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Analysis of an Online Support Group for Women with Breast Cancer

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LOMA LINDA UNIVERSITY
School of Science and Technology
in conjunction with the
Faculty of Graduate Studies

Analysis of an Online Support Group for Women with Breast Cancer

by

Laura Boxley

A Thesis submitted in partial satisfaction of
the requirements for the degree of
Master of Arts in Clinical Psychology

December 2010

Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree Master of Arts.

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ABSTRACT OF THE MASTERS THESIS

Analysis of an Online Support Group for Women with Breast Cancer

by

Laura Boxley

Master of Arts, Graduate Program in Clinical Psychology
Loma Linda University, December 2010
Dr. Jason Owen, Chairperson

With over 200,000 new diagnoses in 2004, breast cancer is one of the most commonly diagnosed cancers among women in the United States. Both the stress of treatment and the threat of a potentially lethal illness present significant challenges to an individual's emotional well-being and coping skills, yet paradoxically many women report benefits from dealing with this adversity. The aims of this investigation were to describe the characteristics of benefit finding as expressed by breast cancer survivors participating in an online breast cancer support group, and to assess the relationship between symptom distress, emotional well-being and benefit finding using baseline assessment measures. Qualitative content analysis and computerized text analysis were used to characterize the emotional, cognitive, and structural components present in online therapy transcripts. Correlational analysis was also used to identify both convergent and divergent characteristics of expressed benefit finding the context of an online support group and self-reported benefit finding using a structured assessment measure. With respect to the relationship between symptom distress, emotional well-being and benefit finding, self-reported benefit finding was found to have a mediating relationship between symptom distress and emotional quality of life, however expressed benefit finding did not share this relationship. This study suggests a potential difference between the benefits

participants may endorse on a structured measure versus the opportunity to discuss benefits in an unstructured, somewhat social environment.

Introduction

In the United States, breast cancer is the most commonly diagnosed type of cancer in women, with over 200,000 new diagnoses in 2004. Every year, thousands of women and their families must deal with the stress of treatment and the threat of a potentially lethal illness. In addition to physical adversity, women diagnosed with breast cancer are subject to significant psychological challenges such as depression and anxiety. Although breast cancer is a traumatic experience, paradoxically, many women report benefits from dealing with this adversity. Cordova and colleagues (2001) have estimated that 60-90% of breast cancer patients report benefiting in some way from their diagnosis. Some women have cited positive changes in priorities, increased spirituality, closer relationships with loved ones and a greater sense of purpose as a result of their diagnosis (Carver, 2004).

These findings join a preponderance of literature observing benefit finding (or posttraumatic growth) from traumatic experience and adversity in a variety of populations (Fromm, Andrykowski & Hunt, 1996, Carvver & Antoni, 2004, Sears et al., 2003, Taylor, 1983, Tedeschi & Calhoun, 1996). However, research has been far from unanimous in the appraisal of benefit finding; some individuals have associated benefit finding with negative affect and perceived life threat (Cordova et al., 2001, Tomich & Helgeson, 2004). Specifically, psycho-oncological research has not yet shown a consistent relationship between benefit finding and improved outcomes. However, the study of benefit finding and posttraumatic growth has observed significant progress over the past decade. As such, correlates of benefit finding such as well-being and distress have emerged as potentially influential factors.

Our first aim in this investigation is to explore the relationship between symptom distress, emotional well-being and benefit finding. We hypothesize that symptom distress will be predictive of emotional quality of life. Furthermore, we suggest that benefit finding will mediate this relationship. Our second aim in this investigation is to further elucidate the characteristics of benefit finding and how it is expressed among breast cancer survivors. To do so, we will attempt to verify the currently accepted domains of benefit finding through the analysis of therapy transcripts. Using content analysis, we intend to elucidate the naturalistic expression of benefit finding as compared to assessment measures of benefit finding. Comparisons will also be made between benefit finding and measures of coping. Additionally, we hypothesize that expressed benefit finding will mediate the relationship between symptom distress and emotional well-being, mirroring our original model. Lastly, in an exploratory effort, we will investigate the potential relationship between benefit finding and anxiety.

Coping and Health

Benefit finding is one of many coping strategies by which an individual may attempt to adapt to challenging life events. While the coping literature is highly heterogeneous, coping generally refers to an individual's intentional behavioral and cognitive attempts to manage a stressful event. As observed by Lazarus and Folkman (1984), methods of coping reflect the current experiences of the individual as they contend with hardship. Although patterns of response to life challenges may be similar among individuals, methods of coping are highly variable and often do not reflect obvious progress or maturation. However, Lazarus suggests that, "there is a great need for information about whether some coping patterns are more serviceable than others in given types of people, for given types of psychological stress, at certain times, and under given known conditions" (1984).

To describe methods of coping, such as benefit finding, Lazarus and Folkman utilized a transactional model in which the environment and the individual are dynamically engaged in a reciprocal, bidirectional relationship. Their theory incorporates two processes, cognitive appraisal and coping, as important mediators between the self and the environment. Cognitive appraisal is a process by which the individual assesses whether a potential stressor is relevant to their well-being and in what ways. This evaluation involves two steps: primary and secondary appraisal. During primary appraisal, an individual gauges what they have at stake and what the risk may be. During secondary appraisal, an individual assesses what could be done to prevent harm or overcome the event. At this stage various options are weighed, such as seeking information, changing the situation or accepting the situation.

Once a threat has been appraised, an individual may try to cope in response. This coping may involve cognitive and behavioral attempts to manage, reduce, minimize, master or even tolerate internal and external demands. The type of coping one may exercise depends on what may be at stake (primary appraisal) and what an individual's options may be (secondary appraisal). Lazarus characterized coping that focuses on the perceived problem causing the distress as "problem-focused coping". An example of problem-focused coping may include seeking information about one's illness or vigilantly maintaining one's medical regimen. In turn, coping that focuses on regulating emotion is characterized as “emotion-focused coping”. Examples of emotion-focused coping may include seeking social support or avoidance.

In 2000, Folkman and Greer introduced a theoretical model for the understanding of psychological well-being during significant illness (Figure 1). Informed by Lazarus and Folkman’s work, this model illustrates the hypothesized pathways by which an individual would come to utilize what the authors describe as “meaning-based coping.” When confronted with a significant event, an individual must appraise the event and decide how to cope. If the outcome experienced as a result of this event is favorable, the experience is likely to lead to positive affect and the conclusion of the coping behavior. If the outcome experienced as a result of this event is negative, the authors suggest that this experience will lead to either distress or meaning-based coping. The use of meaning-based coping is theorized to inspire positive affect and sustain coping processes for unfavorable event outcomes; positive affect may influence one’s appraisal of illness, encourage further coping and helping to ameliorate distress.

Benefit Finding and Health

Utilizing a meaning-based coping mechanism like benefit finding may be an adaptive strategy in the promotion of psychological well-being during significant illness. Janoff-Bullman describes benefit finding as, “…engaging in interpretations and evaluations that focus on the benefits and lessons learned, survivors emphasize benevolence over malevolence, meaningfulness over randomness, and self worth over self abasement” (1992). Learning of one’s own strengths when faced with adversity, or gaining insight into the meaning of one’s life, may help mitigate one’s feelings of

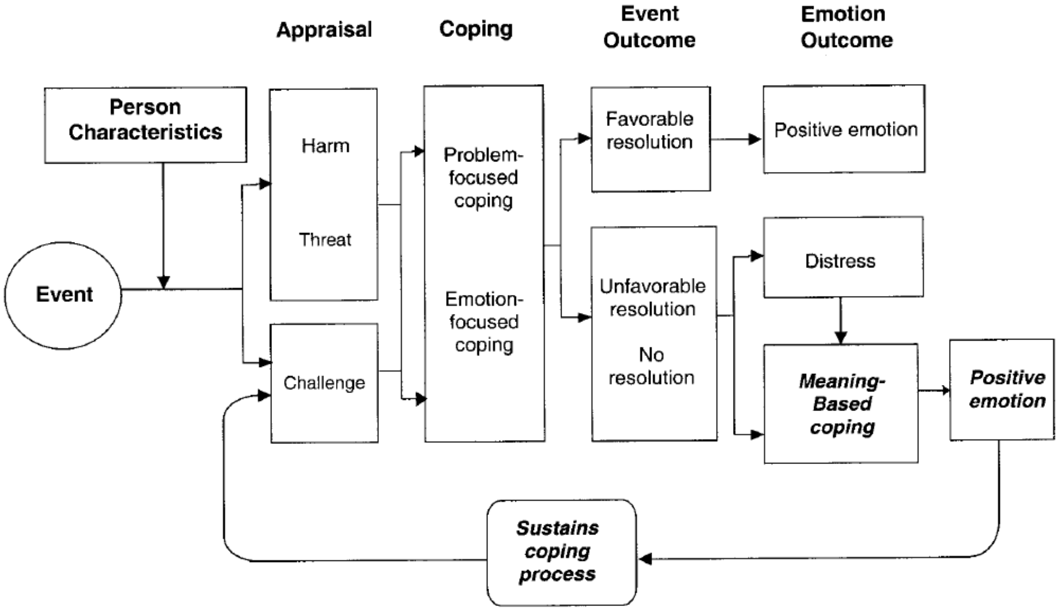

Figure 1. Theoretical model of appraisal and coping process (Folkman & Greer, 2000).

helplessness or fear. Furthermore, the perception that one's life has purpose or meaning has been shown to be critically important to self-esteem and well-being (Janoff-Bulman, 1992; Thompson & Janigian, 1988).

