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Abstract

This study (1) identified the activities that breast cancer survivors report as passionate; (2) examined whether levels of passion differed based on the types of passionate activities reported and; (3) examined the association between harmonious and obsessive passion and emotional well-being. Early post-treatment breast cancer survivors (N = 177) reported passionate physical activities as most prevalent, and reported higher harmonious passion scores compared to women reporting relaxing and social leisure activities. Harmonious passion was associated with higher positive affect and lower cancer worry. Obsessive passion was linked to higher negative affect, cancer worry, and posttraumatic growth. Passion is important for enhanced well-being.

Keywords

Activity, breast cancer, emotional well-being, passion, survivorship

Breast cancer is the most commonly diagnosed cancer and among the top leading causes of cancer death in women (Canadian Cancer Society, 2010). Based on Canadian Cancer Society statistics, approximately 450 Canadian women were diagnosed with breast cancer each week in the last year, and 88% of breast cancer survivors (BCS) show a 5-year survival rate following diagnosis (Canadian Cancer Society, 2010). Survival statistics are promising for BCS (Saxton & Delay, 2010), although they do not portray the emotional health challenges that often reduce quality of life in the early survivorship period (Bloom, Stewart, Chang, & Banks, 2004). In particular, breast cancer diagnosis and treatment is significantly linked to

emotional distress (Carver, Smith, Petronis, & Antoni, 2006; Deimling et al., 2006; Vivar & McQueen, 2005) including recurring negative emotions such as anger, guilt, fear, and anxiety, and depression symptoms (Hadd, Sabiston,

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McDonough, & Crocker, 2010) that extend well into survivorship. There is also growing evidence that positive emotion can play an important role in the development of physical and emotional well-being in this population (Folkman, Moskowitz, & Tedlie, 2000). Therefore we need to better understand ways to improve the process of positive and negative adjustment and well-being following the disease (Manne et al., 2004; Sabiston, McDonough, & Crocker, 2007; Tomich & Helgeson, 2002). In this study, we examined positive affect and posttraumatic growth as adaptive emotional well-being indicators, and negative affect and cancer worry as potentially maladaptive emotional well-being indicators while including both general and cancer-specific constructs.

Emotional well-being outcomes

Drawing from quality of life (Bloom, Stewart, Chang, & Banks, 2004; Hadd, Sabiston, McDonough, & Crocker, 2010) and cancer survivorship (Andersen, Kiecolt-Glaser, & Glaser, 1994) models, for the purpose of this study, we define emotional well-being as a broad construct that includes both the presence of psychological adaptation (i.e., post-traumatic growth) and positive affect and low levels of negative affect and cancer worry.

Affect can be understood as an experience of feeling or emotion (Vallerand & Blanchard, 2000) that is generally experienced as either positive or negative in valence (Russell & Barrett, 1999; Tellegen, Watson, & Clark, 1999). A cancer diagnosis and subsequent treatments may heighten women's experiences of negative affect (Badr et al., 2006). Furthermore, more specific worry related to cancer recurrence is a common factor associated with recovery from breast cancer (Costa-Requena et al., 2011; Gotay & Pagano, 2007) and has been associated with more distress and negative affect among BCS (Lerman et al., 1995; Lewis et al., 2001), less positive emotion among cancer patients (Shapiro et al., 2010), and a sense of loss of control and diminished ability

to think or concentrate (Folkman, Moskowitz, & Tedlie, 2000). Recurrent or consistent negative affective experiences may lead to underlying mental health problems (e.g., depression and anxiety) and stress-related disease (e.g., cardiovascular disease), particularly among BCS who are already at greater risk for comorbidities (Andersen, Kiecolt-Glaser, & Glaser, 1994; Brown, Brauner, & Minnotte, 1993). Therefore, it is important to identify modifiable factors that are associated with affective experiences in BCS.

