Published in final edited form as:

J Psychosoc Oncol. 2014 ; 32(6): 696–707. doi:10.1080/07347332.2014.955241.

Posttraumatic Growth and Hope in Parents of Children with Cancer

Stephanie E. Hullmann, Ph.D.¹, David A. Fedele, Ph.D.², Elizabeth S. Molzon, M.S.³, Sunnye Mayes, Ph.D.⁴, and Larry L. Mullins, Ph.D.³

¹Indiana University

²University of Florida

³Oklahoma State University

⁴University of Oklahoma Health Sciences Center

Abstract

Background—Posttraumatic growth (PTG), a positive change in values and major life goals experienced as a result of the struggle with a highly challenging life circumstance, has been shown to be related to the construct of hope, the belief that goals can be met. To date, no studies have examined the relationship between PTG and hope in parents of children with cancer.

Procedure—Participants were parents (N=85) of children and adolescents (ages 2–18 years, $M = 7.72$ years) receiving treatment for cancer. Parents completed a demographic questionnaire, the Posttraumatic Growth Inventory (PTGI), and Hope Scale (HS).

Results—Hope was found to be related to PTG in parents of children with cancer, with higher levels of hope associated with greater PTG. Exploratory analyses on the subscales of the PTGI revealed that hope was also related to higher scores on the Relating to Others, New Possibilities, Personal Strength, and Appreciation of Life subscales. Spiritual Change was not related to hope in parents.

Conclusions—Findings suggest that experiencing hope during the pediatric cancer experience may facilitate posttraumatic growth in parents. The construct of hope may be an important target of intervention for promoting positive adjustment in this population.

Keywords

hope; posttraumatic growth; parents; pediatric cancer

Positive psychology has emerged as a subfield of the discipline that seeks to understand positive emotions, traits, and institutions that contribute to an individual or group's ability to thrive despite adversity (Seligman & Csikszentmihalyi, 2000). The National Institutes of Health (NIH) has identified "positive health" as a research priority (NIH, 2001) due to a lack of understanding of the mechanisms that underlie these positive outcomes. In this vein,

psycho-oncology researchers have acknowledged that the majority of children with cancer evidence positive adjustment outcomes, with a subset demonstrating better psychosocial adjustment than healthy peers (Barakat et al., 1997; Eiser, Hill, & Vance, 2000; Phipps, Larson, Long, & Rai, 2006). Positive psychology constructs, such as health-related quality of life, hope, optimism, adaptive coping, and posttraumatic growth, are increasingly studied among these children and their families (e.g., Barakat, Pulgaron, & Daniel, 2009).

Posttraumatic growth (PTG) is positive psychological change or changes in major life goals experienced as a result of the struggle with a highly challenging life circumstance (Davis & Nolen-Hoeksema, 2009; Tedeschi & Calhoun, 2004). Research suggests that 40–90% of people experience growth after an illness or adverse life event (Lechner, Tennen, & Affleck, 2009). PTG has been linked to a number of positive adjustment outcomes, including lower distress and anxiety and greater self-esteem, life satisfaction, and optimism (Davis & Nolen-Hoeksema, 2009; Stanton, Bower, & Low, 2006). Additionally, PTG may serve to buffer against the negative effects of posttraumatic stress on quality of life (Morrill et al., 2008). Positive change through PTG is believed to occur through a process of defining meaning, developing new goals, and beginning to work toward those goals as a result of a life event (Davis & Nolen-Hoeksema, 2009). Parenting a child with cancer is a tremendous challenge that places strain on caregivers and may cause them to adjust their goals for themselves, their children, and their families.

To date, relatively few studies have examined PTG among parents of children with cancer. In one of the first studies of this concept, Kazak and colleagues (1996) utilized a card-sorting task in which participants indicated whether or not they experienced changes in nine areas (e.g., how I treat other people) as a result of the cancer experience, and if so, whether the change was positive or negative. Their results suggested survivors of pediatric cancer and their mothers experienced more positive than negative changes as a result of the cancer experience. In a replication study, Barakat and colleagues (2006) found that an overwhelming proportion of adolescent survivors of pediatric cancer and their parents reported at least one positive outcome from the cancer experience, and nearly one-third of survivors reported four or more positive outcomes (e.g., how I think about my life). Despite the potential psychosocial benefits of experiencing PTG, there is little research examining potential predictors of PTG in parents of children with cancer (Barakat et al., 2006).