There are several theoretical explanations for the use of benefit finding. The revelation of positive meaning in hardship may indicate what Rosenbaum and colleagues describe as "secondary control" appraisal, providing a comfortable alternative to feelings of distress when primary control over a stimulus is lost (1982). Rosenbaum describes primary control as being direct, personal control in a situation. Much like coping, primary control involves one's ability to effectively interact with the environment. Secondary control is described as a cognitive strategy by which the individual attempts to regain perceived control when primary processes have failed. The presence of some form of control is therefore hypothesized to be a critical element to wellbeing. The more uncontrollable stress an individual perceives, the greater the use of secondary control appraisal. Research seems to confirm this assertion, demonstrating that one’s experience of advanced cancer and the associated mortality threat are likely to inspire a search for meaning and benefit to a greater degree than does early-stage diagnosis (Tedeschi & Calhoun, 2004, Janoff-Bulman & Berger, 2000). Affleck and Tennen (1996) also suggest that benefit finding may be a form of secondary control. Furthermore, they suggest that as primary control is regained, secondary control should wane. For example, as distress or anxiety decreases one may be using less benefit finding because a greater sense of primary control has been achieved.

The study of what Taylor (1983) termed “positive illusions” also illuminates the potential connection between adaptive psychological functioning and secondary control. In a study of breast cancer patients, the belief that one had cognitive control over their cancer was strongly associated with healthy adjustment. In fact, some of the women participating in this study stated confidently that they had “beaten their cancer.” Analysis of these women’s chart records, however, revealed that some of these women were terminally ill. Taylor argues that these positive beliefs were cognitively adaptive mechanisms to deal with trauma and preserve psychological functioning. The idea that illusions contribute to adaptive mental health conflicts with many traditional conceptualizations of healthy functioning. Conventionally, theorists have assumed that healthy psychological functioning was related to one’s ability to maintain realism (e.g., Erikson, 1950; Fromm, 1955; Jahoda, 1958; Maslow, 1950). However current research has presented contradictions to this assumption, suggesting that adaptive behaviors may include those that preserve one’s sense of wellbeing despite evidence to the contrary.

While not synonymous, benefit finding and positive illusions are related constructs that deserve further study to elucidate the underlying structure and function of these concepts as they relate to psychological health.

Quality of Life and Symptom Distress

One measure of psychological and physical health commonly used in cancer research is quality of life. In the past, quality of life has been assessed as a somatic symptom by physicians. However, the area of quality of life research has grown tremendously in recent years, resulting in changes in the way researchers and practitioners define quality of life (QoL). Essentially, quality of life is a subjective experience best defined by the individual. Gotay et al. (1992) describe quality of life as, “the state of well being that is a composite of two components: the ability to perform everyday activities that reflect physical, psychological and social well-being; and patient satisfaction with levels of functioning and control of the disease.” More concisely, Calman (1984) describes quality of life as, “the gap between the patient’s expectations and achievements; the smaller the gap, the higher the quality of life.” The application of quality of life research to benefit finding and symptom distress may present an opportunity to better describe and address the physical and psychological needs of breast cancer survivors.

Unfortunately, few studies have investigated the relationship between benefit finding and quality of life (Fromm et al., 1996, Manne et al., 2004, Schulz & Mohamed, 2004, Sears et al., 2003, Tomich & Helgeson, 2004). Of those studies, results appear mixed. It is notable that these few existing studies included a variety of different populations, measured using a variety of different assessment tools. However, these results may be an illustration of the considerable variability in subjective appraisals of the cancer experience and the degree to which it impacts a patient's life. As benefit finding is a relatively new area of study, much can be learned about its relationship to quality of life and breast cancer.

Symptom distress may also be an influential factor related to quality of life and benefit finding. Among undifferentiated cancer survivors, 85% have reported thinking about their diagnosis when they did not intend to. Additionally, 78% of survivors consider recurrence of their cancer more upsetting than their original diagnosis (Mahon et al., 1990). Across cancer types, it has been estimated that 40-80% experienced lack of energy, pain, feeling drowsy, dry mouth, insomnia, or symptoms of psychological distress (Portenoy et al., 2004). Some common symptoms sited by breast cancer survivors include fatigue (Berger et al., 2002; Cohen, Kahn & Steeves, 1998), insomnia, dissatisfaction with appearance, decreased ability to concentrate (Manning-Walsh, 2005), pain, depression, anxiety and post-traumatic stress (Cordova et al., 1995; Derogatis et al., 1983; Longman et al., 1999; Moyer & Salovey, 1996). Certainly, distress related to symptoms present a substantial challenge to cancer survivors and their quality of life. Indeed, Bloom and colleges have demonstrated the intrusiveness of one's illness relates to a significant decrease in quality of life (1998).

In the study of benefit finding, assessment of symptom distress and quality of life are necessary applications of current research. The relationship between symptom burden and quality of life has been well documented, even among those with early stage diagnosis (Longman, Braden & Mishel, 1999; Arvdt, Stegmaier, Zeigler & Brenner, 2006). Generally, survival rates for women diagnosed with breast cancer a relatively high, especially one year post-diagnosis. However, the experience of symptoms may increase the salience of one’s cancer diagnosis and may complicate emotional recovery. Benefit finding may represent a coping style or cognitive restructuring effort that provides meaning and facilitates increased positive affect. In light of these hypotheses, we expected that symptom distress will have a negative relationship with emotional quality of life. Furthermore, we suggest that benefit finding may act as a mediator between these variables, such that benefit finding will become the salient variable and contribute to increased quality of life.

Expressed Benefit Finding

There is a general paucity of information regarding the use of benefit finding in naturalistic settings. The use and expression of benefit finding is often measured with self-reported questionnaires or prompts, and rarely assessed in other contexts, such as therapy. As such, a good deal of our insight into the nature of benefit finding has come in the development of assessment tools. One of the most commonly used instruments includes the Post Traumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996). This instrument, like many others, was developed out of a review of literature and interviews with individuals who had experienced highly stressful events. The 21-items developed out of this investigation were factor analyzed, which revealed 5 domains of benefit finding: a greater appreciation for life and new priorities, more intimate relationships, greater personal strength, new possibilities for one’s life, and a greater sense of spirituality. This measure was not developed specifically for use in oncological populations, but has shown utility for this group (Cordova et al., 2001).

Tomich and Helgeson (2004) have also developed a well known benefit finding scale designed for breast cancer survivors by modifying the Behr's Positive Contributions Scale (Behr, Murphy, & Summers, 1991) used to assess parents of disabled children. These investigators also identified five domains of positive growth: personal priorities, interest in daily activities, sensitivity to family issues, greater awareness of world issues, and personal relationships. Interestingly, Tomich and Helgeson found that these items formed a single factor. As such, the authors did not further discuss the typology of benefit finding.

In this analysis, we will use the Positive Contribution Scale (Antoni et al., 2001): a similar measure derived from Tomich and Helgeson's model used to assess early stage breast cancer patients. This assessment tool differs from the Tomich and Helgeson model by the exclusion of questions deemed difficult or redundant by Antoni and colleagues, as well as the inclusion of a few new items. The 17 items included in this measure are not explicitly categorized by the authors, however review of the items corroborate the groups recognized by others: greater personal strength, spirituality, new priorities, more intimate relationships, etc. Assessment tools such as these have provided much of the insight we have today about types of benefit finding and how they are used. We suggest that the observation of expressed benefit finding (in scenarios such as group therapy) may further contribute to our understanding of the use of benefit finding in breast cancer survivors.

