Psychometric investigation of benefit finding among long-term cancer survivors using the Medical Expenditure Panel Survey

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ABSTRACT

Purpose: Benefit finding has been shown to be beneficial for people with cancer and may be an indication that one is coping adequately with the stress of cancer. This study evaluated the psychometric properties of a four-item benefit finding measure from the cancer survivorship supplement of the Medical Expenditure Panel Survey (MEPS).

Methods: Long-term survivors (5—10 years post-diagnosis) of breast, prostate, colorectal or lung cancer or melanoma (n = 594) completed the MEPS cancer supplement survey in 2013. Four items asked about benefit finding after the cancer: stronger person, coping better, positive changes and having healthier habits. Information on sociodemographics, disease and activity limitations after the cancer was also collected. We examined factor structure, reliability (Kuder-Richardson 20) and validity.

Results: The four benefit finding items did not appear to measure one factor. Three of the benefit finding items (stronger person, coping better, positive changes) were related to gender, receipt of chemotherapy and activity limitations but not cancer stage, time since diagnosis or income. Having healthier habits was unrelated to any sociodemographic or disease variable.

Conclusions: Three of the items (stronger person, coping better, positive changes) appeared to have validity as they were related to variables that literature has shown are related to benefit finding. However, having healthier habits is likely measuring a separate but related construct. This short instrument may be used in future studies assessing benefit finding post cancer; however, the four items should be analyzed separately.

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1. Introduction

Studies on cancer survivors have begun to focus on positive changes following cancer diagnosis, often called benefit finding and post-traumatic growth (Barskova and Oesterreich, 2009; Helgeson et al., 2006). Benefit finding is defined as finding something good resulting from stressful events (Affleck and Tennen, 1996), whereas post-traumatic growth is a more effortful process of finding good that results from struggle during a crisis (Tedeschi and Calhoun, 1996). Benefit finding and post-traumatic growth have been linked to improved physical health in many medical populations (Barskova and Oesterreich, 2009) in which a certain level of stress, such as more advanced disease, is required to trigger benefit finding (Helgeson et al., 2004). A meta-analysis on benefit finding in cancer found that more benefit finding was associated with less depression and greater positive well-being (Helgeson et al., 2006). Research included in this meta-analysis suggest that benefit finding may be a sign that, despite heightened stress, a patient is coping well with the cancer experience and conversely, not reporting benefit finding may indicate a need for further assessment of how a patient is coping.

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Studying benefit finding in larger studies is challenging due to the length of the measures of benefit finding, which range from 14 items to 43 items (Pascoe and Edvardsson, 2014). In large epidemiologic and population based surveys, measures for a single construct have to be short due to the need to assess multiple constructs in one survey. These studies often examine multiple factors, and the length of specific measures has to be curtailed to reduce participant burden. Benefit finding may be a potential target for providers working with distressed people with cancer but continued research is difficult with such long measures. A shorter measure of benefit finding could improve feasibility of research in this area.

We investigated the psychometric properties of the four benefit finding items from a national survey, the Medical Expenditure Panel Survey (MEPS), administered by the Agency for Healthcare Research and Quality (AHRQ) (Quality, 2014) in the United States. AHRQ has conducted several MEPS surveys across the cancer spectrum from screening for cancer to health care utilization in people already diagnosed with cancer (Davis, March 2013; Quality, 2014). MEPS surveys also assess other aspects of cancer survivorship such as access to medical care, use of health care, and financial concerns (Yabroff et al., 2012). The items for this analysis from the MEPS Experiences with Cancer Survivorship Supplement assess whether four beneficial changes occurred as a result of the cancer or the cancer treatment. As these items have not been psychometrically evaluated, we examined factor structure, reliability and validity.

