outcomes, and therefore fostering both for maintained behaviour change is recommended at the present time (Teixeira & Carraça, 2012). Also, specifically looking at differences in fitness, psychological needs assessment, and motivation for: those that trained for the event and those that didn’t, those meeting weekly guidelines versus those that are not (self report and accelerometry), those with high aerobic scores versus those with low, and the relationships between any of these variables and other participant demographics (age, gender, SES, etc) could serve organizations wanting to target and tailor health promotion messaging.

As stated by Lane et al. (2012) in order to promote physical activity among these ‘at risk’ groups (e.g., females, less educated, low SES, diverse cultures), it is important to further consider why and how people differ in relation to physical activity. Determining the influence of the social context on both need satisfaction and exercise regulations across the exercise experience is important for understanding long term exercise behaviour (Aparicio-Ting et al., 2013; Mullan & Markland, 1997; Ryan et al., 2008; Wilson et al., 2003). Finally, understanding how organizations perceive the event to serve health promotion objectives is necessary for to maximize their potential for fostering behaviour change. Future recommendations from authors such as Henderson (2009) and Lane et al., (2012) call for event organizers to adopt a public health mandate and use their events to promote health and physical activity as well as generate excitement for participants. In doing so, active environments can support those most at risk of inactivity.
and strengthen the delivery of the physical activity message at a local, provincial and national levels.

**Application of Self Determination Theory**

Figure 17 summarizes interview data according to the three main constructs from self determination theory. According to Ryan and Deci, (2000b) a person may originally be exposed and attracted to an activity or event because of their relatedness to the event, relatedness to activities at the event, or relatedness to others at the event. Clearly, this notion of belonging or attachment resonated deeply with interview participants as most interview categories fell under the relatedness dimension. The quantitative data also supports this finding: for regular donors, gaining a sense of belonging was an important reason for event participation, and for non-regular donors, participants were motivated to raise funds because of a need to help others.

Autonomy was also an important part of participants’ motivation, and it not only influenced initial attraction to the event, but the enduring success of the CBCF RftC suggests that these constructs may be satisfied for continued event participation. The majority of participants noted that RftC was important to them, even compared to other events, and just under half of respondents agreed that participating said a lot about who they were, demonstrating that not only was the event internalized, but integrated values gained from physically participating demonstrated intention to participate again.

In regards to the final construct of competence, not only did participants feel related to the event or to the cause, it was easy to participate from both a fundraising and physical activity standpoint. The event provided an optimal challenge for low active individuals choosing to participate, and accomplishing goals enhanced future intentions to participate.
in the event and positive health behaviours. In the SDT literature, perceived competence must be accompanied by a sense of autonomy in order for the enhanced feelings of competence to result in an increased intrinsic motivation (Gunnell et al., 2013). The literature demonstrates that changes in competence satisfaction tend to mediate the relationship between autonomous motivation and physical activity behaviour, which may be particularly relevant to this population.
**Figure 18.** Categories that pertain to self determination theory constructs.
Implications for Practice

Overall, the quantitative and qualitative data analyses indicate that the RftC engages far more than just the already active members of society, which is highly positive from a public health perspective. The sample of participants in this study represent only a fraction of the total population of RftC participants, and we do not know if they characterize the average participant in terms of health practices and demographics. As suggested by Lane, Murphy, Bauman, and Chey (2012), the large number of RftC participants – year in and year out – demonstrate the potential for initiatives such as the RftC to attract a sizable number of even low active people to be active, at least on the day of the event. For health organizations such as the CBCF, such events have the potential to expand their reach of donors, disseminate their message, and fulfill their mandate of breast health promotion.

Most participants in the RftC were not only active on the day of the event, but many (37%) self-reported that they had trained for the event. Many indicated that they wanted to continue with physical activity pursuits out of the motivation that they received from participation in the RftC, and wanting to keep that motivation beyond the single event participation. Fifty-nine and sixty-two percent of people met minimum guidelines for physical activity and healthy eating, respectively, up to two months after their participation in the event.

As suggested by Lane et al. (2010) engaging charities and tapping into the altruistic motive for participation displayed by many women is a worthwhile endeavour. Strategic partnerships between public health agencies, community health officials, and event organizers may encourage the less active community to trial new physical activity
behaviours, even before the event begins. Post-event promotions and awareness of additional programs and events may also be required in order to maintain motivation for these new event participants, and there is promise that messaging during the event could have potential for success of maintenance of positive health practices.

Given the clear significance of internalization for both personal experience and behavioural and performance outcomes, it becomes critical that we know how to promote autonomous regulation of extrinsically motivated behaviours (Ryan & Deci, 2000a). As opposed to the recommendations offered by Filo et al. (2008), rather than simply offering parties at local bars or restaurants, although the celebration motive can remain, local health authorities can offer pre and post physical activity events, where friends and family of participants are encouraged to attend. Enabling sociability, creating event-related social events, and facilitating informal social opportunities (such as encouraging walking groups, or setting up informal walking groups within communities), can promote social bonding, which Funk and James (2001) suggest as a means to advance movement from attraction to attachment, for both the cause and for the maintenance of positive health behaviours.

In addition to regional health promotion, the World Health Organization, (2010b) recommends the use of mass media to promote public awareness about diet and PA, and considers these campaigns to be ‘best buys’ for the organization. Mass media campaigns can be used to significantly influence health behaviours of large populations (Lankford et al., 2013). Because events such as the RftC attract thousands of participants across Canada, providing physical activity information in this way is not only feasible, but cost efficient. In a review of mass media campaign design, campaigns that used five or more
of the Task Force Principles, of which formative research, message design, and channel placement were most important, had greater success in terms of increasing physical activity (Noar, 2006).