Some aspects of life may also improve after cancer such as new possibilities for one's life, improved relationships, and a greater appreciation for life (Tedeschi & Calhoun, 2004). This phenomenon is often referred to as post-traumatic growth (PTG), which is defined as "positive psychological change experienced as a result of the struggle with highly challenging life circumstances" (Tedeschi & Calhoun, 2004: p.1). It has been estimated that upwards of 83 percent of breast cancer patients report finding some benefit in their experience with cancer such as positive changes in health-related behaviours and spiritual development (Sears, Stanton, & Danoff-Burg, 2003). A better understanding of the factors that can help foster PTG among BCS is needed to help improve overall survivorship experiences.

Strategies to improve emotional well-being

BCS may engage in personally enriching activities (e.g., painting, writing, art-making) as a way of coping with the effects of the disease and improving the quality of cancer survival (Arman & Rehnfeldt, 2002; Link, Robbins, Mancuso, & Charlson, 2004; Reynolds & Lim, 2007). Recently, researchers have found enhanced PTG among BCS involved in challenging activities such as dragon boating, motorcycling riding, and scaling Mt. Kilimanjaro (Burke & Sabiston, 2010; Dunn et al., 2009; Sabiston et al., 2007) as well as leisure activities such as visual art-making (Reynolds & Lim,

2007). Similarly, many BCS report on the positive psychological benefits of engaging in physically active pursuits to help improve emotional health (Courneya, 2003; Courneya & Friedenreich, 1997; Courneya, Mackey, & McKenzie, 2002; Sabiston & Brunet, 2011). Stress management strategies such as reading or embracing social relationships and companionship are also reported as ways to help foster emotional well-being following breast cancer diagnosis and treatment (Fredette, 1995; Kroenke et al., 2006). Taken together, there are many activities that appear to help foster emotional well-being during the survivorship period. Nonetheless, little research has examined how these activities may foster or relate to emotional well-being. We propose that it may not be the activity itself that supports the experience of emotional well-being, but rather the way women internalize and approach the activity. In this way, we suggest that passion for an activity is the important mechanism fostering emotional well-being.

Passion

According to Vallerand et al., (2003), passion toward activities can contribute to one's emotional health and personal growth. Passion is defined as "a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy" (Vallerand et al., p. 757). Activities are only deemed passionate when they are internalized in one's identity to the point that they define or reflect how one sees oneself (Vallerand, 2008). Some experiences of passion can foster improved health such as increased positive affect, improved well-being, and enhanced meaning in everyday life (Mageau & Vallerand, 2007; Rousseau & Vallerand, 2008). However, some experiences of passion can also lead to negative health outcomes such as adverse emotions and self-defeating behaviours (Vallerand, 2008). The Dualistic Model of Passion (DMP) has been developed to better understand the positive and negative effects of experiencing passion for an activity.

The DMP proposes that there are two types of passion, obsessive and harmonious, that can be distinguished in terms of how the passionate activity has been internalized into one's identity. Past research has shown that values and regulations concerning the representation of interesting activities can be internalized in either a controlled (i.e., forced) or autonomous (i.e., self-directed) fashion (Deci, Eghrari, Patrick, & Leone, 1994; Sheldon, 2002; Vallerand, 1997). Harmonious passion results from an autonomous internalization of an activity into a person's identity (Vallerand et al., 2003). Emanating from the intrinsic and integrative tendencies of the self (Deci & Ryan, 2000; Ryan & Deci, 2003), the person embraces the activity as important and engages in it willingly. An individual who experiences harmonious passion for an activity feels that the activity is a part of his/her identity and in line with other aspects of his/her life. There is no conflict between the passionate activity and other life activities, and when it is not feasible to do the activity, an individual who experiences harmonious passion should adapt well and focus attention elsewhere. In effect, the passionate activity remains under the person's deliberate control and is pursued without any contingencies attached to it. Harmonious passion is expected to lead to positive health outcomes. Past research with older adults has found that harmonious passion is associated with increased levels of positive emotions, concentration, flow (Mageau et al., 2005) as well as improved levels of subjective well-being (Vallerand et al., 2006, 2007) and reduced levels of depression (Sacco & Beck, 1995; Swallow & Segal, 1995). Experiencing harmonious passion for an activity might be particularly important during recovery from a life threatening disease such as breast cancer as it could help survivors experience improved emotional well-being and, in turn, allow them to cope better during recovery from the disease.