The use of therapy transcripts is one modality used by researchers to study the expression of emotion and copying strategies. Systematic strategies to analyze these transcripts, such as content analysis, have yet to be applied to benefit finding research in oncological populations and may provide valuable insight into the actual use and expression of benefit finding opposed to its implied use. Content analysis has been used to analyze transcripts of online group therapy for cancer patients by various researchers (Owen et al., 2004, Sharf, 1997). Similar to expressive writing tasks, online group therapy allows the individual to share feelings of distress or concern that may be too difficult to express with friends and family members (Owen et al, 2004). Furthermore, writing appears to help individuals organize and integrate feelings of distress, resulting in improved physical and mental health (Pennebaker, 1997, 2000). Positive outcomes have been specifically associated with: 1) high use of positive emotion words, 2) moderate use of negative emotion words, and 3) increasing use of words related to insight and causation (Esterling et al., 1999, Pennebaker, 2000). The behavior of benefit finding is congruent with all three of these criteria; the act of benefit finding often includes the acknowledgement of negative affect, positive emotions reflecting the benefit experienced in spite of this event, and insight into how this event has affected the individual. As such, the written expression of benefit finding may be a particularly adaptive coping strategy.

Unique to online group therapy is the relative lack of structure and its public forum. Online group therapy allows individuals to share their concerns and coping strategies with other survivors, providing valuable support, information, and feedback (Owen et al., 2004). These online discussions can provide researchers with a wealth of information about written expression and coping among these survivors. Analysis of these transcripts could provide a realistic view of how benefit finding is used among breast cancer patients and validate the hypothesized domains of benefit finding suggested by current research. In addition to our first aim, the second aim is to evaluate the congruence between self-reported benefit finding and linguistic patterns associated with benefit finding in naturalistic text samples. We hope to validate the domains of benefit finding suggested by current research, and provide insight into the use and frequency of each domain. Additionally, we hypothesize that expressed benefit finding will mediate the relationship between symptom distress and emotional quality of life, mirroring our original model.

Anxiety and Benefit Finding

Interestingly, the relationship between benefit finding and anxiety has not been well researched. A few studies have investigated the relationship between anxiety and benefit finding among multiple sclerosis patients (Mohr et al., 1999; Pakenham, 2005). These investigators found a positive relationship between benefit finding and anxiety but did not discuss potential theoretical explanations. There has, however, been significant research in the related areas of perceived stressfulness and perceived life threat. A fairly robust positive relationship has been demonstrated between posttraumatic growth and perceived threat in breast cancer patients (Cordova et al, 2001; Lechner et al., 2003; Sears et al., 2003). Widows and colleagues (in press) have also found a significant relationship between posttraumatic growth and higher threat appraisals in several domains experienced by bone marrow transplant patients, including emotional distress. Generally, theories of posttraumatic growth have suggested that individuals with advanced cancer are more likely to find benefit from their situation as the mortality threat increases. Research has further suggested that a stressor must be of sufficient magnitude to inspire benefit finding (Janoff-Bullman & Franz, 1997, Janoff-Bullman & Berger, 2000, p. 33, Tedeschi & Calhoun, 2004). Similarly, anxiety related to cancer diagnosis appears to be a related construct that may help describe those who utilize benefit finding.

While the effect of perceived threat is rather robust, there may, be limitations to this theoretical orientation. Lechner (2003) suggests that the experience of serious disease, especially after prior early-stage diagnosis, can produce such a significant threat as to shut down any attempt to find benefit. In the face dire consequences, an individual may be much less likely to find any utility to their experience.

Research in behavioral medicine and health psychology has demonstrated that a variety of intense emotional states accompany the diagnosis and treatment of illness, including anxiety. The ability of an individual to cope with anxiety may depend on their individual experience of the threat. As stated by specificity theorists, “disease not only depends on an invasion of hostile environmental forces, but also on the total condition of the person” (Lazarus, 1984). These differential characteristics or influences may account for the different coping and appraisal mechanisms individuals use, and what benefits are experienced. It is possible that one’s individual experience of anxiety, for example, may influence the differential use of benefit finding as a coping mechanism. Similarly, individuals experiencing significant anxiety may use and experience benefit finding differently than individuals with normative levels of anxiety. We predict that those who are more anxious may have a greater need to find benefit in their experience. In an exploratory effort (aim 3), we hope to contribute preliminary evidence as to relationship between benefit finding and anxiety. Furthermore, we hypothesize that anxiety will be predictive of benefit finding. In parallel, utilizing online breast cancer support transcripts, expressed anxiety is also hypothesized to be predictive of expressed benefit finding.

To summarize, our aims and hypotheses for this investigation include:

Aim 1: To explore the relationship between symptom distress, emotional well- being and benefit finding.

H1: Symptom distress will be predictive of emotional quality of life

H2: Benefit finding will mediate this relationship.

Aim 2: To further elucidate the characteristics of benefit finding and how it is expressed among breast cancer survivors

H3: The naturalistic expression of benefit finding will concur with assessment measures of benefit finding.

H4: Expressed benefit finding will mediate the relationship between symptom distress and emotional well being, mirroring our original model.

Aim 3: In an exploratory effort, we will investigate the potential relationship between expressed and self-reported benefit finding and linguistic indicators of emotional and cognitive experience such as anxiety.

Method

Participants

The data utilized for this analysis was part of a randomized pilot study of an online support for women with early stage breast cancer. Initially, women with histologically confirmed clinical stage 1 or 2 breast cancer were considered eligible for participation. However, given their self-reported medical histories, it was discovered that a small number of participants were likely stage 0 or stage 3. As a result of these participants' strong desire to be included in this study and their belief that they had early stage breast cancer, they were included in the study. The women in this study were not excluded on the basis of psychiatric history, medical treatment, or time since diagnosis. Participants were recruited primarily through direct patient contact with consecutively scheduled patients at a Hematology/ Oncology outpatient clinic at a large academic medical center in the Southeastern United States. Survivors who expressed an interest in participating in the study (*n* = 154) later received a telephone call to confirm characteristics of their disease and to administer informed consent. Of the 154 survivors who expressed initial interest in participating in the study, 23 (14.9%) elected not to participate after being given further information about the study, 24 (15.6%) could not be reached after repeated telephone calls and e-mail messages, 11 (7.1%) did not feel comfortable enough using a computer to participate, and 1 (0.6%) was deemed to be ineligible due to participation in a competing trial. Those participants who remained interested after speaking by telephone with the primary investigator (*n* = 95) provided consent and later received a baseline assessment by mail. This baseline assessment comprises the assessment data to be analyzed in the present study. Of the 64 participants in this analysis, most were stage 1, 2 or Ductal Carcinoma in Situ (N=44). The remaining participants were stage 3, 4 or of unknown staging. Transcripts from the online discussion group were analyzed for the content analysis portion of this study. The transcripts included the online contributions of breast cancer survivors participating in an asynchronous discussion board and responding to coping intervention exercises.

Assessments

Health-related quality of life (self-report). Health-related quality of life was ascertained using the Functional Assessment of Cancer Therapy- Breast Cancer Form (FACT-B). Using a 5-point Likert scale, the FACT-B is a 27-item questionnaire assessing overall quality of life as well as individual domains including social well-being, physical well-being, emotional well-being, functional well-being, and breast cancer-specific symptoms (Cella, 1997). This measure has demonstrated sufficient internal consistency (overall $\alpha = 0.90$, subscale α's = 0.63 – 0.86) and concurrent validity with ECOG performance status (Brady et. al., 1997). The test-retest correlation coefficient for the FACT-B total score is 0.85, demonstrating sufficient stability in quality of life assessment over short periods of time (3 to 7 days). In a test of 47 individuals over two month intervals, the FACT-B has demonstrated good sensitivity to change among breast cancer patients. Significant correlations between the FACT-B, the Functional Living Index-Cancer (FLIC), and the Profile of Mood States (POMS) subscales have helped establish the construct validity of this measure.

Physical well-being (self-report). The Memorial Symptom Assessment Scale (MSAS) was used to determine physical well-being. The MSAS is a 32-item measure investigating the prevalence, frequency, severity, and distress related to symptoms often described by cancer patients (Portenoy, 1994). Symptom distress is rated on a Likert-type scale from 0 (not at all) to 4 (very much) indicating how distressing the participant has found each identified symptom over the past week. Validated for use with cancer survivors, the MSAS has demonstrated sufficient reliability (0.835-0.882), as well as good content and construct validity. Total symptom distress was calculated by summing the total distress value accumulated across all items.