In terms of channel placement, text messaging has gained traction in recent years, because of its accessibility to a number of populations, far reach, and cost effectiveness (Head, Noar, Iannarino, & Grant Harrington, 2013). Text messaging campaigns have been found to be most successful when intervening on physical activity when the messages are both tailored and targeted for the person receiving them, and when text messaging frequency decreased over time. Sending text messages to create awareness of other events, as well as sending reminders of a training schedule for an event, rather than simply sending reminders to exercise on a daily basis, can help to maintain autonomous regulation toward physical activity. Feeling empowered in decision making about one’s health can play an important role supporting individuals as they seek positive health behaviour and lifestyle change (Korda & Itani, 2013).

The findings from this study suggest that current RftC participants and donors want to know more about breast cancer treatments and where their money has helped – there needs to be more information at the event about treatments, prevention, other ways and places to be physically active (including the home, etc.). Because of the low cost and promise for improving a range of health behaviours and health outcomes, a text message mass media campaign may be a practical and feasible tool for the CBCF to use in subsequent RftC events to reach the maximum number of participants possible.
Conclusion

To our knowledge, this is the first Canadian prospective investigation of established mass physical activity events on participants’ breast health practices. According to White, McAuley, Estabrooks, and Courneya, (2009), physical activity interventions described in the literature related to breast cancer have largely focused on methodologies to ensure high internal validity, with scant attention paid to examining external validity. Employing the undeniably successful RftC as the ‘intervention context’ enabled this ‘natural experiment,’ ‘practical trial’ (Mercer et al., 2007) and ‘every day research’ (Bazeley, 2012) to understand participants’ motivation and health practices. In doing so, we gathered what Pratt and colleagues (2012) refer to as ‘type 3 (contextual) evidence’ with an emphasis on external validity. As Milat and colleagues (2013) found, such contextual data are critical for informing scalability and sustainability of health promotion interventions. Further, the use of SDT enabled me to disentangle the multiple factors that contribute to motivating people toward making healthy decisions. The present research suggests that “social situational factors tied to personal experience (i.e., one’s connection with cancer) can have a strong influence on the relative importance of the hedonic motives and dispositional needs in fostering attraction and attachment [to the event]” (Filo et al., 2008, p.520). These results confirm previous findings in the literature and, suggest that mass events have the potential to not only attract low active individuals, but increase their training efforts before and after the event (Filo et al., 2009 & Filo et al., 2008)

Unique to this study, not only did the RftC attract habitual exercisers, it was more likely that participants in attendance were not meeting current health recommendations,
which is significant for a community that is typically more healthy when compared to the rest of the country. More importantly, “the motivation and desire to participate in the event was more important than fitness level” (Tufts University Health & Nutrition Letter, 2004, p. 2), and it was apparent that although participants weren’t willing to exercise entirely for their own benefit, they were willing to do physically participate in a cause to help others (Tufts University Health & Nutrition Letter, 2004). This research supports the notion that ‘fun runs’, provide an ideal environment to provide a context for health behaviour change at the population level through participants’ relatedness to the event or the cause, and the non-intimidating distance of the race itself as well as experiences at the event can foster maintenance of physical activity by supporting the type of motivation. 

Motivations for physically participating in the event and processes, and for fostering maintenance of physical activity beyond the event day, especially for those who are not currently meeting health recommendations, poses new direction for future research. Finally, the study offers practical and feasible strategies for the CBCF and other like organizations to enhance its mandate, to promote health and prevent disease.
References


Lane, A., Murphy, N., Smith, P., & Bauman, A. (2010). Do mass participation sporting events have a role in making populations more active? Research Report No. 2. Retrieved from http://repository.wit.ie/id/eprint/2717


change in fruit and vegetable consumption among diverse populations participating in health promotion intervention trials. *The Journal of Nutrition, 138*(1), 218S–225S.


Pratt, M., Sarmiento, O., Montes, F., Ogilvie, D., Marcus, B., Perez, L., … Group, for the L. P. A. S. W. (2012). The implications of megatrends in information and communication technology and transportation for changes in global physical activity. *Lancet, 380*.


Statistics Canada. (2013). *Health Profile*. Ottawa. doi:No. 82-228-XWE


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Appendix A

Operational Definitions

The Canadian Breast Cancer Foundation CIBC Run for the Cure (RftC). Is Canada’s largest single day, volunteer-led fundraising event that is comprised of a 1 km or 5km run/walk course. This event has been held for 20 years and is produced by the Canadian Breast Cancer Foundation as one of several fundraising events. In 2011 over 4,200 people participated in the Victoria Run for the Cure and raised more than $556,000. At British Columbia’s eight Run for the Cure sites, some 22,000 participants contributed to a regional fundraising total of $3.67 million. Across Canada, participants in 59 communities raised a total of more than $30 million. All funds support initiatives in prevention, early detection, treatment, research and emerging issues in the health care workforce.

Guidelines for physical activity. The recommendations in order to improve cardiorespiratory and muscular fitness, bone health, reduce the risk of NCDs and depression are:

1. Adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate - and vigorous-intensity activity.

2. Aerobic activity should be performed in bouts of at least 10 minutes duration.

3. For additional health benefits, adults should increase their moderate- intensity aerobic physical activity to 300 minutes per week, or engage in 150 minutes of
vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate - and vigorous-intensity activity.

4. Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.

Inactive people should start with small amounts of physical activity and gradually increase duration, frequency and intensity over time. Inactive adults and those with disease limitations will have added health benefits when they become more active.

(World Health Organization, 2010b)

**Definitions for acronyms.**

CBCF – Canadian Breast Cancer Foundation

RftC – Run for the Cure

CCHS – Canadian Community Health Survey

SDT – Self Determination Theory

MET - METS are “multiples of the resting metabolic rate and a MET-minute is computed by multiplying the MET score of an activity by the minutes performed (IPAQ).