Obsessive passion is characterized by a controlled internalization of an activity into a person's identity (Vallerand et al., 2003). This type of internalization originates from intra

and/or interpersonal pressure typically because certain contingencies are attached to the activity such as feelings of social acceptance or self-esteem. With this type of passion, the person often experiences an uncontrollable urge to partake in the activity (Vallerand, 2010). Negative and maladaptive outcomes often occur when the individual is prevented from engaging in the passionate activity. Past research has found that obsessive passion is associated with higher levels of negative emotions (i.e., shame and anxiety), conflict with other aspects of one's life, and hazardous and self-defeating behaviours (Vallerand et al., 2007). Although experiencing obsessive passion for an activity may make the lives of women who are recovering from breast cancer worth living, it could adversely affect their emotional well-being by fostering feelings of negativity and stress. In this way, having an obsessive passion for an activity may prevent survivors from living productively and meaningfully while also managing an ongoing distressing condition. For this reason, health care practitioners need to be aware of the implications of experiencing passion for a given activity and how to foster healthy passion for activities post-treatment.

There is empirical support for the DMP (Carbonneau, Vallerand, Frenette, & Guay, 2008; Castelda et al., 2007; Sequin-Levesque et al., 2003; Vallerand et al., 2006). However, there is a marked absence of research with clinical groups, such as cancer survivors. This gap in the literature is a significant oversight given the important positive and negative emotional well-being outcomes associated with participation in activities about which one is passionate (Vallerand, 2008). Therefore, the purpose of the present study was to use the Dualistic Model of Passion (DMP; Vallerand, 2008) as a guiding conceptual framework to (1) identify the activities that breast cancer survivors (BCS) report as passionate; (2) examine whether levels of passion differ based on the types of passionate activities reported and (3) examine the association between harmonious and obsessive passion and specific emotional well-being

outcomes, including positive and negative affect, cancer worry, and posttraumatic growth.

Design

Participants

The sample consisted of 177 breast cancer survivors who were recruited into a convenience sample from various women's health and breast clinics in the Montreal area. The women had been diagnosed with Stage I to Stage III breast cancer and had undergone multiple treatments for the disease (i.e., surgery, chemotherapy, radiation therapy). Inclusion criteria included: (i) 0–20 weeks post-treatment after a first diagnosis of breast cancer, with the exception of adjuvant hormonal therapies; (ii) no health concerns that prevented activity engagement and; (iii) had surgery, radiation therapy and/or chemotherapy. Participants' demographic and medical characteristics are presented in Table 1.

Main outcome measures

For descriptive purposes, participants were asked to self-report their age in years, education level (i.e., high school diploma, university undergraduate degree), household income, stage of cancer, and various cancer treatments, including lymph or auxiliary node dissection, lumpectomy, mastectomy (single or double), chemotherapy, radiotherapy, and hormonal therapy.

Passion. The Passion Scale (Vallerand et al., 2003) was used to both identify passionate activities and assess the strength of scores for harmonious and obsessive passion. Specifically, each woman was asked to "describe an activity that you like, that is important for you, and in which you spend a significant amount of time. My favourite activity is: (blank space)". Following the activity, participants were asked "While thinking of your favourite activity and using the scale below, please indicate your level of agreement with each item". The Passion Scale

Table 1. Participants (N = 177) sociodemographics and medical characteristics (either Means and Standard Deviations (SD) or percentage (%), and subscale scores for the main variables in the study.