Depression and anxiety (self-report). The Hospital and Depression Scale (HADS) was originally designed to ascertain psychological distress in hospital patients, and is now widely used in a variety of medical and psychiatric settings. The HADS is a 14-item scale designed to evaluate mood disturbance. Responses were reported on a 4-item scale indicating the frequency of each event specified. The calculated scores produce two subscales that correspond to the participant's depression (HADS-D) and anxiety (HADS-A). In addition to providing subscale scores, the HADS can provide an overall psychological distress score. The utility of the HADS in cancer populations has been validated (Moorey et. al., 1991). The reliability for each scale was within acceptable limits, as the Cronbach’s alpha was .83 for the anxiety subscale and .79 for the depression subscale.

Positive Contributions Scale (self-report). Benefit finding was assessed using the Positive Contributions Scale. The Positive Contributions Scale is a 17-item scale assessing the potential benefit experienced from the treatment of breast cancer. Responses were measured on a 5-item scale from “not at all” to “extremely.” The internal reliability of this scale is also within acceptable limits, with a Cronbach’s alpha of .95 (Antoni et al, 2001). The Positive Contribution Scale has demonstrated both convergent and divergent validity, as it was positively related to optimism (0.23) and inversely related to POMS distress (-0.25) and CES-D (-0.20) (Antoni et al, 2001). Benefit finding has also demonstrated stability over time. Over the course of assessment, initial scores correlated 0.75 with postintervention scores, and 0.91 with three month follow up scores (Antoni et al, 2001). Additionally, nine month follow up scores correlated 0.87 with initial scores. Dispositional optimism was not strongly related to perceived benefits (0.10). Antoni et al. (2001) also conducted a factor analysis confirming this measure as a unitary scale.

Computerized Text Analysis (CTA):

Linguistic Inquiry and Word Count (LIWC) was used to characterize the emotional, cognitive, and structural components present in online therapy transcripts. LIWC 2007 relies on established dictionaries to target and quantify words associated with specific linguistic domains. Approximately 80 output variables are collected per subject with respect to 4 general descriptor categories (total word count, words per sentence, percentage of words captured by the dictionary, and percent of words longer than six letters), 22 standard linguistic dimensions (e.g., percentage of words in the text that are pronouns, articles, auxiliary verbs, etc.), 32 word categories tapping psychological constructs (e.g., affect, cognition, biological processes), 7 personal concern categories (e.g., work, home, leisure activities), 3 paralinguistic dimensions (assents, fillers, nonfluencies), and 12 punctuation categories (periods, commas, etc). The complete LIWC dictionary is composed of nearly 4500 words or word stems defined in one or more hierarchical subcategories. LIWC calculates the percentage of target words described by each of the nearly 80 outcome variables. Computed from a random sample of 2800 proprietary text files, the average Cronbach's alpha for the internal reliability of the specific words within each LIWC category was 0.825 (range: 0.14 - 0.98). The validity of LIWC domains was assessed by comparing the correlations between LIWC output and judges' ratings. The average agreement between LIWC and judges' ratings was .454, suggesting substantial agreement, with a range of .07 to .87 across LIWC categories. Pearson correlations were used to identify linguistic markers of benefit-finding.

Intervention

Women with clinical stage 1-4 breast cancer were considered eligible for participation in the study. Those participants who spoke by phone with the primary investigator provided consent and later received a baseline assessment by mail. This baseline assessment, as well as a post-intervention follow up assessment, comprise the assessment data analyzed in this study. Participants who were assigned to the internet-based discussion group were then provided website information and a password via email. The online coping forum provided self-guided asynchronous group discussion. Group discussion revolved around coping skills training including: identification of active and passive styles of coping, communication with friends and family, awareness of the interactions between stress, emotion and behavior, stress management, assertiveness training, and problem solving. Prompts via email were utilized to facilitate participant interaction over the 12-week intervention period. Group discussions were therefore self-guided rather than professionally structured.

Analysis

Aim I: To explore the relationship between symptom distress, emotional wellbeing and benefit finding. Hypothesis one was tested using a simple regression model in which symptom distress predicted emotional quality of life. Hypothesis two was tested using multistage regression models as outlined by Baron and Kenny (1986). In the investigation of mediating relationships, (1) the predictor variable should be associated with the outcome variable, (2) the predictor should also be related to the hypothesized mediating variable, (3) the mediator should still be related to the outcome variable after holding the predictor constant, and (4) the relationship between the outcome and the predictor should be reduced after controlling for the mediator. Using these guidelines, the relationship between symptom distress and emotional quality of life, as well as the mediating role of benefit finding between symptom distress and emotional quality of life were tested.

Aim II: To further elucidate the characteristics of benefit finding and how it is expressed among breast cancer survivors. A literature review was conducted to survey the categories of benefit finding defined in current research. Redundant categories were collapsed across groups until 8 categories remained. These 8 categories were used to identify examples of benefit finding in the transcripts. All benefit finding categories reflected a generalized conceptualization of benefit finding as the perception of positive change as a result of an aversive experience. The categories identified were: Improved Interpersonal Relationships, Personal Growth, Spiritual Change, Appreciation for life, Acceptance, Concern for others/Altruism/Global Concerns, Improved Health Habits, and

Other. Once a definition for each of these categories was then established, instructions were sent by email to four naïve coders asking them to assign each example of benefit finding to a category. Using this framework, instances of benefit finding were identified in the transcripts. Transcripts were coded by the number and category of benefit finding instances per subject.

The category ‘appreciation and acceptance of life’ was used with the greatest frequency (34.3%), followed by personal growth (21.9%), improved interpersonal relationships/social connection (14.5%), and spiritual change (11.2%) (Figure 2). To account for variability in transcript volume, expressed benefit finding was operationalized as the total number of benefit finding instances divided by the total number of words in the sample.

The text was split into two halves, with two different raters assigned to assess each half. Once the text was coded, categories ‘appreciation for life’ and ‘acceptance’ were discussed by the raters as being extremely similar when observed in the text, and the decision was made to collapse both into a single category (Appendix A). Once the coding categories were reorganized, Cohen’s kappa coefficient was calculated to determine inter-rater reliability (Cohen, 1968). The interpretation of kappa value was conducted under the recommendations of Landis and Koch (1977), in which values of 0.0-.020 indicate slight agreement, 0.21-.40 indicate fair agreement, 0.41-0.61 indicate moderate agreement, 0.61-0.80 indicate substantial agreement, and 0.81-1.0 indicate almost perfect agreement. Using these criteria, the coding agreement values for the trained coders for

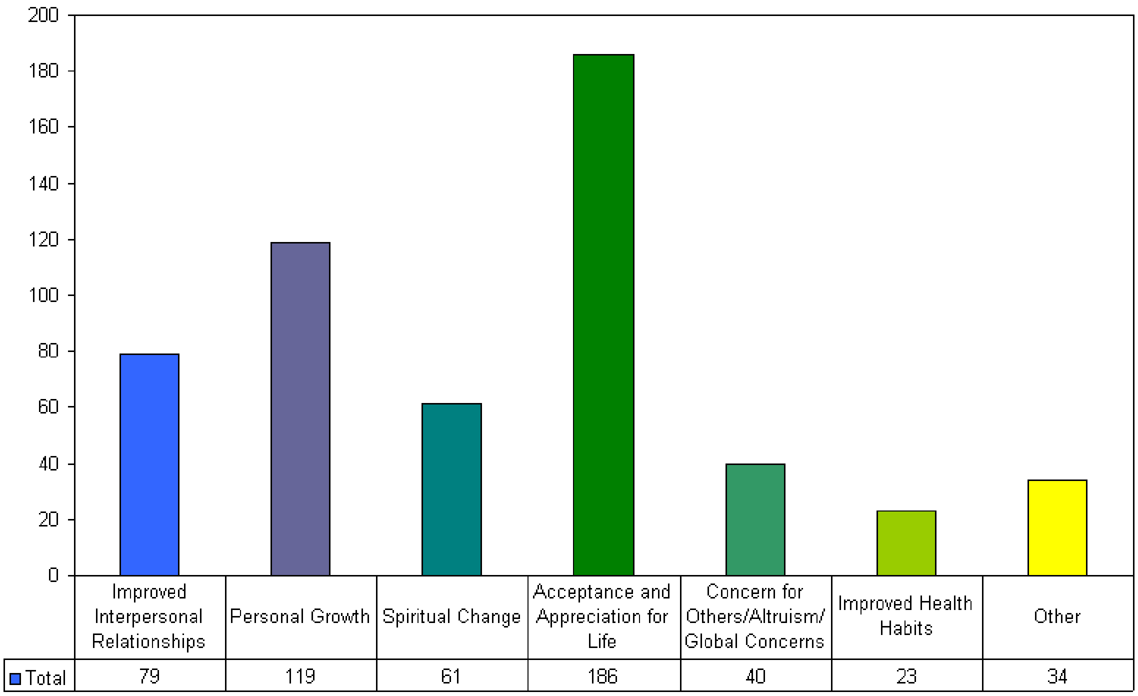

Figure 2. Expressed Benefit Finding Categories and Incidence

each half of the sample were 0.739 and 0.693 respectively, reflecting substantial agreement between raters (Table 1). Levels of agreement between the primary investigator and each of the trained coders were also high: r = 0.829, 0.890, 0.894 and 0.757.