SOPARC – system for observing play and recreation in communities

IPAQ – International Physical Activity Questionnaire

CPAFLA – Canadian Physical Activity and Lifestyle Assessment

OIT – Organismic Integration Theory
Appendix B

**Fitness Assessment Protocols** (Canadian Society for Exercise Physiology, 1996).

**Anthropometry and body composition.** Body mass (kg) and standing height were measured according to standard procedures (weight scale and goniometer). Waist circumference was measured using an anthropometric girth tape at the level of noticeable waist narrowing (Canadian Society for Exercise Physiology, 1996).

**Health-related physical fitness.**

1. Resting blood pressure (sphygmomanometer and stethoscope) and heart rate were recorded before all fitness tests (after 5 min of seated rest). If blood pressure was greater than 144/94 the participant was requested to sit quietly for another 5 minutes, then blood pressure was reassessed. Blood pressure and heart rate were also monitored at the end of the test to ensure adequate recovery from the test.

2. Health benefit ratings were derived from anthropometric measurements. Based on BMI, respondents were classified as underweight, normal weight, overweight or obese. Based on waist circumference, respondents health risk was classified as low (less than 80 cm in females; less than 94 cm in males), increased (80-87 cm for women; 94-101 for males) or high (more than 87 cm in females; more than 101 cm in males). An overall body composition health rating was assessed using a combination of BMI and waist circumference.

3. Aerobic fitness was assessed using the modified Canadian Aerobic Fitness Test (mCAFT) or the Rockport 1-mile walk test (chosen by participant and repeated at T2). Both protocols are submaximal in nature and assesses a client’s heart rate
response to a given exercise bout, which is used in a formula to predict the participants’ VO\textsubscript{2max} (maximal aerobic power). The mCAFT is based on the participants’ heart rate response to progressive stepping exercise, and the test is terminated once the participant has reached 85% of their age-predicted maximum heart rate (220-age), VO\textsubscript{2max} is then based on the last completed stage. The Rockport is based on the heart rate response and time taken to complete a 1-mile walk and VO\textsubscript{2max} is based on a formula that combines HR at completion, time it took to complete 1-mile and age. This test has been shown to be valid and reliable for the determination of aerobic fitness. Aerobic fitness scores was used and is derived from the predicted VO\textsubscript{2max} (VO\textsubscript{2max} multiplied by 10).

4. Musculoskeletal fitness (muscular strength & endurance, and flexibility) was assessed using standard procedures in the order written below:

a. Grip strength: Assessed muscular strength measuring using a hand grip dynamometer twice on each hand (alternating), and combining the maximum for each hand in kilograms.

b. Push-ups: Assessed muscular strength by performing as many push-ups as possible without breaking cadence with no time limit. Men were required to perform push-ups from their toes, women were required to perform push-ups from their knees.

c. Sit & reach: Assessed flexibility by sitting on a mat on the floor with their legs extended against a flexometer, and the best of two attempts to stretch forward as far as possible without bending the knees was recorded to the nearest 0.1 cm.
d. Partial curl-ups: assessed muscular endurance by having participants perform as many partial curl-ups as possible in one minute at a set pace, to a maximum number (up to 25).

5. An overall musculoskeletal health benefit rating was assessed based on the results of the grip strength, push-ups, partial curl-ups and sit and reach tests.

6. A back fitness rating was calculated based on the results of the waist circumference, partial-curl-ups, and sit and reach tests.
Appendix C

Motivation Questions based on SDT (Physical Activity and Healthy Eating)

Motivation for Physical Activity

The following is a list of reasons why people engage in physical activities, sports and exercise. Keeping in mind your primary physical activity/sport, respond to each question (using the scale given), on the basis of how true that response is for you.

1  2  3  4  5  6  7
not at all true for me
very true for me

___ 1. Because I want to be physically fit.
___ 2. Because it’s fun.
___ 3. Because I like engaging in activities which physically challenge me.
___ 4. Because I want to obtain new skills.
___ 5. Because I want to look or maintain weight so I look better.
___ 6. Because I want to be with my friends.
___ 7. Because I like to do this activity.
___ 8. Because I want to improve existing skills.
___ 9. Because I like the challenge.
___ 10. Because I want to define my muscles so I look better.
___ 11. Because it makes me happy.
___ 12. Because I want to keep up my current skill level.
___ 13. Because I want to have more energy
___ 14. Because I like activities which are physically challenging.
___ 15. Because I like to be with others who are interested in this activity.
___ 16. Because I want to improve my cardiovascular fitness.
___ 17. Because I want to improve my appearance.
___ 18. Because I think it's interesting.
___ 19. Because I want to maintain my physical strength to live a healthy life.
___ 20. Because I want to be attractive to others.
___ 21. Because I want to meet new people.
___ 22. Because I enjoy this activity.
___ 23. Because I want to maintain my physical health and well-being.
___ 24. Because I want to improve my body shape.
___ 25. Because I want to get better at my activity.
___ 26. Because I find this activity stimulating.
___ 27. Because I will feel physically unattractive if I don’t.
___ 28. Because my friends want me to.
___ 29. Because I like the excitement of participation.
___ 30. Because I enjoy spending time with others doing this activity.
Motivation for Healthy Eating Questionnaire

We are interested in your experiences with **healthy eating**. Eating healthy means eating foods that contribute to good health, like fruits and vegetables, whole grain breads and rice and low fat meats, fish, and dairy. Eating healthy also means **not** eating too many foods with empty calories and lots of chemicals, like sugar-sweetened beverages (e.g., pop, energy drinks) and processed foods (e.g., pepperoni). Please keep in mind that for this survey, the term 'healthy eating' refers to **both** foods and beverages.

Using the scale below, please indicate by circling to what extent each of the following statements (from ‘Strongly Disagree’ to ‘Strongly Agree’) is true for you. Please only circle one answer.

**Remember:** There are no right or wrong answers and no trick questions. We simply want to know how you personally feel about healthy eating. Please answer all the questions as honestly and accurately as you can – this is very important.

