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Prevalence and interest in extreme/adventure activities among gynecologic cancer survivors: Associations with posttraumatic growth

Jennifer J. Crawford [a], Nicholas L. Holt [a], Jeff K. Vallance [b], Kerry S. Courneya [a, *]

[a] University of Alberta, Canada
[b] Athabasca University, Canada

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ABSTRACT

Exercise has been associated with posttraumatic growth in gynecologic cancer survivors (GCS) but the role of extreme/adventure activities has not been investigated. The primary objective of this study was to examine the association between extreme/adventure activities and posttraumatic growth in GCS. A Canadian provincial registry generated a random sample of 2064 GCS stratified by cancer type (i.e., cervical, endometrial, and ovarian) who were mailed a self-report survey that assessed demographic and medical variables, posttraumatic growth, participation and interest in extreme/adventure activities, and exercise growth (i.e., the extent to which the cancer diagnosis itself prompted changes in the amount, type, or nature of exercise activities). Of 621 GCS, only 12.1% reported participating in extreme/adventure activities in the past year. Of 309 GCS interested in a future exercise study, 41.1% were interested in trying extreme/adventure activities. After adjustment for key covariates, neither participation nor interest in extreme/adventure activities were associated with posttraumatic growth. All exercise growth items, however, were significantly associated with all posttraumatic growth scales (all p's < 0.05). In multivariate regression analyses, exercise growth items explained 37.2% of the variance in the posttraumatic growth inventory, 7.2% of the variance in the negative impact of cancer scale, 19.9% of the variance in the positive impact of cancer scale, and 23% of the variance in the benefit finding scale (all p's < 0.001). GCS who change the amount, type, and/or nature of their exercise activities after their diagnosis may be more likely to experience posttraumatic growth.

1. Introduction

Although a cancer diagnosis can be extremely stressful and traumatic, it may also provide an opportunity for positive growth and adaptation (Linley & Joseph, 2004; Love & Sabiston, 2011; Morris, Shakespeare-Finch, & Scott, 2007). Posttraumatic growth is defined as a positive psychological change that emerges following a significantly challenging or traumatic life event and is often characterized by an increased appreciation for life, better interpersonal relationships, personal strength, recognition of new possibilities, and spiritual development (Tedeschi & Calhoun, 1996; Tedeschi, Park, & Calhoun, 1998). Posttraumatic growth is theorized to occur when a life crisis or traumatic event is challenging enough that it prompts cognitive processing of the event and its aftermath. Posttraumatic growth theory suggests that individual styles of managing distress, social support, and disclosure regarding emotions and perspectives on the traumatic event, as well as cognitive processing of the traumatic event, can lead to schema changes, change in life goals, and reduced psychological distress (Tedeschi & Calhoun, 1996; Tedeschi et al., 1998).

Posttraumatic growth is a desired outcome of a cancer diagnosis; however, few interventions have been developed to promote experiences of growth. We previously reported that meeting exercise guidelines was associated with some aspects of posttraumatic growth in gynecologic cancer survivors (GCS) (Crawford, Vallance, Holt, & Courneya, 2014). Nevertheless, it is unknown whether the nature of the exercise itself (i.e., the exercise modality and context) may also be important for fostering posttraumatic growth. Previous research has found that emotionally and physically demanding activities (e.g., mountaineering, dragon boating, and group motorcycling) may prompt psychological growth in cancer survivors (Burke & Sabiston, 2012; Dunn, Campbell, Penn, Dwyer, & Chambers, 2009; Hefferon, Grealy, & Mutrie, 2008;

* Corresponding author. Faculty of Physical Education and Recreation, University of Alberta, 1-113 University Hall, Edmonton, Alberta, T6G 2H9, Canada.
E-mail address: kerry.courneya@ualberta.ca (K.S. Courneya).

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McDonough, Sabiston, & Ullrich-French, 2011; Sabiston, McDonough, & Crocker, 2007).

Based on posttraumatic growth theory and preliminary research, we propose that activities that push cancer survivors beyond their current capacity and provide a sense of accomplishment may be most likely to foster positive growth. Accordingly, we propose that the optimal physical activities for stimulating posttraumatic growth would be physically challenging (i.e., a high physiological demand), novel (i.e., not common or everyday activities), and contain some element of physical risk (i.e., potentially serious injury if a mistake is made). The term "extreme/adventure activities" has become a general descriptor for these types of activities (Brymer & Schweitzer, 2013). Moreover, we propose that posttraumatic growth is most likely to occur when the cancer diagnosis itself prompts the cancer survivor to participate in extreme/adventure activities.