In parallel to our original model, multi-staged regression was used to assess the potential mediation of expressed benefit finding. As described above, expressed benefit finding was measured by dividing the total number of benefit finding instances per subject by the number of words per subject. Replicating our original testing model, multi-staged regression models were used as suggested by Barron and Kenny (1986) to evaluate the hypothesized mediating model.

Table 1

Instances of Expressed Benefit Finding per Subject by Category

Rater	*Improved Interpersonal Relationships*	*Personal Growth*	*Spiritual Change*	*Acceptance and Appreciation for life*	*Concern for others/Altruism/Global Concerns*	*Improved Health Habits*	*Other*
1	13	20	12	30	6	2	1
2	12	18	9	34	6	0	6
3	14	20	15	22	10	6	9
4	14	20	8	33	6	9	9
5	12	20	9	35	6	1	2
6	14	21	8	32	6	8	7
Total	79	119	61	186	40	23	34
(%)	(14.57)	(21.95)	(11.25)	(34.31)	(7.38)	(4.24)	(6.27)

In an exploratory effort, LIWC text analysis was also conducted to further explore the potential relationship between expressed and self-reported benefit finding. Given the time required to rigorously content-analyze text, there would be substantial benefit to having a computerized text analysis method for identifying benefit-finding in text.

Aim III: In an exploratory effort, investigators sought to elucidate the relationship between benefit finding, anxiety and depression. In order to evaluate the potential relationship between benefit-finding and levels of anxiety and depression, Pearson product moment correlations were used. Self-reported anxiety and depression were correlated with both self-reported benefit-finding (Positive Contribution Scale) and expressed benefit-finding.

Results

Participants

Demographic characteristics of the participants are shown in Table 1. Participants in the study were generally married, middle aged, college educated Caucasian females approximately 2 years post diagnosis. On average, they reported being of Stage I or Stage II status, with 12.5% having used complementary or alternative medicines and 17.2% having used a support group in the past. The total number of words analyzed for each participant varied from as few as 31 to as many as 14,700 (x=2620.7, SD=2875). Instances of expressed benefit finding also varied across participants, ranging from 0 to 13 (x=2.87, SD=3.21).

Aim I: Benefit Finding as a Mediator of the Relationship Between Symptom Distress and Emotional Quality of Life

A simple regression model was used to satisfy step one of Baron and Kenny's suggested analysis in which the predictor variable was associated with the outcome variable. As predicted (Figure 3), symptom distress was negatively associated with emotional quality of life ($\beta = -0.291$, $t(64) = -2.41$, $p = 0.019$). In accordance with step two of Baron and Kenny's suggested analysis, symptom distress was also negatively associated with self- reported benefit finding ($\beta = -0.275$, $t(64) = -2.23$, $p = 0.029$). Upon testing the mediation effect, self-reported benefit finding remained a significant predictor of emotional well-being after covarying for symptom distress ($\beta = 0.362$, $t(64) = 3.062$,

$p = 0.003$), and the relationship between symptom distress and quality of life was rendered non-significant ($\beta = -.187$, $t(64) = -1.58$, $p = 0.119$; see Figure 4 and Table 3).

Table 2

Participant Demographics

	M+SD	**%**
Age, SD (years)	49.9±10.9	
Mean annual household income($)	74360±48650	
Education (years)	15.3±2.5	
Race (% white)		84.4
Marital status (% married)		81.3
Employment status (%)		
Employed full-time		35.9
Employed part-time		14.1
Not employed		37.6
Time since diagnosis (months)	21.3±21.5	
Clinical stage of disease (%)		
Ductal carcinoma in situ	5	7.8
Stage I	15	23.4
Stage II	24	37.5
Stage IV	9	14.1
Unknown	11	17.2
Use of complementary or alternative medicines (%)		12.5
Support Group Use		17.2
Self Reported Benefit Finding	3.64±.83	
Expressed Benefit Finding Ratio	.001±.001	
Expressed Benefit Finding Instances	2.88±3.21	

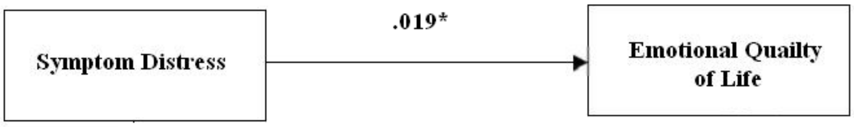

Figure 3. Symptom Distress as a Predictor of Emotional Quality of Life

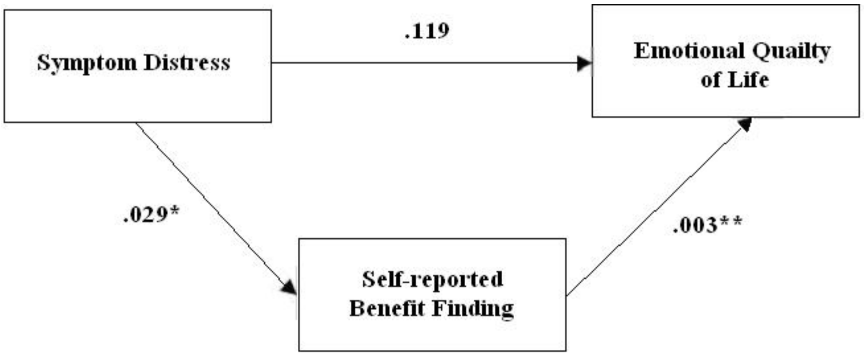

Figure 4: Mediating Effect of Self-Reported Benefit Finding

Table 3

Multiple Regression Analysis of Emotional Well-being

	B	Beta	t	*p*	95% CI	
					Upper bound	Lower bound
Model 1						
Symptom Distress	-0.009	-.291	-2.416	.019	-.160	-.015
Model 2						
Symptom Distress	-0.006	-.187	-1.581	.119	-.127	.015
Self Reported Benefit Finding Ratio	1.727	.362	3.062	.003	.600	2.85

Note: R_1^2 = .085*, R_2^2= .205**.

Aim II: Correlates of Self-Reported and Expressed Benefit Finding.

Expressed benefit finding and self-report benefit finding were moderately positively correlated ($r = 0.282$, $p = 0.032$). Correlational analyses comparing expressed and self-reported use of benefit finding to coping variables (Table 4) suggest common correlations between each measure with respect to approach coping (self report, $r = 0.585$, $p \leq 0.001$; expressed, $r = 0.35$, $p = 0.007$), positive reframing (self report, $r = 0.468$, $p \leq 0.001$; expressed, $r = 0.424$, $p \leq 0.001$), acceptance (self report, $r = 0.419$, $p = 0.001$; expressed, $r = 0.323$, $p = 0.013$), and behavioral disengagement (self report, $r = -0.317$, $p = 0.015$; expressed, $r = -0.313$, $p = 0.016$). Expressed benefit finding was independently associated with decreased denial ($r = -0.297$, $p = 0.023$), whereas self-reported benefit finding exhibited no relationship with denial. Additionally, self-reported benefit finding was positively associated with emotional ($r = 0.429$, $p \leq 0.001$) and instrumental support ($r = 0.425$, $p \leq 0.001$), active coping ($r = 0.424$, $p \leq 0.001$), planning ($r = 0.405$, $p = 0.002$), and use of humor($r = 0.320$, $p = 0.014$). Expressed benefit finding was not associated with social support, active coping, planning, or use of humor.

Expressed Benefit Finding as a Mediator of the Relationship between Symptom Distress and Emotional Quality of Life

Replicating our original testing model as outlined by Baron and Kelly, symptom distress was negatively associated with emotional quality of life ($\beta = -0.291$, $t(64) = -2.41$, $p = 0.019$). However, symptom distress was associated with expressed benefit finding ($\beta = 0.062$, $t(64) = 0.466$, $p = 0.643$). Expressed benefit finding was uncorrelated with emotional quality of life after covarying for symptom distress (β = 0.215, *t*(64) = 1.600, *p* = 0.116). The mediating relationship of expressed benefit finding between symptom distress and emotional quality of life was therefore not supported (Figure 5, Table 5).