<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>I try to eat healthy so others will think I am a healthy person.</td>
</tr>
<tr>
<td>1. I eat healthy because I feel better when I do.</td>
</tr>
<tr>
<td>I don’t see the point of eating healthy foods.</td>
</tr>
<tr>
<td>I eat healthy because others tell me I have to.</td>
</tr>
<tr>
<td>I eat healthy because it’s good for me.</td>
</tr>
<tr>
<td>I don’t see why I have to eat healthy.</td>
</tr>
<tr>
<td>I eat healthy so others won’t be disappointed in me.</td>
</tr>
<tr>
<td>I try to eat healthy as little as possible.</td>
</tr>
<tr>
<td>I feel pressure from others to eat healthy foods.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Strongly Agree</th>
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<tr>
<td>1</td>
<td>2</td>
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<td>5</td>
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<tr>
<td>10. I eat healthy for the pleasure of eating food that is good for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. Eating healthy is a waste of my time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. I eat healthy because I want to look good.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. I eat healthy because I have to.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>14. I don't see what I am getting out of eating healthy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. I do my best to eat healthy foods so others will like me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>16. I enjoy seeing my own improvement in my eating habits.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. I eat healthy but I don't see the purpose.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>18. I eat healthy so other people don't judge my eating habits.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>19. I eat healthy because it is important to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>20. I have no desire to eat healthy foods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>21. I want others to see me eating healthy foods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>22. I enjoy eating healthy foods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>23. I put forth no effort to eat healthy foods.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>24. I want others to see me as a healthy person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>25. I eat healthy because I value my health.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>26. I try hard to eat healthy so others won't be disappointed in me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Thank You For Participating!
Appendix D

Consent Forms

Participant Consent Form
Fitness Assessment
Participants

Running for the Cause or Walking the Talk? Participants’ Experiences of Fundraising in the 2012 CIBC Run for the Cure

You are invited to participate in a study entitled Running for the Cause or Walking the Talk? Participants’ Experiences of Fundraising in the 2012 CIBC Run for the Cure that is being conducted by Drs. Joan Wharf Higgins, John Meldrum and Kathryn Moncks, MSc Student. Drs. Wharf Higgins and Meldrum are faculty members in the School of Exercise Science, Physical & Health Education at the University of Victoria, and you may contact Joan (jwharfhi@uvic.ca) or John (jemeldrum@uvic.ca) if you have questions about the study. Kathryn Moncks is a graduate student under the supervision of Joan and John, and you may contact her if you have further questions by emailing kemoncks@uvic.ca or phoning 1-778-679-2787.

Purpose and Objectives
The objective of this case study is to understand the charitable motives and training experiences of participants raising monies for the Canadian Breast Cancer Foundation (CBCF) as part of the 2012 CIBC Run for the Cure. The research questions are: (1) Who participates in the RftC and why? (2) What are the health practices (e.g., physical activity, healthy eating) of participants? (3) Do participants improve their level of health practices and fitness levels following their participation in the event?

Importance of this Research
Research of this type is important because fundraising as part of mass fundraising events is increasingly common for charitable organizations to raise monies. As the Canada’s largest single day, volunteer-led fundraising event dedicated to raising funds for breast cancer research, education and awareness programs the CIBC Run for the Cure in Victoria raised over half a million dollars last year alone. In order to maximize the experience for participants and charitable organizations research is needed to understand their perspectives about the event itself, its capacity for/contributions to fundraising, and the extent to which the event influences participants’ health practices.

Participant Selection
You are being asked to participate in this study because you are a first time participant in the 2012 CIBC Run for the Cure, and completed the online questionnaire.

What do I have to do to participate?
1) First we ask that you sign this consent form.

2) We will then conduct fitness tests (including body composition, a walking test or step test for cardiovascular fitness, and tests of musculoskeletal fitness) for you in room 0025 of the McKinnon Building at the University of Victoria (or another location as requested by you), on a date that is convenient for you. This will take approximately 1.5 hours. Prior to conducting the fitness test we will administer a questionnaire to ensure that it is safe for you to undergo fitness testing and partake in physical activity (PAR-Q).

3) In addition to the fitness tests, you will be asked to fill out two questionnaires based on your motivations for physical activity and healthy eating.

4) After six months, we will contact you about completion of a second fitness assessment and questionnaires.

**Inconvenience, Risks, and Benefits**

There are no known risks or inconveniences associated with participating in this research other than the time needed to complete the measures. Any contraindication to exercise or fitness testing would come up through administration of the Physical Activity Readiness Questionnaire, which you will be required to complete. If it is noted that there may be a contraindication to increasing your level of activity, then we will require medical screening prior to participation in the study and in the fitness testing.

**Risks**

There are no known or anticipated risks to you by participating in this research.

**Benefits**

The potential benefits of your participation in this research include learning about your fitness level and making the event better for the organization in future years.

**Voluntary Participation**

Your participation in this research must be completely voluntary. If you do decide to participate, you can decline to answer any question on the questionnaires or decline to undergo any measure of the fitness assessment at any time and you may withdraw completely at any time without any consequences or any explanation. If you do withdraw from the study we would like to seek your approval to use the data that you have provided us with up until that point.

**Anonymity**

In terms of protecting your anonymity, your name will not be used at any time when analyzing the data or in the final written report. You will be given a code name to be for the fitness assessment test. Should you wish to be identified by name, please indicate below at the bottom of the form. The results from physical testing will not be viewed by anyone by the researcher.

**Confidentiality**

Because of the small sample size of participants involved in the fitness assessment, you should be aware that information you share may lead to your identification or identification of another runner. We will remind you to not use any names when you answer the questionnaires or in casual discussion with the researchers. Your confidentiality and the confidentiality of the data will be protected by storing the transcribed interview in a password protected computer in locked university office of the researcher. These data will be stored for five years.
**Dissemination of Results**

It is anticipated that the results of this study will be shared with others in the following ways: as part of a master’s thesis, in presentations to CBCF and other charitable groups hosting similar events; in a written report to the CBCF; and in academic and professional journals. We would be happy to provide you with a written report of your own fitness assessment.

