

Passion among breast cancer survivors: A 12-month prospective study

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Abstract

We examined the prospective relationship between harmonious passion and post-treatment health outcomes among female breast cancer survivors. Participants reported passion toward a favorite activity, physical pain symptoms, and mental health after their final breast cancer treatment (Time 1, $N = 188$). Twelve months later (Time 2, $N = 148$), participants reported their physical pain symptoms and mental health. Harmonious passion at Time 1 predicted fewer physical pain symptoms and higher levels of mental health at Time 2. These results show that breast cancer survivors benefit from being harmoniously passionate toward a meaningful activity following treatment.

Keywords

breast cancer, harmonious passion, obsessive passion, quality of life, survivorship

Women diagnosed with breast cancer face many physical and psychological challenges after they complete treatment (Carreira et al., 2018; Harrington et al., 2010). The prevalence of symptom burden among breast cancer survivors (BCS) combined with the rate of diagnosis (e.g. one in eight Canadian women will be diagnosed with breast cancer in their lifetime) and survivorship (e.g. 5-year survival rate of 87% in Canada; Canadian Cancer Society, 2017) has driven efforts toward understanding how to minimize post-treatment symptoms and improve the quality of life of BCS (Allen et al., 2009). One suggested way to achieve enhanced health and well-being among BCS is to engage in activities that are personally important and meaningful, including sports, physical activities, hobbies, and creative pursuits (e.g. Brunet et al., 2012; Öster et al., 2006; Sabiston et al., 2007; Tominaga et al., 1998). Indeed, popular

psychology and folk wisdom maintain that finding and pursuing an activity toward which one is *passionate* can be the key for achieving a healthy, happy life (e.g. Robinson, 2009). Researchers in psychology have supported this commonly held belief in part, but have revealed that the impact of passion depends on the extent to which passion varies on two dimensions.

The psychological study of passion toward activities has relied primarily on the dualistic

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model of passion (DMP; Vallerand, 2015). The DMP distinguishes between two dimensions of passion that one can have toward a meaningful, self-defining activity. First, harmonious passion (HP) entails pursuing an activity with a sense of personal volition, autonomy, and control. People with high levels of HP love to engage in their favorite activity and have fully integrated it into their lives. Second, obsessive passion (OP) entails a more rigid, uncontrollable pursuit of an activity. Although those with high levels of OP also love their favorite activity, this activity often dominates their identity and conflicts with other life aspects. From research with non-clinical populations, only HP has consistently predicted higher indices of quality of life including physical and mental health (Curran et al., 2015). This is because people with high HP are able to be fully immersed and mindful during activity engagement (St-Louis et al., 2016), allowing the activity to be a source of energy, vitality, and positive affect in their lives (Vallerand, 2015). In fact, there is evidence that HP can compensate for some negative outcomes (e.g. burnout) that surface when one also feels high OP (Schellenberg et al., 2019). Having high levels of HP for an activity therefore represents a promising route toward enhanced health and well-being among BCS. The aim of this research was to test this hypothesis.

Although limited research has focused on passion in clinical populations, one previous study with BCS found that HP positively predicted indicators of emotional well-being including higher positive affect and lower cancer worry, whereas OP predicted more negative affect, cancer worry, and post-traumatic growth (Burke et al., 2012). This research built on these initial findings in three important ways. First, the role of passion dimensions in predicting indices of both physical and mental health was tested. Second, the relationships between passion dimensions and health outcomes were tested while controlling for variables that have been shown to predict symptoms among cancer survivors (i.e. age, education, and months since last treatment; Mao et al., 2007). Third, a prospective

design was used to determine if passion dimensions predicted changes in health outcomes in the early, highly understudied post-treatment period.

Methods

Participants and procedures

Female BCS ($N=201$) were recruited for the study based on clinician chart review and referral based on the following inclusion criteria: (1) at least 18 years of age; (2) 0–20 weeks post primary treatment (i.e. surgery, chemotherapy, and radiation therapy) for stage I to III breast cancer; (3) treated for a first cancer diagnosis; (4) able to provide written informed consent in English or French; and (5) reported no health concerns that prevented them from engaging in physical activity.¹ This study was approved by the University of Toronto Research Ethics Board and hospital research ethics committees (Protocol #28180), and all participants provided written informed consent. Participants completed self-report questionnaires assessing passion, physical pain, mental health, and demographic information after their final breast cancer treatment (Time 1). Twelve months later (Time 2), participants reported their levels of physical pain and mental health.

Measures

Passion. HP and OP for a favorite activity were assessed with the Passion Scale (Vallerand, 2015). Extensive evidence has been obtained in support of the validity and reliability of Passion Scale scores (e.g. factor structure and internal consistency, measurement invariance, convergent and discriminant validity evidence, test–retest correlations; see Marsh et al., 2013; Vallerand, 2015). The Passion Scale includes six items measuring HP (e.g. “My activity is well integrated in my life”), six items measuring OP (e.g. “If I could, I would only do my activity”), and assesses agreement with each item on a scale from 1 (*not agree at all*) to 7 (*very strongly agree*). Participants reported

their favorite activity and answered the items while thinking of that activity.

Mental health. Self-rated mental health was assessed with one item: “In general, would you say your mental health is: excellent? very good? good? fair? poor?” Responses were scored on a five-point scale ranging from 0 (*poor*) to 4 (*excellent*; for a discussion of the utility of this single-item assessment of mental health, see Mawani and Gilmour, 2010).

Physical pain. Participants reported whether they experienced any of the 12 pain symptoms (e.g. stomach pain, headaches, and nausea) derived from the Primary Care Evaluation of Mental Disorders screening questionnaire (PRIME MD; Spitzer et al., 1994) that have been shown to be prevalent among BCS (e.g. Hadd et al., 2010). Participants reported the number of pain symptoms that they experienced on three consecutive days, and the average number of pain symptoms for 3 days was calculated at both time points.