Table 4

Coping Correlates of Benefit Finding

	Self-Reported Benefit Finding	**Expressed Benefit Finding Ratio**
Self-Reported Benefit Finding	1	
Expressed Benefit Finding Ratio	.282*	1
APPCOP[a]	.585**	.350**
CACTIVE[b]	.424**	.237
CPLAN[b]	.405**	.204
CINSUP[b]	.425**	.130
CEMSUP[b]	.429**	.255
CRELIG[a]	.633**	.326*
CREFR[a]	.468**	.424**
CACCEPT[a]	.419**	.323*
CDENIAL[b]	-.085	-.297*
CJOKE[b]	.320*	.030
CDISENG[a]	-.317*	-.313*
HADS Anxiety[b]	.342**	.197
HADS Depression	-.061	.083
HADS Anxiety[b]	.342**	.197
HADS Depression	-.061	.083
LIWC Anxiety	.037	.089
LIWC Sadness	.053	-.009

Note. [a] convergent results; [b] divergent results; * p < .05, ** p < .01

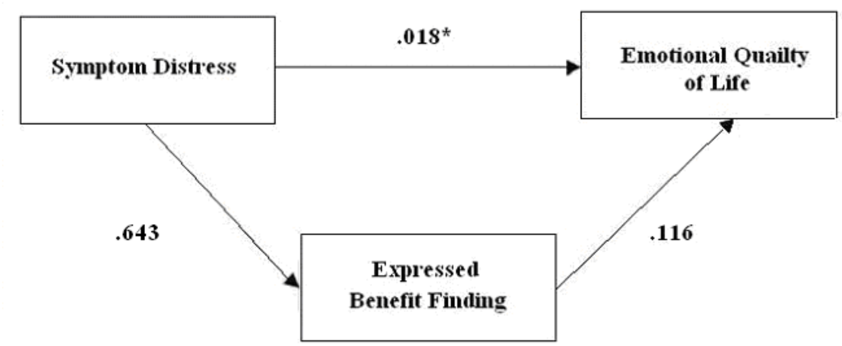

Figure 5. Lack of Mediation of Expressed Benefit Finding

Table 5

Multiple Regression Analysis of Emotional Well-being

					95% CI	
	B	*Beta*	t	*p*	lower bound	upper bound
Model 1						
Symptom Distress	-0.088	-0.291	-2.42	.019	-0.160	-0.015
Model 2						
Symptom Distress	-0.101	-0.329	-2.45	.018	-0.184	-0.018
Expressed Benefit Finding	759.3	0.215	1.60	.116	-195.3	1714.0

Note: R_1^2 = .085*, R_2^2= .151*.

Computerized Text Analysis of Expressed Benefit Finding

Linguistic Inquiry and Word Count was used to identify objective linguistic markers of both expressed and self-report benefit finding in therapy transcripts. To this end, all cleaned (i.e., spell-checked) transcripts were scored by LIWC. Correlational relationships were assessed between self-reported and expressed benefit finding across each linguistic domain (Table 6).

Self-reported benefit finding correlated with linguistic indicators of increased affective, cognitive and social processes, including positive emotion words (r=.430, p ≤ 0.001), religion words (r = 0.396, p = 0.002), cognitive words associated with certainty (r = 0.259, p = 0.049), and words associated with perceptual processes associated with sight (r = 0.307, p = 0.019). Self-reported benefit finding was also associated with a decrease in words associated with other humans (r = -0.382, p = 0.003).

Expressed benefit finding however, was correlated with a decrease in cognitive words indicative of tentativeness (e.g., “maybe, perhaps, guess,” r = -0.272, p = 0.031 and with a decreased use of auxiliary verbs (e.g., “am, will, have,” r=-.277,p= .028). Expressed benefit finding was also associated with an increase in use of words indicative of assent (e.g., “Agree, OK, yes”).

When looking specifically at instances of expressed benefit finding per subject, instances of benefit finding were negatively correlated with the use of 1st person singular pronouns (e.g., “I, me, and mine,” r = -0.365, p = 0.003) and positively correlated with the use of 1st person plural pronouns (e.g., “we, us, and our,” r = 0.0249, p = 0.049) and 2nd personal pronouns (r = 0.370 p =0.003) (You, your, thou). The number of benefit finding instances per subject was also positively correlated with an increase in positive emotion words (r = 0.304, p = 0.016).

Table 6

LIWC Correlates of Benefit Finding

Category	Expressed Benefit Finding (Ratio)	Self-reported Benefit Finding	Benefit Finding instances
Linguistic Process			
Personal Pronouns			
1st person singular			-.365**
1st person plural			.249*
2nd person			.370**
Verbs			
Auxiliary verbs	-.277*		
Psychological Process			
Social Process			
Family	.252*		
Human		-.382**	
Affective Process			
Positive Emotion		.430**	.304*
Cognitive Process			
Tentative			
Certainty		.259*	
Perceptual Process			
See		.307*	
Personal Concerns			
Home	.361*		
Religion		.396**	
Spoken Categories			
Assent	.269*		

Note. * p < .05, ** p < .01; no other LIWC categories were correlated with measures of Benefit finding.

Regression models were also used to assess time one and time two data regarding emotional quality of life and symptom distress variables. Time two emotional quality of life was not significantly associated with expressed or self reported benefit finding after controlling for time one emotional quality of life (Table 7). Each overall model, however was significant ($R^2 = 0.603$, $R^2_{adjusted} = 0.582$, F = 28.12; $p < 0.000$; $R^2 = 0.593$, $R^2_{adjusted} = 0.574$, F = 27.314 $p < 0.000$). Time two symptom distress was not significantly associated with expressed ($\beta = 0.055$, $t(64) = 0.44$, $p = 0.659$) or self reported benefit finding ($\beta = -0.066$, $t(64) = -0.484$, $p = 0.630$) after controlling for time one symptom distress (Table 8).

Table 7

Multiple Regression Analysis of Time 2 Emotional Well-being

	B	*Beta*	*t*	*p*	*CI 95%* lower bound	upper bound
Model 1						
T1 Emotional Well-being	0.618	0.788	7.47	<0.000	0.451	0.786
Expressed Benefit Finding	-235.50	-0.086	-0.81	0.422	-822.98	351.97
Model 2						
T1 Emotional Well-being	0.602	0.767	6.54	<0.000	0.415	0.788
Self-Reported Benefit Finding	0.043	0.011	0.10	0.925	-0.888	0.975

Table 8

Multiple Regression Analysis of Time 2 Symptom Distress

	B	*Beta*	*t*	*p*	*95% CI*	
					lower bound	upper bound
Model 1						
T1 Symptom Distress	0.186	0.215	1.72	0.091	-0.030	0.402
Expressed Benefit Finding	618.48	0.055	0.44	0.659	-2166.83	3403.83
Model 2						
T1 Symptom Distress	0.123	0.137	1.00	0.32	-0.123	0.370
Self-Reported Benefit Finding	-1.022	-0.066	-0.484	0.63	-5.252	3.208

Aim III: Anxiety and Depression

Expressed benefit finding was not associated with anxiety (r = 0.197, p = 0.135) or depression (r = 0.083, p = 0.533) as measured by the Hospital Anxiety and Depression questionnaire. Expressed benefit finding was also not associated with the LIWC variables assessing ‘anxiety’ (r = 0.089, p = 0.486) or ‘sadness’ (r = -0.009, p = 0.945). Self-reported benefit finding, however, was positively correlated with HADS anxiety (r = 0.342, p < 0.001). Self-reported benefit finding was not associated with HADS depression (r = - 0.061, p = 0.649). A trend was observed between self-reported benefit finding and decreased linguistic indicators of sadness (r = -0.256, p = 0.053), however no relationship was observed between self-reported benefit finding and LIWC anxiety (r=.037, p=.784).

Discussion

Overall, self-reported benefit finding was found to have a mediating relationship between symptom distress and emotional quality of life, however expressed benefit finding did not share this relationship. It may be that the domains of benefit finding freely expressed in conversation do not equally or exhaustively represent the construct as it has been defined and utilized in research. Alternatively, behavioral expressions of benefit-finding may provide a more objective, alternative means of measuring the benefit-finding construct. Correlational analysis confirmed both convergent and divergent characteristics of expressed and self-reported benefit finding. Common relationships were found between both measures of benefit finding and increased approach coping, acceptance, positive reframing, and decreased behavioral disengagement. Each measure was also observed to have unique qualities: expressed benefit finding was independently associated with decreased denial, while self-reported benefit finding was independently positively associated with emotional and instrumental support, active coping, planning and use of humor.