	M (SD) or %
Age, years (M, SD)	54.86 (10.83)
Ethnicity, white (%)	86.9
Marital status, married (%)	65.9
Educational level, > university degree (%)	50.9
Language, English/French (%)	44.6/55.1
Menopause (post-menopausal, %)	63.9
Body Mass Index, kg/m ² (M, SD)	26.23 (5.84)
Time Since Diagnosis, months	10.39 (3.89)
Time Since Treatment, months	2.92 (2.96)
Cancer treatments received (%)	
Chemotherapy	75.9
Radiation	85.6
Lumpectomy	74.6
Single mastectomy	36.8
Double mastectomy	27.4
Lymph node removal	65.4
Stage of breast cancer	
I	34.1
II	43.2
III	21.3
Harmonious Passion (M, SD)	5.09 (1.13)
Obsessive Passion (M, SD)	2.36 (1.30)
Positive Affect (M, SD)	3.28 (0.67)
Negative Affect (M, SD)	1.73 (0.65)
Posttraumatic Growth (M, SD)	
Relating to Others	4.22 (1.10)
New Possibilities	3.50 (1.30)
Personal Strength	4.21 (1.17)
Spiritual Change	3.14 (1.67)
Appreciation of Life	4.54 (1.18)
Cancer Worry (M, SD)	2.55 (0.77)

consists of 17 items using a seven-point scale ranging from “Do not agree at all” (1) to “Very Strongly Agree” (7). A sample item for harmonious passion is “This activity reflects

the qualities I like about myself” and a sample item for obsessive passion is “I have difficulties controlling my urge to do my activity”. Results from exploratory and confirmatory factor analyses have provided strong support for the two-factor structure of the scale (Castelda et al., 2007; Rousseau et al., 2002; Vallerand et al., 2006). Moreover, scores from the Passion Scale have been shown to have high levels of reliability and validity (see Carbonneau, Vallerand, Fernet, & Guay, 2008; Philippe, Vallerand, Andrianarisoa, & Brunel, 2009; Philippe, Vallerand, Richer, Vallières, & Bergeron, 2009; Vallerand et al., 2008).

Affect. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) was used to measure participants’ level of positive affect (ten items) and negative affect (ten items) during the past week. Participants were instructed to indicate the extent to which they experienced each emotion using a five-point scale ranging from (1) “Very slightly or not at all” to (5) “Extremely.” Both the positive and negative affect subscales have evidence of internal consistency and low correlations between the subscales (Voogt et al., 2005).

Posttraumatic growth. The Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) is a 21-item scale assessing growth in five domains: relating to others (seven items; e.g., a sense of closeness with others), new possibilities (five items; e.g., I developed new interests), personal strength (four items; e.g., a feeling of self-reliance), spiritual change (two items; e.g., a better understanding of spiritual matters), and appreciation of life (three items; e.g., appreciating each day). Participants rated the extent to which they experienced change on each item using a six-point Likert response format ranging from 0 = not at all to 5 = a very great degree.

Cancer worry. The Assessment of Cancer Concerns (ACS) scale (Gotay & Pagano, 2007) was used to assess cancer-related and general health worries. Based on recommendations

from the authors, the five-item scale was used, which excluded the item "concerns about my child's health" since this item does not apply to all women. Participants were asked to report the extent to which they worry about future diagnostic tests, another type of cancer, a reoccurrence of cancer, dying, and their health on a four-point scale ranging from 1 = not at all to 4 = very much. Evidence of internal consistency and tests of convergent and discriminate validity has been established (Gotay & Pagano).

Procedure

Following approval from the University Behavioural Research Ethics Board, in-clinic recruitment letters and flyers as well as clinician support/referral (i.e., participants were referred from their medical practitioner and either asked to contact us or were told we would contact them) were used to initially inform the women about the study. Women who were eligible to participate were encouraged to contact the research manager for further details, a consent form, and a scheduled meeting in which they were briefed on study procedures and asked to complete the questionnaires. The recruitment was ongoing over a period of about 16 months.

Data analysis

Data analysis involved several sequential steps that were performed in PASW 18.0 and LISREL/PRELIS 8.80. First, data were screened for patterns of missing data, outliers, and violations of the assumption of normality (Pedhazur, 1997). Second, descriptive statistics were computed for main study variables. Third, independent maximum likelihood confirmatory factor analyses (CFA) were run to examine the composite reliability coefficients of the scores (Yang & Green, 2010). Estimated factor scores were saved during this step and used in the main analyses (i.e., path analysis) to reduce model complexity. Also, we tested the two-factor structure of the

passion scale in BCS using CFA. Model fit was evaluated using the comparative fit index (CFI), standardized root mean squared residual (SRMR), and the root mean square error of approximation (RMSEA). As recommended by Hu and Bentler (1999), RMSEA values $\leq .06$, SRMR values $\leq .08$, and CFI values $\geq .95$ were used to indicate good fit.