2. Methods

2.1. Participants and procedures

In June 2013, we mailed a MEPS Experiences with Cancer Survivorship survey to potential participants (n = 1376). The survey contained questions on a variety of topics related to cancer survivorship, but this study reports only on the items related to benefit finding. Potential participants were identified among people with cancer enrolled in three health plans from three American states who were diagnosed with cancer of the breast, colorectum, lung, prostate or skin (melanoma) between 2003 and 2008, i.e., five to ten years before the survey. Potential participants had to have remained continuously enrolled in the health plan from diagnosis through May 31, 2013 and had to be 18 years of age or older at the time of cancer diagnosis. People enroll in these health plans through their employer, as individuals or through government-provided insurance for those over 65 years of age or with low income. The plans provide health care insurance and medical care (Nekhlyudov et al., 2013; Wagner et al., 2005). Approximately equal numbers of survivors of each cancer type were invited to complete the survey. Six-hundred fifteen (45%) participants provided informed consent and returned the survey. Study procedures were approved by the institutional review boards before the study was conducted.

2.2. Measures

2.2.1. Benefit finding

Benefit finding was measured with four items taken from the MEPS Supplement. All four items had the same stem, "Have any of the following been positive things about your experiences with your cancer, its treatment, or the lasting effects of that treatment?" followed by four potential benefits: "It has made me a stronger person"; "I can cope better with life's challenges"; "It became a reason to make positive changes in my life"; "It has made me have healthier habits". Response options were dichotomous (yes/no).

2.2.2. Other variables

In addition to MEPS benefit finding items, we collected data on disease and demographic variables from the survey and administrative databases. Cancer stage and type was collected from databases while information on treatments (surgery, chemotherapy, radiation) and demographic variables (age, gender, race/ethnicity, income, education, marital status) was collected through the survey. The survey included a question asking whether the cancer, its treatments and lasting effects of treatment ever limited activities outside of work (yes/no). These variables were used to establish the validity of the benefit finding items by assessing whether the items were related to constructs previously shown to be associated with benefit finding.

2.3. Statistical analyses

We first conducted factor analysis to ensure we could sum the item responses for a total benefit-finding score. As the item responses were dichotomous, a tetrachoric correlation matrix was factor analyzed using Lisrel 9.1 and full information maximum likelihood. A one-factor, unrestricted model was tested. Fit of the model was evaluated using the following criteria: test of perfect fit (not significant); root mean square error of approximation (RMSEA) less than 0.08 (Browne and Cudeck, 1992). The Kuder-Richardson 20 statistic was also calculated to determine the reliability of the benefit-finding items and a value of 0.70 or above was considered acceptable reliability (Kuder and Richardson, 1937).

To examine construct validity of the measures, we compared demographic and disease variables between responders who did and did not find benefit. Based on previous research (Helgeson et al., 2006, 2004), we expected benefit finding to be related to gender, age and objective stress from the cancer (convergent validity), but unrelated to socioeconomic status (SES) and time since the event (discriminant validity, (Helgeson et al., 2006; Sears et al., 2003)). We posited the following as indicators of objective stress: cancer stage, receiving more intensive treatment (chemotherapy, radiation) and lasting activity limitations after the cancer. We used chi-square and t-tests to assess unadjusted associations, while estimation of adjusted associations were based on logistic regression models with benefit finding as the dependent variable and all the demographic and disease variables entered as independent variables.

3. Results

Of the 615 participants who returned the survey, 594 provided response information on the benefit finding items and were included in analyses (see Table 1 for demographic and disease variables). The average participant was 62.7 years of age at diagnosis, had completed a bachelor's degree (53.5%), had an income over the median (52.5%), was female (51.3%), and was married or partnered (71.0%). Most participants were Caucasian (92.9%); other reported race/ethnicities were African American (2.4%), Asian (2.4%), Hispanic (2.0%) and Native American (1.5%). The majority had either stage I (37.7%) or stage II disease (37.7%). The largest disease group was breast cancer (22.6%) followed by prostate cancer (21.2%), colorectal cancer (20.9%), lung cancer (18.7%), and melanoma (16.7%). Most had undergone surgery (79.0%), but fewer underwent chemotherapy (34.3%) or radiation treatment (42.3%). Of the total sample, 64.8% reported becoming a stronger person, 65.3% reported coping better since the cancer diagnosis, 58.2% reported making positive changes and 62.5% reported having healthier habits. Less than half the sample reported limitations due to the cancer (41.5%).