The primary objective of this study was to examine the prevalence and interest in extreme/adventure activities in GCS and determine any associations with posttraumatic growth. Based on posttraumatic growth theory and previous research (Burke & Sabiston, 2012; Dunn et al., 2009; Hefferon et al., 2008; McDonough et al., 2011; Sabiston et al., 2007), we hypothesized that few GCS would be participating in extreme/adventure activities but that those GCS who were participating would report higher posttraumatic growth. Based on previous research (Blanchard et al., 2003), we also hypothesized that few GCS would report their cancer diagnosis prompted them to substantially change the amount, type, or nature of their exercise (i.e., reported exercise growth) but those who did report exercise growth would also report higher posttraumatic growth.

2. Materials and methods

2.1. Study population

The design and methods of this cross-sectional, population-based study have been reported elsewhere (Crawford et al., 2014). Ethical approval was granted by the Alberta Cancer Research Ethics Board. Eligibility criteria included: (a) ≥18 years of age and (b) histologically confirmed gynecologic (cervical, endometrial, or ovarian) cancer diagnosed between 1986 and 2013. The Alberta Cancer Registry generated a random sample of 2064 GCS stratified by cancer type (688 from each survivor group) who were then contacted by the registry on behalf of the researchers. The survey was conducted between July and November 2013. Eligible GCS were mailed a study package containing: (a) a letter of invitation from the Registry explaining the purpose of the Registry and its role in this specific study, (b) a letter from the researchers explaining the study, (c) the survey booklet, and (d) a postage paid return envelope. The survey protocol followed a modified version of the Total Design Method (Dillman, 2007) where participants were mailed (a) the initial study package, (b) a postcard reminder 3–4 weeks later to nonresponders, and (c) a second survey 3–4 weeks after that to nonresponders to the initial survey and postcard reminder.

2.2. Measures

2.2.1. Demographic and medical information

Medical and demographic variables were assessed by self-report and included age, marital status, education, annual income, employment status, ethnicity, height and weight to calculate body mass index (BMI), date of diagnosis, type of gynecologic cancer (cervical, endometrial, ovarian), disease stage (localized, metastasized), previous and current treatments (surgery, radiation, chemotherapy/drugs), previous recurrence (no or yes), and current disease status ("cancer is gone" versus "still have cancer").

2.2.2. Participation and interest in extreme/adventure activity

We were unaware of any published scales that have been validated for the assessment of extreme/adventure activities. Based on definitions of extreme sport (Brymer & Schweitzer, 2013) and adventure therapy (Epstein, 2004), we defined extreme/adventure activities for participants as physically challenging activities involving speed, height and/or a high level of physical exertion such as mountaineering, white water rafting, triathlon, marathon, scuba diving, rock climbing, dragon boating and downhill skiing. Extreme/adventure activity participation was assessed using one item (i.e., have you participated in any extreme/adventure activity in the past year) with a yes or no response; and one open-ended question (i.e., if yes, what type of extreme/adventure activity(ies) did you do).

For participants interested in participating in a future exercise study, we asked "would you be interested in trying any extreme/adventure type activities" with a yes or no response. If participants selected yes, they were asked to choose which extreme/adventure activities they were most interested in trying from a list of options that included wall/rock climbing, mountaineering (hiking), triathlon, waterskiing/wakeboarding, river rafting, kayaking, scuba diving, mountain biking, cross country skiing, downhill skiing, horseback riding and other.

2.2.3. Posttraumatic growth

Given the exploratory nature of this study, posttraumatic growth was assessed by three scales. The primary posttraumatic growth scale was the Posttraumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996). The PTGI is a 21-item questionnaire with a six-point Likert Scale ranging from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change as a result of my crisis). The PTGI is scored by the sum of the 21 items where higher scores indicated greater posttraumatic growth. The Impact of Cancer Scale (IOC) was a second measure of posttraumatic growth (Zebrack, Yi, Petersen, & Ganz, 2008). The IOC consists of 41 items comprising 5 positive subscales (health awareness, positive self-evaluation, positive outlook, value of relationships, meaning of cancer) and 5 negative subscales (body changes, negative self-evaluation, negative outlook, life interferences, health worry). Respondents indicated the extent to which they agree from 1 (strongly disagree) to 5 (strongly agree). The Benefit Finding Scale (BFS) was used to assess the ways gynecologic cancer may have had a positive impact (Tomich & Helgeson, 2006). The BFS is a 14-item questionnaire with a 4-point scale ranging from 1 (not at all) to 4 (very much). The BFS is scored by summing the 14-items, with higher scores indicating more benefits from cancer.

2.2.4. Exercise growth

We were interested in the extent to which a diagnosis and treatment of gynecologic cancer may have prompted participation in extreme/adventure activities but we were unaware of any validated scales assessing such a construct. Consequently, we embedded six "exercise growth" items in the PTGI scale. As noted earlier, the PTGI scale asks "how your diagnosis and treatment for gynecologic cancer (ovarian, endometrial, or cervical) may have changed your life" with responses ranging from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change as a result of my crisis). The six exercise growth items focused on changes in the amount, type, and nature of exercise in order to tap aspects related to physically challenging, novel, and high risk extreme/adventure activities. The specific items were: "I have significantly increased the amount of exercise I do", "I have