To examine objective 1, we coded each woman's activity that was deemed passionate based on a coding scheme offered by Stemler (2001) and based on Ragheb's (1980) and Mannell and Kleiber's (1997) research on leisure participation. Specifically, four categories of activities were established: (1) physically active leisure, such as fitness activities, sports, exercise, and/or other physical activities; (2) relaxing leisure such as listening to music, contemplating, watching television and/or other relaxing activities; (3) hobbies such as painting, drawing, pottery, photography, and other such things and; (4) social leisure such as spending time with friends, dating, attending a party and/or other social activities. To examine differences in obsessive and harmonious passion based on the type of activity that women deemed passionate (i.e., objective 2), we conducted univariate analysis of variance (ANOVA) and follow-up post-hoc tests if the models were significant.

To examine the association between passion and emotional well-being (objective 3), we conducted a path analysis using maximum likelihood estimation. A good-fitting model was identified if: RMSEA values $\leq .06$, SRMR values $\leq .08$, and CFI values $\geq .95$. The covariance between harmonious and obsessive passion was estimated (Mageau et al., 2005; Mageau, Carpentier, & Vallerand, 2011; Vallerand et al., 2006), and the following additional covariances between the endogenous variables were estimated: negative affect and cancer worry (both psychological distress facets), positive affect and posttraumatic growth (both psychological adaptation facets), and posttraumatic growth and cancer worry (based on theory, cancer worry is associated with growth;

Table 2. Correlation and composite reliability coefficients for passion, affect, posttraumatic growth, and cancer worry factor scores among breast cancer survivors (N = 177)

	1	2	3	4	5	6	7	8	9	10
Harmonious Passion	0.87									
Obsessive Passion	.44*	0.85								
Positive Affect	.23*	.05	0.88							
Negative Affect	-.10	.17*	-.15*	0.88						
PTG: Relating to Others	.07	.18*	.28*	.03	0.88					
PTG: New Possibilities	.12	.25*	.26*	.20*	.72*	0.90				
PTG: Personal Strength	.08	.21*	.38*	.06	.72*	.73*	0.80			
PTG: Spiritual Change	.01	.18*	.27*	.05	.58*	.64*	.63*	0.81		
PTG: Appreciation of Life	.14*	.17*	.29*	.05	.69*	.75*	.67*	.57*	0.84	
Cancer Worry	-.11	.14*	-.15*	.47*	.20*	.21*	.09	.06	.19*	0.87

Note. PTG = Posttraumatic growth; Cronbach alpha internal consistency coefficients are presented on the diagonal; * p < .05

(Tedeschi & Calhoun, 2004). In this model, we used the total posttraumatic growth score rather than the subscale scores due to model identification. The subscales are presented in the correlation table.

Results

Preliminary analyses

Missing data were minimal (< 3%) and multiple imputation using expectation maximization algorithm (Dempster, Laird, & Rubin, 1977) was used to estimate and replace missing data. All scores were normally distributed and there were no outliers. The scores for harmonious and obsessive passion, positive and negative affect, posttraumatic growth (both total and subscales) and cancer worry were reliable based on reliability coefficients of congeneric measures within CFA (Yang & Green, 2010) (see Table 2). Descriptive statistics for the factor scores and correlations between the factor scores are presented in Table 1 and Table 2, respectively. The CFA for the passion scale showed a good-fitting two-factor model: $X^2(53) = 137.45$, RMSEA = 0.08 (90% confidence interval = 0.06 to 0.09), CFI = 0.95, NNFI = 0.94, SRMR = 0.05, with high factor loadings (all above 0.60) and low standard errors.