Perhaps the introduction of an assessment measure such as the Positive Contribution scale could have directed the participant to reflect on their lives in a novel way. It is also possible that the range of benefit finding domains identified in an assessment measure are not equally valued or easily spoken about in a group setting. Another alternative is that writing about benefit finding may require a greater cognitive investment than filling out a self-report measure and therefore elicits a related but distinct experience from the participant. Both methods of assessing benefit finding, however, did appear to function similarly to the hypothesized model established by Lazarus and Folkman in which meaning based coping may promote positive emotional outcomes in the face of unfavorable events. A structured writing assignment, such as the kind used by Stanton et. al. (2007) in which participants were specifically asked to discuss the benefits of cancer may pull more equally and comprehensively for benefit finding across participants. A possible strength of observing benefit finding rather than prompting it in a self-reported, Likert-style format is the mitigation of self-report bias in which the individual may feel a direct pull to endorse socially desirable responses.

Interestingly, in text participants did not appear to express benefit finding to the extent indicated in self-report measures; in addition to talking about the social and emotional support they received, the women appeared to talk about the realities of their experience. Perhaps the online groups were a forum for women to explore and digest the difficulties of breast cancer survivorship with those who would truly understand. While speculative, this behavior appears present upon qualitative review and is supported by the unique decrease in denial as measured by the BriefCOPE. The items differentially endorsed on the Positive Contribution Scale appear very positive but they are also especially socially acceptable. Perhaps in the context of group, this was not how the women participating in this study chose to use their time together.

LIWC analysis identified further divergent characteristics. Self reported benefit finding was associated with transcripts that reflected markers of 'positive emotion', 'religion', 'certainty' and 'seeing.' These individuals also used fewer anthropical terms such as man, boy or adult. Without interviewing the subjects, further speculation is limited. One is left to conjecture whether the text might reflect a perspective that had been broadened and possibly enriched by experience. These individuals may have described fewer corporeal concerns in favor of a more expansive world view. What is evident from the data, however, is that individuals with higher scores on benefit finding experiences higher levels of emotional well-being.

Expressed benefit finding was associated with transcripts with fewer indications of tentativeness such as maybe, perhaps, and guess, and auxiliary verbs such as am, will and have. These findings are difficult to interpret, however auxiliary verbs are often used in passive voice, which may corroborate the correlation between expressed benefit finding and decreased tentativeness. Decreased tentativeness would also corroborate observed relationships seen between expressed benefit finding and increased approach coping, positive reframing, acceptance and decreased denial and behavioral disengagement. As one might expect, expressed benefit finding was also characterized by an increase in conversational markers such as agree, ok, and yes. Overall, linguistic markers seem to describe a familiar, conversational dialog between participants that reflect the positive aspects of benefit finding, but also potentially reflect a significant level of challenging cognitive engagement in a social environment. Expressed benefit finding was associated with a decreased use in 1st person singular pronouns such as i, me and mine and an increase in the use of both 1st person plurals and 2nd person pronouns such as we, us, our, you and your. These findings further support the characterization of benefit finding as coping that reflects cognitive complexity and engenders an expansive, allocentric point of view.

Hypotheses regarding the relationship between anxiety, depression and benefit finding were only partially supported, with self-reported benefit finding being positively associated with assessment measures of anxiety, and a negative trend being observed between self-reported benefit finding and LIWC indicators of sadness. While an exploratory aim in the context of this analysis, further exploration is warranted to elucidate the potential relationship between anxiety, mood and benefit finding.

One of the limitations of this study include its small sample size; a study including a large and diverse population would allow for a more comprehensive analyses not only of expressed benefit finding but also variations in benefit finding and coping by variables such as stage and time since diagnosis which have been identified as potential influencing factors with respect to positive growth after cancer (Stanton, Bower & Lo, 2006). However existing research seems to corroborate the findings of this study; Stanton and colleagues found posttraumatic growth also to be associated with approach oriented coping strategies, problem-focused coping and active acceptance. Relationships have also been observed between posttraumatic growth and positive reappraisal (Sears, et al., 2003) and well-being (Carver & Antoni, 2004).

Future studies are needed to expand the applications of text analysis to unique disease populations and coping traits as they may differentially contribute to the use and usefulness of benefit finding behavior. This study suggests a potential difference between the benefits participants may endorse on a structured measure versus the opportunity to discuss benefits in an unstructured, somewhat social environment. The potential interpersonal and behavioral components of benefit finding behavior may present a unique manifestation of coping behavior. As texts analysis programs rapidly evolve, programs such as LIWC become increasingly sophisticated and comprehensive. As such, the opportunity to further describe behaviors such as benefit finding in linguistic samples may provide an avenue for further cognitive and emotional description of coping behaviors.

References

Affleck, G., & Tennen, H. (1996). Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality, 64,* 899-922.

Affleck, G. Tennen, J., Croog, S., & Levine, S. (1987). Causal attribution, perceived benefits, and morbidity after a heart attack: An 8-year study. Journal of Consulting and *Clinical Psychology, 55*, 29-35.

Anagnostopoulos, F., Vaslamatzis, G., & Markidis, M. (2004). Coping strategies of women with breast cancer: A comparison of patients with healthy and benign controls. *Psychotherapy and Psychosomatics 73,* 43-52.

Antoni, M. H., Lehman, J. M., Kilbourn, K. M., Boyers, A. E., Culer, J. L., Alferi, S. M., Et al. (2001). Cognitive-behavioral stress management intervention decreases the prevalence of depression and enhances benefit finding among women under treatment for early stage breast cancer. *Health Psychology, 20*, 20-32.

Arvdt, V., Stegmaier C., Ziegler, H. & Brenner, H. .(2006). A population based study of the impact of specific symptoms on quality of life in women with breast cancer one year after diagnosis. *Cancer*, 107(10), 2496-2503.

Astin, J. A., Anton-Culver, H., Schwartz, C. E., Shapiro Jr, D. H., McQuade, J., Breuer, A. M., Taylor, T. H., Lee, H., & Kurosaki, T. (1999). Sense of control and adjustment to breast cancer: The importance of balancing control coping styles. *Behavioral Medicine 25,* 101-110.

Austenfeld, J. L., & Stanton, A. L. (2004). Coping through emotional approach: A new look at emotion, coping and health-related outcomes. Journal *of Personality 72:6,* 1335-1363.

Bottomely, A. The cancer patient and quality of life. (2002). The Oncologist, 7, 120-125.

Brady, M. J., Cella, D. F., Mo, F., et al.: Reliability and validity of the Functional Assessment of Cancer Therapy-Breast quality-of-life instrument. *Journal of Clinical Oncology.* 1997. *15:* 974-986.

Brooks R: EuroQuol: The current state of play. *Health Policy.* 1996. *37:* 53-72.

Carver, C. S., & Antoni, M. H. (2004). Finding benefit in breast cancer during the year after diagnosis predicts better adjustment 5 to 8 years after diagnosis. *Health Psychology, 23*, 595-598.

Cella, D. *F.A.C.I.T. Manual*. Chicago, IL: Center on Outcomes, Research, and Education, Evanston Northwestern Healthcare and Northwestern University, 1997.

Classen C, Koopman C, Angell K, Spiegel D: Coping styles associated with psychological adjustment to advanced breast cancer. *Health Psychology.* 1996. *15:* 434-437.

Cohen, J. (1968). Multiple regression as a general data -analytic system. Psychological Bulletin, 70, 426-443.

Cordova, M. J., Cunningham, L. L. C., Carlson, C. R., and Michael A. Andrykowski. (2001). Posttraumatic growth following breast cancer: a controlled comparison study. *Health Psychology 20:3,* 176-185.

Cruess, D. G., Antoni, M. H., McGregor, B. A., Kilbourn, K. M., Boyers, A. E., Alferi, S. M., et al. (2000). Cognitive behavioral stress management reduces serum cortisol by enhancing benefit finding among women being treated for early stage breast cancer. *Psychosomatic Medicine, 62,* 304-308.

Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: Two construals of meaning. *Journal of Personality and Social Psychology 75,* 561-574.

Decruyenaere, M., Evers-Kiebooms, G., Welkenhuysen, M., Denayer, L., & Claes, E. (2000). *Psycho-oncology, 9,* 528-536.

Drageset, S. & Lindstrom, T. C. (2003). The mental health of women with suspected breast cancer: the relationship between social support, anxiety, coping and defense in maintaining mental health. *Journal of Psychiatric and Mental Health Nursing 10,* 401-409.

Edgar L, Rosberger Z, Nowlis D: Coping with cancer during the first year after diagnosis. *Cancer.* 1992. *69:* 817-828.

Epping-Jordan, J. E., Compas, B. E., Osowiecki, D. M., Oppendisano, G., Gerhardt, C., Primo, K., & Krag, D. N. (1999). Psychological adjustment in breast cancer: processes of emotional distress. *Health Psychology, 18:4*, 315-326.