**Disposal of Data**

The documents of the fitness assessment results and questionnaires will be shredded.

**Contacts**

Individuals that may be contacted regarding this study include

Joan Wharf Higgins (250-721-8377; jwharfhi@uvic.ca); John Meldrum (jmeldrum@uvic.ca) and Kathryn Moncks (778-679-2787; kemoncks@uvic.ca).

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers, and that you agree to participate in this research project.

[WAIVING CONFIDENTIALITY] **PLEASE SELECT STATEMENT only if you agree:**

I agree to be identified by name / credited in the results of the study: ________________

( Participant to provide initials)

I agree to have my responses attributed to me by name in the results: ________________

( Participant to provide initials)

_________________________  ______________________  __________
Name of Participant        Signature                    Date

* A copy of this consent will be left with you, and a copy will be taken by the researcher*
Participant Consent Form
Interview Participants

You are invited to participate in a study entitled Running for the Cause or Walking the Talk? Participants’ Experiences of Fundraising in the 2012 CIBC Run for the Cure that is being conducted by Drs. Joan Wharf Higgins, John Meldrum and Kathryn Moncks, MSc Student. Drs. Wharf Higgins and Meldrum are faculty members in the School of Exercise Science, Physical & Health Education at the University of Victoria, and you may contact Joan (jwharfhi@uvic.ca) or John (jemeldrum@uvic.ca) if you have questions about the study. Kathryn Moncks is a graduate student under the supervision of Joan and John, and you may contact her if you have further questions by emailing kemoncks@uvic.ca or phoning 1-778-679-2787.

Purpose and Objectives
The objective of this case study is to understand the charitable motives and training experiences of participants raising monies for the Canadian Breast Cancer Foundation (CBCF) as part of the 2012 CIBC Run for the Cure. The research questions are: (1) Who participates in the RftC and why? (2) What are the health practices (e.g., physical activity, healthy eating) of participants? (3) Do participants improve their level of health practices and fitness levels following their participation in the event?

Importance of this Research
Research of this type is important because fundraising as part of mass fundraising events is increasingly common for charitable organizations to raise monies. As the Canada’s largest single day, volunteer-led fundraising event dedicated to raising funds for breast cancer research, education and awareness programs the CIBC Run for the Cure in Victoria raised over half a million dollars last year alone. In order to maximize the experience for participants and charitable organizations research is needed to understand their perspectives about the event itself, its capacity for/contributions to fundraising, and the extent to which the event influences participants’ health practices.

Participant Selection
You are being asked to participate in this study because you are a first-time participant in the 2012 CIBC Run for the Cure, and completed the online questionnaire.

What is involved
If you agree to voluntarily participate in this research, your participation will include a face-to-face interview to be digitally recorded and transcribed.

Inconvenience
Participation in this study may cause some inconvenience to you, including the time it takes to participate in the interview (about 30 minutes), and review the transcript (about 15 minutes).

Risks
There are no known or anticipated risks to you by participating in this research.

Benefits
The potential benefits of your participation in this research include helping to make the event better for the organization in future years.

**Voluntary Participation**
Your participation in this research must be completely voluntary. If you do decide to participate, you can decline to answer any question on the survey at any time and you may withdraw completely at any time without any consequences or any explanation. If you do withdraw from the study we would like to seek your approval to use the data that you have provided us with up until that point.

**Anonymity**
In terms of protecting your anonymity, your name will not be used at any time when analyzing the data or in the final written report. You will be given a code name to be used in the transcript. You are also welcome to review the transcript and remove any information that you feel may identify yourself. Should you wish to be identified by name, please indicate below at the bottom of the form. The results from physical testing will not be viewed by anyone but the researcher.

**Confidentiality**
Because of the small sample size of participants involved in the interviews, you should be aware that information you share may lead to your identification or identification of another runner. We will remind you to not use any names when you take part in the interview or in casual discussion with the researchers. Your confidentiality and the confidentiality of the data will be protected by storing the transcribed interview in a password protected computer in locked university office of the researcher. These data will be stored for five years.

**Dissemination of Results**
It is anticipated that the results of this study will be shared with others in the following ways: as part of a master’s thesis, in presentations to CBCF and other charitable groups hosting similar events; in a written report to the CBCF; and in academic and professional journals.

**Disposal of Data**
The digital audio recording from the interview will be erased once transcribed. The word document of the interview and consent forms will be shredded.

**Contacts**
Individuals that may be contacted regarding this study include

Joan Wharf Higgins (250-721-8377; jwharfhi@uvic.ca); John Meldrum (jmeldrum@uvic.ca) and Kathryn Moncks (778-679-2787; kemoncks@uvic.ca).

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers, and that you agree to participate in this research project.

**[WAIVING CONFIDENTIALITY]** PLEASE SELECT STATEMENT only if you agree:
I agree to be identified by name / credited in the results of the study: ______________
(Participant to provide initials)

I agree to have my responses attributed to me by name in the results: ______________
(Participant to provide initials)

_________________________  ______________________  ____________
Name of Participant    Signature    Date

A copy of this consent will be left with you, and a copy will be taken by the researcher.
**PAR-Q & YOU**

*(A Questionnaire for People Aged 15 to 69)*

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

### YES NO

1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?

2. Do you feel pain in your chest when you do physical activity?

3. In the past month, have you had chest pain when you were not doing physical activity?

4. Do you lose your balance because of dizziness or do you ever lose consciousness?

5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?

6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?

7. Do you know of any other reason why you should not do physical activity?

### YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

### NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:
- start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.
- take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to be active. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

### DELAY BECOMING MUCH MORE ACTIVE:

- If you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better or
- If you are or may be pregnant — talk to your doctor before you start becoming more active.