Dispositional hope, a positive psychology construct related to goal attainment, may be related to the development of PTG (Snyder et al., 1991). Snyder's Hope Theory (1994) conceptualizes hope as consisting of two parts: 1) agency (one's perception that he or she can progress and/or persevere toward goals) and 2) pathways (the perceived ability to find methods of reaching goals). These two constructs operate together to determine goal-directed thinking and, ultimately, dispositional hope. Dispositional hope is believed to influence people's reactions to life events (e.g., diagnosis of chronic illness) with potential to prompt either engagement or disengagement with identified goals. For example, the adversity of caring for a child with a chronic illness may prompt an individual who is high in hope to either continue to strive to reach their goals in the face of adversity or determine that establishing alternative goals would be the best course of action. Both scenarios are associated with positive psychological adjustment (Gum & Snyder, 2002). Alternatively, an

individual who is low in hope may simply give up trying to attain their goals, which could lead to maladaptive psychological adjustment (Rand & Cheavens, 2009). The process of goal-reappraisal and the influence of hope-related thought have the potential to increase hope in individuals who are experiencing adverse life events.

The majority of research on dispositional hope in the context of chronic illness has demonstrated a positive relationship in which higher levels of hope are related to more adaptive psychological adjustment (Affleck & Tennen, 1996; Ho et al., 2011). The relationship between hope and adaptive psychological adjustment has also been demonstrated longitudinally in studies of adults with lower limb amputations (Unwin, Kacperek, & Clarke, 2009), adults undergoing genetic testing for hereditary colorectal cancer (Ho, Ho, Bonanno, Chu, & Chan, 2010), in parents caring for children with disabilities and chronic illnesses (Truitt, Biesecker, Capone, Bailey, & Erby, 2012), in parents of children with type 1 diabetes (Mednick et al., 2007), and in mothers and fathers of children with intellectual disabilities (Lloyd & Hastings, 2009).

To date, few studies have examined the relationship between dispositional hope and PTG, and to our knowledge, none have examined the relationship between these constructs among parents of children with cancer. Thus, the current study sought to examine the relationship between dispositional hope and PTG among parents of children and adolescents receiving treatment for pediatric cancer. Given the evidence that dispositional hope predicts positive adjustment outcomes in the context of chronic illness, dispositional hope was hypothesized to be positively related to PTG in this population.

Method

Participants

Participants were parents ($N = 85$, 82.4% female) of children and adolescents (55.3% female) receiving treatment for cancer at a large Midwestern medical center. Families were included in the current study if they met the following criteria: the child or adolescent is: 1) between the ages of two and 18 years old; 2) receiving treatment for pediatric cancer at the time of participation in the study; 3) at least six months post-diagnosis at the time of participation; 4) the parent participant self-identifies as the child's primary caregiver; and 5) the parent speaks English as his/her primary language. Exclusion criteria were: 1) the child or adolescent with cancer is experiencing an imminent medical crisis necessitating significant medical intervention; 2) the child or adolescent with cancer is determined to be in the terminal phase and/or is receiving palliative care; 3) the parent is currently being treated for a serious psychiatric disorder or evidences mental retardation; and 4) the child or adolescent with cancer evidences mental retardation or a significant developmental delay. Please see Table 1 for a description of the sample.

Of the 112 parents who were eligible to participate, 101 consented to participate and 84.1% ($n = 85$) completed the study. The remaining 15 parents did not complete the relevant measures. Reasons for non-participation and non-completion were not assessed.

Measures

Demographic Questionnaire—This self-report questionnaire was developed by the authors to obtain information including the child's age, gender, and diagnosis, as well as the parent's age, marital status, education, and annual family income.