Participants reported experiencing passion for physically active leisure (e.g., walking, swimming; 46.9%), relaxing leisure (e.g., reading, listening to music; 22.6%), hobbies (e.g., painting, crochet, cooking, photography; 20.9%), and social leisure (e.g., spending time with family; 2.3%). Only four women reported social leisure as a passionate activity and reported the activity as: dining out with friends, interacting with others, going out with friends, and spending time with daughter. These activities could be conceptualized as coping strategies similar to the relaxing leisure activities (Yoo, Aviv, Levine, & Ewing, 2010), and we combined these two groups into a “relaxing social leisure” group. Although survivors may value social interactions and support from others, it could be that they don’t deem social activities as a passion because they perceive these activities as a strategy for coping with the disease rather than something that is part of their identities and that they deeply love (Philippe et al., 2009). Furthermore, some women may not feel passionate about activities that help them “manage their illness” as this approach continues to reinforce a stigma in their lives (Charmaz, 1991; Reynolds & Lim, 2007). Thirteen women did not report a passionate activity and did not complete the scale, with a final sample for the analysis of $n = 164$.

There were no significant differences between the passionate activity groups on any socio-demographic variables (age, socioeconomic position, body mass index, menopause status) or cancer-related variables (stage, treatment, time since diagnosis and treatment), and no differences with the group of women who did not report a passionate activity. ANOVA findings revealed a significant group difference on harmonious passion, $F(2,174) = 2.91$, $p < .05$. Post-hoc tests revealed that the relaxing and social leisure group reported significantly lower harmonious passion scores ($M = 4.89$, $SD = 1.15$) compared to the physical activity ($M = 5.17$, $SD = 1.09$) and hobbies ($M = 5.12$, $SD = 1.09$) leisure groups. There were no significant group differences for obsessive passion, $F(2,174) = 0.37$, $p = .70$, with groups reporting mean scores of: physical activity ($M = 2.33$, $SD = 1.21$), relaxing and social leisure ($M = 2.42$, $SD = 1.38$), and hobbies ($M = 2.31$, $SD = 1.26$).

Correlation coefficients among all factor scores are presented in Table 2, along with the composite reliability coefficients (on the diagonal). The path model was a good-fitting model, $\chi^2(3) = 5.45$, RMSEA = 0.07 (90% confidence interval = 0.01 to 0.10), CFI = 0.98, NNFI = 0.95, SRMR = 0.04, see Figure 1. Harmonious passion was a negative correlate of cancer worry and positive correlate of positive affect. Obsessive passion was significantly positively correlated with cancer worry, posttraumatic growth, and negative affect.

Discussion

The results of the present study demonstrate that BCS reported experiencing passion for a wide range of activities that could be categorized meaningfully into physically active leisure, relaxing and social leisure, and hobbies. Women who identified relaxing and social leisure activities reported significantly lower harmonious passion compared to the other reported activities. Furthermore, harmonious passion and obsessive passion were uniquely

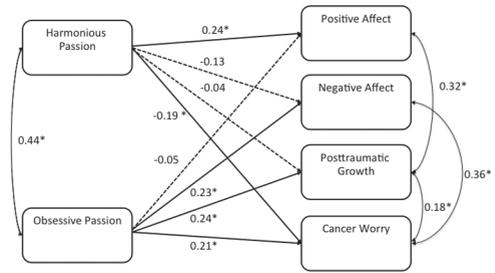


Figure 1. Path model with harmonious and obsessive passion as correlates of positive and negative affect, posttraumatic growth, and cancer worry. Solid lines and * indicate statistically significant association at $t > 1.96$.

associated with specific emotional well-being outcomes among BCS - demonstrating that having passion for an activity is related to the emotional health of women during the early survivorship period following breast cancer treatments.

Based on the present findings, BCS experienced passion for (a) physically active leisure including walking and swimming; (b) relaxing and social leisure involving reading and listening to music, as well as spending time with others; and (c) hobbies including painting, crochet, cooking, and photography (Mannell & Kleiber, 1997; Ragheb, 1980). It is important to identify activities that BCS highly value, find interesting, and to which they devote time and energy in order to design intervention strategies that effectively target their emotional well-being. Based on the current findings, many women report being passionate about physical activity leisure, and this category was dominated by the activity of walking. Physical activity has been identified as a way of managing a wide range of effects of cancer and its treatment (Sabiston & Brunet, 2011) and can result in improved physical function, quality of life, and general health among BCS (Basen-Engquist et al., 2006; Crank & Daley, 2010). Cancer educators and health care practitioners could develop walking (or other lower intensity) physical activity interventions that may foster harmonious passion and emotional well-being in this

population. Also, encouraging engagement in a wide variety of activities may help BCS find passionate activities that could foster improved emotional well-being.