Erikson, E. H. (1950). *Childhood arui society* (2nd ed.). New York: Norton.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., Delongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. Journal of Personality and Social Psychology 50:5, 992-1003.

Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology 50:3*, 571-579.

Fromm, E. (1955). *The sane society.* New York: Rinehart.

Fromm, K., Andrykowski, M. A., & Hunt, J. (1996). Positive and negative psychosocial sequelae of bone marrow transplantation: implications for quality of life assessment. *Journal of Behavioral Medicine*, 19, 221-240.

Graves, K. D., Schmidt, J. E., Bollmer, J., Fejfar, M., Langer, S., Blonder, L.X., & Andrykowski, M. A. (2005) Emotional expression and emotional recognition in breast cancer patients: A controlled comparison. *Psychology and Health*, *20*, 579-595.

Holland, K. D., & Holahan, C. K. (2003). The relation of social support and coping in positive adaptation to breast cancer. *Psychology and Health 18*, 15-29.

Jahoda, M. (1958). *Current concepts of positive mental health.* New York: Basic Books.

Janoff-Bulman, R., & Berger, A. (2000). The other side of trauma: Towards a psychology of appreciation. In J. H. Harvey & E. D. Miller (Eds.), *Loss and trauma: General and close relationship perspectives* (pp. 29-44). Philadelphia: Brunner/Mazel.

Janoff-Bulma, R., & Frantz, C.C. (1997). The impact of trauma on meaning: From meaningless world to meaningful life. In M. Power & C.R. Brewin (Eds). *The transformation of meaning in psychological therapies* (pp. 91-106). New York: Wiley

Kershaw, T., Northouse, L., Kritpracha, C., Schafenacker, A., & Mood, D. (2004). Coping Strategies and quality of life in women with advanced breast cancer and their family caregivers. *Psychology and Health 19:2,* 139-155.

Landis, J. R. and Koch, G. G. (1977) The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174.

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal and coping. New York: Springer.

Lechner, S. C., Zakowski, S. G., Antoni, M. H., Greenhawt, M., Block, K., & Block, P. (2003). Do sociodemographic and disease related variables influence b enefit finding in cancer patients*?* *Psycho-oncology, 12*, 419-499.

Llach X. B., Herdman. M, Schiaffino A, Dipstat A. Determining correspondence between scores on the EQ-5D “Thermometer” and a 5-point categorical rating scale. *Medical Care.* 1999. 37: 671-677.

Longman, A. J., Braden, C. J. & Mishel, M. H. (1999). Side-effects of burden, psychological adjustment, and life quality in women with breast cancer: pattern of association over time. Oncol. Nurs. Forum, 26(5), 909-915.

Manne, S., Ostroff, J., Winkel, G., Goldstein, L., Fox, K., & Grana, G. (2004). Posttraumatic growth after breast cancer: Patient, partner, and couple perspectives. *Psychosomatic Medicine, 66*, 442-454.

Maslow, A. H. (1950). Self-actualizing people: A study of psychological health. *Personality: Symposium No. 1*,11-34.

McFarland, C., &Alvaro, C. (2000). The impact of motivation on temporal comparisons: Coping with traumatic events by perceiving personal growth. *Journal of Personality and Social Psychology, 79*, 327-343.

McKenna, M. C., Zevon, M. A., Corn, B., & Rounds, J. (1999). Psychosocial Factors and the development of breast cancer: a meta analysis. Health Psychology 18, 520-531.

McMillen, J. C., Smith, E. M., & Fisher, F. H. (1997). Perceived benefit and mental health after three types of disaster. *Journal of Consulting and Clinical Psychology, 65*, 733-739.

Mohr, D. C., Dick, L.P., Russo, D., Pinn, J., Boudewyn, A.C., Likosky, W., Goodkin, D.E. (1999). The Psychosocial Impact of Multiple Sclerosis: Exploring the Patient's Perspective. *Health Psychology*, 18, 376-382.

Moorey, S., Greer, S., Watson, M., Gorman, C., Rowden, L., Tunmore, R., Robertson, B., Bliss, J. (1991) The factor structure and factor stability of the hospital anxiety and depression scale in patients with cancer. *British Journal of Psychiatry, 158*, 255-259.

Muldoon, M. F., Barger, S. D., Flory, J. D., & Manuck, S. B. (1998). What are quality of life measurements measuring? *BMJ 316*, 542-545.

Owen, J. E., Klapow, J. C., Roth, David L., Nabell, L., & Tucker, D. C. (2004). Improving the effectiveness of adjuvant psychological treatment for women with breast cancer: The feasibility of providing online support. *Psycho-Oncology, 13*, 281-292.

Owen, J. E., Klapow, J. C., Roth, D. L., & Tucker, D. C. (2004). Use of the internet for information and support: Disclosure among persons with breast and prostate cancer. *Journal of Behavioral Medicine, 27,* 491-505.

Owen, J. E., Klapow, J. C., Roth, D. L., Shuster Jr., J. L., Bellis, J., Meredith, R., & Tucker, D. C. (2005). Randomized pilot of a self guided internet coping group for women with early-stage breast cancer. Annals of Behavioral Medicine, 30, 54-64.

Pakenham, K. I. (2005). Relations Between Coping and Positive and Negative Outcomes in Carers of Persons with Multiple Sclerosis (MS). *Journal of Clinical Psychology in Medical Settings*, 12, 25-38.

Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*, 71-105.

Portenoy R. K., Thaler, H. T., Kornblith, A. B., et al.: The Memorial Symptom Assessment Scale: An instrument for the evaluation of symptom prevalence, characteristics, and distress. *European Journal of Cancer.* 1994. *30A:* 1326-1336.

Schulz, U., & Mohamed, N. E. (2004). Turning the Tide: Benefit finding after cancer surgery. *Social Science and Medicine, 59*, 653-662.

Sears, S. R., Stanton, A.L., & Danoff-Burg, S. (2003). The Yellow brick road and the Emerald City: Benefit finding, positive reappraisal coping, and posttraumatic growth in women with early –stage breast cancer. *Health Psychology, 22*, 487-497.

Sweet, L., Savoie, J., & Lemyre, L. (1999). Appraisals, coping, and stress in breast cancer screening: a longitudinal investigation of causal structure. *Canadian Journal of Behavioural Science 31:4,* 240-253.

Taylor, S.E. & Armor, D.A. (1996). Positive illusions and coping with adversity. *Journal of Personality* 64:4, 873-899.

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9,* 455-471.

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*, 1-18.

Tennen, H. (1997). Social comparison as a coping process: A critical review and application to chronic pain disorders. In: Buunk, Bram P. & Gibbons, Frederick X. (Ed.), *Health, coping, and well-being: Perspectives from social comparison theory* (263-298). Lawrence Erlbaum Associates Publishers.

Tomich, Pl L., & Helgeson, V.S. (2004). Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychology*, *23,* 16-23.

Appendix A

Scoring Criteria

Benefit Finding:

1) The experience of significant positive change (personal, interpersonal, or global) that may arise from the struggle with a major life crisis.

2) A pursuit for the "silver lining" to adversity, "finding meaning by considering positive implications or benefits of the event for one's life, thus minimizing or mitigating the negative implications."

Categories:

1) **Interpersonal relationships**: Patients see an improvement in the way they appreciate and interact with friends and family. May also include new relationship that resulted from dealing with cancer.

2) **Personal Growth**: Positive personal changes in attitude or skills that one did not have prior to having cancer. Analysis and possible change in priorities.

3) **Spiritual change:** A positive change in the way one perceives their spiritual experience, which may include increased insight, church attendance, spiritual study, etc.

4) **Acceptance and Appreciation for Life:** A greater understanding and appreciation for their limits as well as their abilities; the understanding that their experience may ever be optimal, but it is still positive. No longer looking back, but looking forward. An increased focus on the gift of life and the experiences of the moment. One may be less likely to take their life for granted, perhaps taking time to enjoy a sunset or choosing to behave in ways that do not waste the time they have.

6. **Concern for others/Altruism/Global Concerns**: An increased awareness that what they are currently experiencing may somehow benefit someone else, either directly or indirectly, perhaps through changes in medical knowledge, changes in health care policy, volunteerism, etc.

7. **Improved Health Habits**: The improved awareness and vigilance around health issues for survivors and their loved ones. May include better personal habits as well as improved behaviors for those around them.

8. **Other**. May include tertiary benefits such as the convenience of not having hair as a result of chemotherapy. Also may include items of unusual reasoning. Ex: "If somebody had to get it, I'm glad it was me"