Posttraumatic Growth Inventory—The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to assess positive outcomes perceived by parents of children with cancer. The PTGI is a 21-item, self-report measure of the degree to which positive changes have occurred in the respondent's life as a result of a traumatic event. Respondents are asked to rate the degree of positive changes on a six-point scale ranging from *I did not experience this change as a result of my crisis* to *I experienced this change to a very great degree as a result of my crisis*. The PTGI yields a total score and five subscale scores: 1) Relating to Others, 2) New Possibilities, 3) Personal Strength, 4) Spiritual Change, and 5) Appreciation of Life. Example items include: *"I have a greater sense of closeness with others"* (Relating to Others), *"I established a new path for my life"* (New Possibilities), *"I have a greater feeling of self-reliance"* (Personal Strength), *"I have a stronger religious faith"* (Spiritual Change), and *"I changed my priorities about what is important in life"* (Appreciation of Life). The internal consistency for the PTGI was found to be high ($\alpha = .90$), and the test-retest reliability over two months was found to be acceptable ($\alpha = .71$; Tedeschi & Calhoun, 1996). The PTGI subscales have demonstrated moderate to high internal consistency (.67 to .85) and low to moderate test-retest reliability (.37 to .74), with low test-retest reliabilities on the Personal Strength ($r = .37$) and Appreciation of Life ($r = .47$) subscales (Tedeschi & Calhoun, 1996). The construct validity of the PTGI has also been established for all subscales except Spiritual Change, as the inventory is able to detect differences between individuals who have and have not experienced a traumatic event (Tedeschi & Calhoun, 1996). For the purposes of the current study, the PTGI was adapted from its original version to be appropriate for parents of children with cancer by asking parents to focus on their experience parenting a child with cancer and by changing the phrase "my crisis" to "my child's cancer diagnosis." Cronbach's alpha for the current sample was .92.

Hope Scale—The Hope Scale (Snyder et al., 1991) was used to assess parental dispositional hope. The 12-item, self-report questionnaire asks respondents to rate how true each statement is of themselves on an eight-point Likert scale from 1 (*definitely false*) to 8 (*definitely true*). The Hope Scale yields a Pathways subscale (i.e., perceived ability to meet goals) and an Agency subscale (i.e., perception of movement toward goals) in addition to a Total score. Example items: *"I can think of many ways to get out of a jam"* (Pathways) and *"I energetically pursue my goals"* (Agency). The Total score was used for all analyses in the current study because the components of hope are believed to be iterative and additive (Snyder et al., 1991). The Hope Scale has demonstrated excellent internal consistency, test-retest reliability, and construct validity in previous research (Snyder et al., 1991; Babyak, Snyder, & Yoshinobu, 1993). Cronbach's alpha for the current sample was .86 for the Total score.

Procedures

Potential participants were recruited by a qualified graduate research assistant as they presented for clinic visits in the pediatric oncology center. All research activities conformed to standards of the hospital Institutional Review Board (IRB), HIPAA research guidelines, and APA ethical standards. Participants completed the questionnaires during their clinic visits and were compensated with a check for \$10.00 upon completion of the study measures.

Overview of Analyses

Preliminary analyses were conducted to determine if any of the demographic or illness parameters (i.e., child age, child gender, parent gender, parent ethnicity, annual family income, illness duration) were related to posttraumatic growth. Hierarchical linear regressions were conducted to examine the relationship between dispositional hope and posttraumatic growth. Following Thompson and Gustafson's (1996) transactional stress and coping model, theoretically-driven covariates (i.e., child age, child gender, parent gender, annual family income, illness duration) were entered on Step 1 of the regressions, and the Total score of the Hope Scale was entered onto Step 2 as a predictor of posttraumatic growth. Finally, exploratory analyses controlling for the same theoretically-driven variables were conducted to examine the relationship between dispositional hope and each of the subscales of posttraumatic growth.

Results

Preliminary Analyses

The descriptive statistics for the variables of interest are presented in Table 2. PTG was not found to be significantly related to any of the demographic or illness parameters ($p > .05$).

Primary Analyses

After controlling for child age, child gender, parent gender, annual family income and illness duration, hope was found to be a significant predictor of PTG in parents ($\beta = .370$, $t(79) = 3.045$, $p = .003$), with higher levels of hope associated with greater posttraumatic growth. There was a trend for the overall model to be statistically significant ($F(6, 79) = 2.154$, $p = .057$), and the model predicted 15.0% of the variability in PTG.

Exploratory Analyses

For the Relating to Others subscale of the PTGI, hope ($\beta = .379$, $t(79) = 3.158$, $p = .002$) was significantly related to growth, with higher levels of hope associated with greater growth in relating to others. The overall model was statistically significant ($F(6, 79) = 2.526$, $p = .028$) and predicted 17.2% of the variability in growth in relating to others. For the New Possibilities subscale of the PTGI, hope ($\beta = .331$, $t(79) = 2.733$, $p = .008$) was also significantly related to growth, with higher levels of hope associated with greater perceptions of new possibilities. The overall model was statistically significant ($F(6, 79) = 2.246$, $p = .048$) and predicted 15.6% of the variability in growth in new possibilities. For Personal Strength, hope ($\beta = .274$, $t(79) = 2.216$, $p = .030$) was significantly related to

growth; however, the overall model was nonsignificant ($p > .05$). No significant predictors emerged for growth in spiritual change, and the overall model for Spiritual Change was also nonsignificant ($p > .05$). With regard to Appreciation of Life, hope ($\beta = .346$, $t(79) = 2.880$, $p = .005$) was significantly related to growth, with higher levels of hope associated with greater growth in appreciation of life. The overall model was statistically significant ($F(6, 79) = 2.506$, $p = .029$) and predicted 17.1% of the variability in growth in appreciation of life.