Women who reported relaxing and social leisure activities reported significantly lower harmonious passion compared to the other reported activities. Women's sense of volition and personal endorsement toward such activities may be reduced since their physicians and family members may instruct them to relax and reduce stress during recovery from the disease. Women may therefore experience a sense of obligation toward engaging in relaxing and social activities thereby lessening their sense of personal initiative. Furthermore, it may be that relaxing and social leisure activities, such as listening to music or spending time with family and friends, do not impart the same level of challenge and enthusiasm as the other reported activities (i.e., physical exercise, photography, etc.). Thus, lower levels of harmonious passion are not surprising among women reporting these types of passionate activities. As survivors cope with recovery from a cancer diagnosis and treatment, they may need to find activities that they not only enjoy but that also help them recover psychologically and emotionally from the disease and serve a purpose in their lives at that moment. BCS may choose these relaxing and social activities for managing cancer and could be supported to help adopt different (harmoniously passionate) activities as a way of helping them enrich their lives emotionally. Reynolds and Prior (2006) found that creative activities such as visual art-making (e.g., hobbies) elicited flow experiences (i.e., energized focus, full involvement) that served to banish intrusive thoughts about cancer, provide experiences of mastery and control, and afford positive experiences among women living with cancer. Similarly, BCS involved in challenging activities such as dragon boating, motorcycling riding, and scaling Mt. Kilimanjaro have reported enhanced emotional well-being (Burke & Sabiston, 2010; Dunn et al., 2009; Sabiston et al., 2007; Tocher, 2002). These are types of

activities that may be encouraged for the possibility of experiencing harmonious passion among BCS. However, the passion that women experience for a particular activity may be dependent on their particular needs at their personal juncture in the survivorship trajectory.

As predicted, results show that taking part in an activity in a harmonious manner is related to experiences of positive affect and reduced cancer worry and negative affect. A positive association between harmonious passion and positive affect following activity engagement has been previously observed using cross sectional and longitudinal designs with students and athletes (Vallerand et al., 2003). Positive affect is associated with many cognitive and behavioural outcomes, including adaptive coping (Folkman, Moskowitz, & Tedlie, 2000), self-compassion and self-esteem, memory, decision-making, and problem-solving (Isen, 2000; Isen & Labroo, 2003), as well as better quality of life (Ganz et al., 2002) and lower risk for all-cause mortality (Moskowitz, Epel, & Acree, 2008) in clinical populations including BCS. In light of the current findings, researchers may want to investigate harmonious passion and its relationship to other positive outcomes among BCS such as optimism, meaning in life and vitality, and benefit finding.

Based on the current findings, experiencing harmonious passion for an activity is one possible way to reduce negative affect and worry about a cancer recurrence. In this way, experiencing harmonious passion toward an activity might be particularly important during recovery from breast cancer as it may reduce adverse emotional well-being outcomes by helping women experience a sense of control while at the same time feel more energy and meaning in their lives (Philippe, Vallerand, & Lavigne, 2009). Harmonious passion for an activity may reduce worry related to the possibility of a cancer recurrence and improve emotional adjustment to life after the disease. Engaging in personally enriching activities such as art-making (Link, Robbins, Mancuso, & Charlson, 2004) or sport (Burke & Sabiston, 2010;

Sabiston et al., 2007) helps women control the psychological and emotional impact of their cancer in daily life, including warding off cognitive preoccupation with the illness and re-engaging with "normal" life (Reynolds & Prior, 2003). Intervention strategies aimed at fostering harmonious passion, by creating a context of exploration and choice where BCS can freely endorse the importance of the activity (Mageau et al., 2009), may be warranted among early BCS.