### PLEASE NOTE:

If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

**No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.**

**NOTE:** If the PAR-Q is being given to a person before he or site participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

> "I have read, understood and completed this questionnaire. Any questions that I had were answered to my full satisfaction."

<table>
<thead>
<tr>
<th>NAME</th>
<th>DATE</th>
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</thead>
<tbody>
<tr>
<td>Signature</td>
<td>Witness</td>
</tr>
</tbody>
</table>

**Signature of parent or guardian (for participants under the age of majority)**

**Note:** This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if condition changes so that you would answer YES to any of the seven questions.
Tool #3

CONSENT FORM – ADULT

I, the undersigned, do hereby acknowledge:

- my consent to perform a health-related fitness appraisal consisting of:
  - Standing Height
  - Weight
  - Waist Circumference
  - Skinfolds (5 sites)
  - Modified Canadian Aerobic Fitness Test (mCAFT)
  - YMCA Cycle Ergometer Submaximal Protocol
  - Ebbeling Submaximal Treadmill Protocol
  - Rockport (1 mile walk)
  - Grip Strength (R/L)
  - Push-Ups (max #)
  - Sit and Reach
  - Partial Curl-Ups
  - Vertical Jump/Leg Power
  - Back Extension
  - Submaximal Resistance Training Load Determination

- my consent to answer questions concerning my current levels of physical activity participation and my lifestyle;
- my understanding that my heart rate and blood pressure will be measured prior to and at the completion of the appraisal;
- my consent to the appraisal measures conducted by a CSEP Certified Personal Trainer* who has been trained and certified to administer the Canadian Physical Activity, Fitness and Lifestyle Approach protocols;
- my understanding that the results from my health-related fitness appraisal will assist in determining the type and amount of physical activity most appropriate for my level of fitness;
- my consent to perform a supervised exercise training session (if desired) based on the findings of my fitness appraisal, consisting of a warm-up, cardiovascular training, musculoskeletal training, flexibility exercises and a cool-down;
- my consent to have my blood pressure and heart rate measured periodically during my supervised exercise training session(s);
- my understanding that there are potential risks during exercise (i.e., episodes of transient lightheadedness, loss of consciousness, abnormal blood pressure, chest discomfort, leg cramps, and nausea), in rare instances heart rhythm disturbances or heart attacks, and that I assume willfully those risks;
- my obligation to immediately inform the CSEP Certified Personal Trainer* of any pain, discomfort, fatigue, or any other symptoms that I may suffer during and immediately after the appraisal and/or exercise training session;
- my understanding that I may stop or delay any further exercise if I so desire and that the CSEP Certified Personal Trainer* may terminate the exercise session upon observation of any symptoms of undue distress or abnormal response;
- my understanding that I may ask any questions or request further explanation or information about the procedures at any time before, during, and after exercise;
- it is my understanding that all nutritional advice provided will be based on Canada’s Food Guide;
- that I have read, understood, and completed the Physical Activity Readiness Questionnaire (PAR-Q) and answered NO to all the questions and/or received clearance to participate in unrestricted physical activity/exercise from a physician.

This form must be completed, signed and submitted to the CSEP Certified Personal Trainer*, along with the completed PAR-Q, at the time of the appraisal. The form must also be witnessed at the time of signing and the witness must be of the age of majority and independent of the organizations administering the appraisal.

I AGREE THAT I HAVE READ AND UNDERSTAND THIS DOCUMENT

<table>
<thead>
<tr>
<th>Printed Name of Client</th>
<th>Signature of Client</th>
<th>Date</th>
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<table>
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<tr>
<th>Printed Name of Witness</th>
<th>Signature of Witness</th>
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Appendix E

Interview Questions

1. Tell me about your participation in the Run for the Cure – did you participate by yourself or with family/friends/colleagues? What did you find enjoyable or not enjoyable?
2. What was your motivation for taking part in the Run for the Cure?
3. How meaningful was this event experience? What words would you use to describe it?
4. Do you have previous experience donating to charitable causes, including participation in physical activity events? How was this time different – better or worse?
5. Why did you choose to complete the Run for the Cure over other ways to volunteer or donate to the Canadian Breast Cancer Foundation?
6. In what ways, if at all, did participating in the Run for the Cure influence your breast health practices? What are your goals for yourself regarding your breast health practices (physical activity, healthy eating) in the near future? Have you maintained your walking/running or exercise routine – why or why not?
7. Did you feel that you participated on behalf of anyone else besides yourself?
8. What are your future intentions regarding participating in similar events?
9. What has been your interest in or commitment to CBCF or other charitable organizations since participating in the Run for the Cure?
10. How could CBCF improve their process to make the experience more satisfying or rewarding?
## Appendix F

### Online Survey Questions

Please:
(1) do not input your name or other identifying information on this questionnaire;
(2) check the answer that best identifies your response to each corresponding statement. If you are not comfortable answering any of the questions, please leave it blank and move on to the next question.

Tell us a little about yourself (please tick all that apply):

You are….

1. Male
   - Female

2. 55+ years old
   - 34-54 years old
   - 20-33 years old
   - 18-20 years old

You….

3. earn less than $30,000/year
   - earn between $31-50,000/year
   - earn between $51-65,000/year
   - earn between $66-75,000/year
   - earn between $76-99,000/year
   - earn $100,000+/year

4. You have completed
   - high school
   - 1-2 years of college, university or technical training
   - bachelor’s degree
   - graduate degree

You are….