Covariates. At Time 1, demographic variables including age, highest level of educational attainment (continuously scored on a scale from 0 (*did not complete high school*) to 5 (*post-graduate degree*)), and the number of months since the last treatment were assessed and included as covariates in additional analyses reported in Supplementary material.

Data analysis

The relationships between passion dimensions and each outcome variable were tested with multiple regression using Mplus (Version 8) to take advantage of robust maximum likelihood (MLR) estimation and missing data imputation procedures (Muthén and Muthén, 1998–2017). Regression models were tested in which each dependent variable was regressed on both HP and OP. OP was entered into models along with HP in order to control for their shared variance (Curran et al., 2015). Additional models were analyzed to test if HP predicted variance in

each dependent variable beyond what can be predicted from the measured covariates (Supplemental Tables S2 and S4) and measured covariates along with baseline assessments of outcome variables (Supplemental Tables S3 and S5). These analyses are reported in Supplementary material.

Results

A total of 13 participants were excluded from all analyses because they did not respond to items assessing HP and OP (final $n=188$).² Participants ranged from 28 to 79 years ($M=54.86$ years, $SD=10.76$ years), and most identified as being White (85.6%). Univariate and multivariate outliers were excluded from the analyses predicting mental health (excluded $n=2$) and pain symptoms (excluded $n=3$; see Supplementary material for more details). Descriptive statistics and correlations are reported in Supplementary material (Supplemental Table S1).

HP at Time 1 predicted better mental health at Time 2, $b=.24$, standard error (SE)=.07, 95% confidence interval (CI) [.10, .38], $p<.01$; this finding remained significant when covariates and baseline levels of mental health were included in the model (Supplemental Tables S2 and S3). HP at Time 1 also predicted fewer pain symptoms at Time 2, $b=-.41$, $SE=.16$, 95% CI [-.73, -.09], $p=.01$; this finding remained significant when covariates were included in the model (Supplemental Table S4), but did not surpass a conventional level of statistical significance when baseline pain symptoms were added to the model ($p=.07$; Supplemental Table S5). These results support the hypothesis that HP predicts better mental health and fewer pain symptoms among BCS. OP did not predict either mental health or pain symptoms.

Discussion

Having a passion for a meaningful activity in one’s life has the potential to enhance early post-treatment health outcomes among BCS. Nonetheless, relying on the DMP (Vallerand,

2015) and building on previous research with BCS (Burke et al., 2012), the current findings suggest that merely engaging in a passionate activity does not guarantee that one will be healthy and happy; for positive benefits to accrue, the passion must entail high levels of HP. Only HP, not OP, predicted fewer pain symptoms and greater self-reported mental health among BCS. Importantly, these relationships were obtained prospectively and after controlling for demographic variables, suggesting that HP predicts improvements in pain symptoms and self-reported mental health over time and beyond what can be predicted from covarying factors.

Researchers have provided some clues to help explain how HP might affect physical and psychological health. HP entails frequent experiences of positive emotions, a greater capacity to be fully immersed and experience flow in an activity, and even higher quality interpersonal relationships (Vallerand, 2015). These features of HP should contribute positively to overall health and well-being and be particularly beneficial to BCS as they cope with post-treatment challenges. HP may also entail integrated self-complexity, whereby the activity provides a distinct part of one's identity that is nevertheless intricately and positively related to other self-aspects (e.g. goals and relationships; Philippe et al., 2017). Whereas OP entails an activity becoming an overwhelming part of one's identity and life, HP may allow an optimal distinction between a passionate activity and other self-aspects, which may help buffer against the ongoing post-treatment stress, allow the activity to be a distraction from post-treatment symptoms, and provide a sense of normality (e.g. Kennedy et al., 2007). Evidence has started to accumulate for some of these proposed mechanisms in non-clinical populations (e.g. Carpentier et al., 2012), and research with BCS and other clinical populations is needed to determine the pathways that link HP to health.

This research adds to the literature on the psychological predictors of post-treatment outcomes in cancer survivors (e.g. Cook et al., 2018) and contributes to the DMP by showing

the benefits of HP in a clinical sample over a 12-month period. It also suggests an important caveat for the growing literature supporting the advantages of engaging in meaningful activities (e.g. sports and hobbies) for BCS (e.g. Öster et al., 2006; Sabiston et al., 2007): to make the most out of these activities, they should be pursued with HP. But this research should be interpreted in light of its limitations, including a reliance on self-report assessments, a single-item assessment of mental health, and a sample of predominantly White BCS (Fu et al., 2009). Additional research is needed to replicate the observed effects, particularly the relationship between HP and pain symptoms given that it did not surpass a conventional level of statistical significance when both covariates and baseline pain symptoms were included in the model. Research going forward can continue to examine how HP might alleviate symptom burden and enhance the quality of life of BCS and test if HP is beneficial to survivors of other cancer types.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. This project was part of a larger project examining the effects of physical activity among BCS (see Sabiston et al., 2018 for details). However, no reports have been published that examine the relationship between passion for favorite activities and post-treatment health outcomes. Also note that participants could report any favorite

activity, including those unrelated to physical activity.

2. Of the 188 participants who completed Time 1, 148 (78.72%) also completed Time 2. Overall, 4.37 percent of the data were missing. Missing data were considered to be missing completely at random (MCAR; Little's MCAR $\chi^2(224) = 235.68, p = .128$). Observed covariate missingness was modeled using Mplus (Muthén and Muthén, 1998–2017, p. 8).

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