Contrary to hypothesis, the present results showed that PTG was not linked to harmonious passion but was positively related to obsessive passion. This finding can be explained by the fact that PTG occurs when people struggle with a highly challenging life circumstance. In this way, obsessive passion for an activity and the adverse outcomes associated with such experiences (Vallerand et al., 2003) may help foster positive psychological and emotional changes among BCS by nurturing the conflict and struggle needed to experience growth. This finding supports the suggestion that growth can coexist with psychological distress (Tedeschi & Calhoun, 2004). Obsessive passion may therefore play an important adaptive role in the lives of women in these early months of recovering from breast cancer, however, given that PTG is a process, future research is needed to examine this association in the long-term.

Consistent with hypothesis, and in line with past research (Mageau & Vallerand, 2007; Ratelle et al., 2004; Vallerand et al., 2006), this study shows that BCS who engage in an activity in an obsessive manner experience maladaptive outcomes including negative affect and cancer worry. Past research has shown that obsessive passion results from a controlled internalization of the activity into one's identity and refers to feelings of obligation where the individual is controlled by the passion (Vallerand, 2008). Thus, it might be that BCS who come to be controlled by their activity experience negative affect and cancer worry (a specific stress) when they aren't able to participate in their

passionate activity (Rousseau & Vallerand, 2008) or when they neglect other life domains (Seguin-Levesque et al., 2003). The intra and/or interpersonal pressure that people experience when their passion results from a controlled internalization of the activity into their identity may manifest itself in experiences of conflict (Vallerand et al., 2003) and other negative mental health outcomes. For instance, if BCS are prevented from engaging in their passionate activity due to health concerns it may result in negative feelings and stress. Longitudinal research would enable the exploration of the long-term associations between obsessive passion and these negative emotional well-being indicators.

In spite of the study contributions, there are some limitations that need to be considered. The current study was based on cross-sectional and correlation data, and therefore direction of the relationships cannot be inferred. Also, the present study relied exclusively on self-report data collected from a self-selected group of recently treated BCS. The findings may not generalize to other samples. The participants in this study only recently recovered physically from intrusive medical procedures and aversive treatment therefore resuming passionate activities, discovery of new and meaningful passionate activities, and experiences of PTG may be limited. The role of passion for activities should be explored with survivors of breast cancer who are further along the cancer trajectory. Different methodological approaches such as qualitative research might be valuable for exploring the links between engaging in passionate activities and emotional well-being. Such studies would be useful for opening a window on the processes, contextual factors, and assumptions underlying experiences of passion toward activities including the ways in which BCS regard such activities as part of the process of living well (or not so well) in the aftermath of cancer treatment. Furthermore, we did not assess the frequency or how recent the reported passionate activities were. These factors may help explain the mechanisms

linking passion and emotional well-being and should be collected in future studies. Related to this point, and consistent with the passion literature, BCS only reported on one passionate activity in this study. It may be that multiple passionate activities contribute to one's sense of harmonious (and/or obsessive) passion and associated relationships to emotional well-being. Finally, given the model complexity in the current work, we were not able to control for the potential effects of personal or cancer-specific demographic factors that may relate to experiences of passion and emotional well-being. However, there is evidence to suggest these factors may not produce meaningful differences on the emotional well-being indices (Brunet et al., 2010) or passion scores (Ratelle et al., 2004).

Conclusion

The present study reveals that BCS report experiencing passion for a wide range of activities that could be categorized into physically active leisure, relaxing and social leisure, and hobbies. Women who identified relaxing and social leisure activities reported significantly lower harmonious passion compared to the other reported activities. Furthermore, harmonious passion and obsessive passion were uniquely associated with specific emotional well-being outcomes among BCS—demonstrating that having passion for an activity may be related to the emotional well-being of women during the early survivorship period following breast cancer treatments. Furthermore, this study supports the two-factor structure of the passion scale in BCS. This is the first study to examine passionate activities and their links to emotional well-being in BCS, and the potential usefulness of the conceptualization of passion for the field of psychosocial oncology has been highlighted. Future research on the role of passion for activities among cancer survivors is needed to help inform intervention strategies aimed at fostering harmonious passion, in particular, and improved well-being.

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