5. participating in your 1<sup>st</sup> CIBC Run for the Cure
   - participating in your 2<sup>nd</sup> CIBC Run for the Cure
   - participating in your 3<sup>rd</sup> CIBC Run for the Cure
   - participating in your 4<sup>th</sup> or more CIBC Run for the Cure

6. a regular donor to CBCF

7. a volunteer/participant in charitable community organizations and/or events throughout the year
8. raising $______ this year for CBCF through this event

These next few questions ask about your health:
9. Please rate your level of health today compared to others you know who are about the same age
   Excellent [ ]
   Good [ ]
   Fair [ ]
   Poor [ ]
   Very Poor [ ]

10. Your height without shoes is: ______ (centimeters/feet-inches)
    Your weight without shoes is: ______ (lbs/kilograms)

11. Please describe any health issues that you are managing at this time (e.g., asthma, high blood pressure, low back pain, diabetes etc.):

______________________________________________________________

12. In the past 12 months, did you do anything to improve your health? (For example, lost weight, quit smoking, increased exercise)
   Yes [ ]
   No [ ]

13. What is the single most important change you have made?
   Increased exercise, sports / physical activity [ ]
   Lost weight [ ]
   Changed diet / improved eating habits [ ]
   Quit smoking / reduced amount smoked [ ]
   Drank less alcohol [ ]
   Reduced stress level [ ]
   Received medical treatment [ ]
   Took vitamins [ ]
   Other ______________________________________________________

14. Do you think there is anything you should do to improve your physical health?
   Yes
   No

15. If you answered Yes to number 14, what is the most important thing?
   Start / Increase exercise, sports / physical activity [ ]
   Lose weight [ ]
   Change diet / improve eating habits [ ]
   Quit smoking / reduce amount smoked [ ]
   Drink less alcohol [ ]
   Reduce stress level [ ]
   Receive medical treatment [ ]
   Take vitamins [ ]
   Other ______________________________________________________
16. Is there anything stopping you from making this improvement?
   Yes ☐
   No ☐

17. If you answered Yes to number 16, what is that?
   - Lack of will power / self-discipline ☐
   - Family responsibilities ☐
   - Work schedule ☐
   - Physical condition/injury ☐
   - Disability / health problem ☐
   - Too stressed ☐
   - Too costly / financial constraints ☐
   - Not available - in area ☐
   - Transportation problems ☐
   - Weather problems ☐
   - Other __________________________________________________

These next few questions ask about your physical activity practices.

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The next few questions will ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

18. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?

   _____ days per week

   ☐ No vigorous physical activities → Skip to question 20

19. How much time did you usually spend doing vigorous physical activities on one of those days?

   _____ hours per day
   _____ minutes per day

   ☐ Don't know/Not sure

Think about all the moderate activities that you did in the last 7 days. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.
20. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

____ days per week

☐ No moderate physical activities   →   Skip to question 22

21. How much time did you usually spend doing **moderate** physical activities on one of those days?

____ hours per day

____ minutes per day

☐ Don’t know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

22. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

____ days per week

☐ No walking   →   Skip to question 24

23. How much time did you usually spend **walking** on one of those days?

____ hours per day

____ minutes per day

☐ Don’t know/Not sure

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

24. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

____ hours per day

____ minutes per day

☐ Don’t know/Not sure

**Now, some questions about the foods you eat.**

25. Do you choose certain foods or avoid others...because you are concerned about your...
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body weight?
  Yes (or sometimes) □
  No □

26. Do you choose certain foods or avoid others...because you are concerned about heart disease?
  Yes (or sometimes) □
  No □

27. Do you choose certain foods or avoid others...because you are concerned about cancer?
  Yes (or sometimes) □
  No □

28. Do you choose certain foods because of...the lower fat content?
  Yes (or sometimes) □
  No □

29. Do you choose certain foods because of...the fibre content?
  Yes (or sometimes) □
  No □

30. Do you choose certain foods because of...the calcium content?
  Yes (or sometimes) □
  No □

31. Do you avoid certain foods because of...the fat content?
  Yes (or sometimes) □
  No □

32. Do you avoid certain foods because of...the type of fat they contain?
  Yes (or sometimes) □
  No □

33. Do you avoid certain foods because of...the calorie content?
  Yes (or sometimes) □
  No □

The next questions are about the foods you usually eat or drink. Think about all the foods you eat, both meals and snacks, at home and away from home.

34. How often do you usually drink fruit juices such as orange, grapefruit or tomato?
  Every day □
  At least 6 days of the week □
  At least 4 or 5 days of the week □
  At least 2-3 days of the week □
  Once a week or less □

35. Not counting juice, how often do you usually eat fruit?
  Every day □
  6 days of the week □
  4 or 5 days of the week □
2-3 days of the week □
Once a week or less □

36. How often do you (usually) eat green salad?
- Every day □
- 6 days of the week □
- 4 or 5 days of the week □
- 2-3 days of the week □
- Once a week or less □

37. How often do you usually eat potatoes, not including french fries, fried potatoes, or potato chips?
- Every day □
- 6 days of the week □
- 4 or 5 days of the week □
- 2-3 days of the week □
- Once a week or less □

38. In a typical day, how many servings of fruit do you eat?
A serving is equal to:
- 1 medium piece of fresh fruit (e.g., apple, banana, orange)
- ½ cup of fruit salad
- ¼ cup of raisins, apricots or other dried fruit
- 4 ounces of 100% orange juice, apple or grapefruit juice (do not count fruit punch, Lemonade, Gatorade, Sunny Delight or carbonated fruit drink)

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39. In a typical day, how many servings of vegetables do you eat?
A serving is equal to:
- 1 medium carrot or other fresh vegetable
- 1 small bowl of green salad
- ½ cup of fresh or cooked vegetables (e.g., cauliflower, broccoli, squash)
- ¾ cup of vegetable soup
(Do not count French fries, onion rings, potato chips, ketchup)

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These next few questions ask specifically about your experience with the CIBC Run for the Cure:

40. How did you hear about the CIBC Run for the Cure? (Please tick all that apply)
- Radio □
- Newspaper □
- Brochure □
- Internet source: □
  - CBCF official website □
  - Craigslist □
  - Other: ____________________________ □
- Friend □
- Family □
- Work □
- CBCF Staff/Volunteer □
- Other: ____________________________ □
41. Do you participate in other charity physical activity events (e.g., golf, swimming, biking)?
   Yes □ No □

If Yes, which one(s) do you participate in? __________________________________________

42. How are you raising funds for your pledge? Tick all that apply and indicate amounts raised:

   collecting pledges per kilometer run from family, friends, co-workers: $__________
   holding special fundraising events – car washes, bake sales, bottle drives, garage sales, raffles etc. $____
   collecting one-time donations from family, friends, co-workers: $__________
   personal donation: $__________
   sponsorship from local community or business organization: $__________
   collection boxes: $_____
   matched giving: $_____
   online blog, facebook page, website or twitter feeds: $__________
   other: please list
      ______________________ : $ ______________
      ______________________ : $ ______________
      ______________________ : $ ______________
      ______________________ : $ ______________

These next set of questions ask about your motivations for being part of the 2012 CIBC Run for the Cure and fundraising for CBCF.

43. One of my reasons for participating in the 2012 CIBC Run for the Cure event is to interact with others:

   Strongly agree Somewhat agree Agree Neutral Disagree Somewhat agree Strongly agree

44. One of my reasons for participating in the 2012 CIBC Run for the Cure event is to meet new and different people:

   Strongly agree Somewhat agree Agree Neutral Disagree Somewhat agree Strongly agree

45. One of my reasons for participating in the 2012 CIBC Run for the Cure event is to gain a feeling of belonging:

   Strongly agree Somewhat agree Agree Neutral Disagree Somewhat agree Strongly agree

46. One of my reasons for participating in the 2012 CIBC Run for the Cure event is to challenge my abilities:

   Strongly agree Somewhat agree Agree Neutral Disagree Somewhat agree Strongly agree
47. One of my reasons for participating in the 2012 CIBC Run for the Cure event is to keep in shape physically:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

48. The activities of CBCF have improved the health of people who are close to me:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

49. I feel indebted to CBCF for helping family and friends in the past:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

50. CBCF has been responsible for improving the health of people close to me:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

51. Other people will think more highly of me if I complete the Run for the Cure:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

52. I have a good feeling after raising funds and making a donation to CBCF:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

53. I am fundraising on behalf of CBCF because their goals are consistent with my values:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

54. I am fundraising on behalf of CBCF because I feel a need to help others:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

55. Fundraising on behalf of CBCF allows me to support a quality charity:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

56. It will be worth my while to train for the event:

Strongly agree   Somewhat agree   Agree   Neutral   Disagree   Somewhat disagree   Strongly disagree

57. It will be worth my while to fundraise for the CBCF:
58. Being a participant in the 2012 CIBC Run for the Cure event is very important to me:

Strongly agree  Somewhat agree  Agree  Neutral  Disagree  Somewhat disagree  Strongly disagree

59. Compared with other events, participating in and fundraising for the 2012 CIBC Run for the Cure is very important to me:

Strongly agree  Somewhat agree  Agree  Neutral  Disagree  Somewhat disagree  Strongly disagree

60. Participating in the 2012 CIBC Run for the Cure says a lot about who I am:

Strongly agree  Somewhat agree  Agree  Neutral  Disagree  Somewhat disagree  Strongly disagree

61. I anticipate that participating in the 2012 CIBC Run for the Cure will make me feel more committed to giving to good causes:

Strongly agree  Somewhat agree  Agree  Neutral  Disagree  Somewhat disagree  Strongly disagree

62. It is highly likely that I will participate in the 2013 CIBC Run for the Cure:

Strongly agree  Somewhat agree  Agree  Neutral  Disagree  Somewhat disagree  Strongly disagree

63. Compared to other ways that you can donate or raise funds for a charity (e.g., giving at the door, responding to telemarketers, purchasing a raffle ticket, participating in local physical activity events such as the Terry Fox Run …) the CIBC Run for the Cure is

Definitely a better way  Maybe a better way  Neutral  Not really a better way  Definitely not a better way
FOR WOMEN ONLY:

64. Have you ever had a mammogram, that is, a breast x-ray?
Yes
No

65. Why did you have it?
Family history of breast cancer
Part of regular check-up / routine screening
Age
Previously detected lump
Follow-up of breast cancer treatment
On hormone replacement therapy
Breast problem
Other

66. When was the last time?
Less than 6 months ago
6 months to less than 1 year ago
1 year to less than 2 years ago
2 years to less than 5 years ago
5 or more years ago

67. Other than a mammogram, have you ever had your breasts examined for lumps (tumours, cysts) by a doctor or other health professional?
Yes
No

68. When was the last time?
Less than 6 months ago
6 months to less than 1 year ago
1 year to less than 2 years ago
2 years to less than 5 years ago
5 or more years ago

69. Have you ever examined your breasts for lumps (tumours, cysts)?
Yes
No

70. How often?
At least once a month
Once every 2 to 3 months
Less often than every 2 to 3 months

71. How did you learn to do this? Mark all that apply.
Doctor
Nurse
Book / magazine / pamphlet
TV / video / film
Family member (e.g., mother, sister, cousin)
Other – Specify
Are you a first time participant in the Run for the Cure? If so, we are interested in knowing more about you. We are looking for:

- 25 people to be part of a 30-45 minute personal interview to understand your motivation and experience with the Run for the Cure. The interview will happen shortly following the event (October-November 2012).

- 25 people to be part of a fitness assessment study. This will involve completing a low risk fitness assessment and 2 additional questionnaires about motivation for physical activity and healthy eating shortly following the Run for the Cure event (October-November, 2012), and 6 months later (April-May, 2013).

Please contact Kathryn Moncks – kemoncks@uvic.ca – if you are interested in being part of one or both of these parts of the study. We are offering a $30 gift certificate to the Running Room to each participant as thanks for your time and contributions.

Should there be more than 25 people interested in being interviewed or 25 people interested in participating in the fitness assessment, we will randomly select 50 from among those who express an interest.