Discussion

The current study sought to examine the relationship between dispositional hope and PTG in parents of children with cancer. Consistent with hypotheses, parents with higher levels of hope reported greater growth after controlling for a number of theoretically-driven demographic and medical covariates. Although speculative, there are several mechanisms by which this relationship may exist. One possible mechanism is that hope is believed to be a component of meaning making (Feldman & Snyder, 2005). Therefore, those who are higher in hope may be better able to find meaning in life and grow through the cancer experience. Another possible mechanism is through how individuals appraise and cope with the challenging life circumstance. Those with higher hope may be more likely to find benefits in stressors than those who are lower in hope (Affleck & Tennen, 1996).

Exploratory analyses revealed that most of the subscales of the PTGI (i.e., Relating to Others, New Possibilities, Personal Strength, and Appreciation of Life) were also positively related to hope after controlling for the same demographic and illness covariates. Only the Spiritual Change subscale was not significantly related to hope in parents of children with cancer. With regard to relating to others, high levels of hope have been found to be related to greater perceived social support and less loneliness (Barnum, Snyder, Rapoff, Mani, & Thompson, 1998). It may be that individuals who are high in hope are more likely to reach out and utilize their social support networks to cope with challenging life circumstances, such as a child's pediatric cancer diagnosis. In this regard, they then experience greater growth in their relationships with others. Hope related-thought is positively related to cognitive flexibility (Snyder, Rand, & Sigmon, 2002). Hope may be related to new possibilities in that those parents who are higher in hope have more cognitive flexibility to adjust their goals according to their new life circumstances. With regard to personal strength, those who are higher in hope may experience more self-worth than those who are lower in hope (Snyder et al., 1997). They are also more likely than individuals with lower levels of hope to have identified strategies for meeting their goals (pathways) and using those strategies (agency), which may enhance self-efficacy and perceptions of strength. It may be those parents who are higher in hope experience greater appreciation of life as a result of their child's cancer because they are better able to find benefits in the cancer experience than those who are lower in hope (Affleck & Tennen, 1996).

It is unclear why spiritual change was unrelated to hope in this sample. It may be that spirituality and hope are two constructs that work in parallel to facilitate coping and adjustment. Religious coping is highly beneficial in low-control situations (e.g., coping with the life-threatening nature of the child's illness), whereas hope-thought and problem-focused

coping may be more beneficial in high-control situations (e.g., giving the child medicine to alleviate treatment side effects; Schottenbauer, Dougan, Rodriguez, Glass, & Arnkoff, 2006). Therefore, spiritual growth in the context of parenting a child with cancer may be independent of dispositional hope. A ceiling effect may also affect these results, such that parents may have already been highly religious prior to their child's diagnosis, and there was little room for positive growth in this area. Unfortunately, religiosity prior to diagnosis was not measured in this study. Future studies should continue to examine the impact of baseline religiosity and religious coping on spiritual growth in this population.

Several limitations to the current study should be acknowledged. First, the study is cross-sectional, and therefore, causal conclusions about the direction of the relationship between hope and PTG cannot be drawn. Future studies should conduct longitudinal examinations of this relationship to determine if dispositional hope at diagnosis is related to PTG during and after treatment. Second, parent self-report measures were used in the current study, and thus, the results may reflect shared method variance. In the future, studies may include report from observers (e.g., patients, spouses) to control for this limitation. Third, the current sample included a wide age range of children and adolescents, with heterogeneous cancer types and varying illness durations; however, we attempted to control for this statistically in the analyses. In future studies, it may be important to examine this relationship in a subset of the pediatric cancer population (e.g., parents of adolescents with leukemia) in order to control for this variability. Finally, there are other factors which we did not examine that may be related to PTG in parents of children with cancer, such as the child's prognosis and family functioning. Future studies would benefit from examining the impact of these factors on parents' PTG as well.

Clinical Implications

These results have potential clinical implications for the adjustment of parents of children with cancer. It may be that those parents with high dispositional hope associated with their child's diagnosis are at lower risk of experiencing maladjustment to their child's illness. Therefore, it may be beneficial to assess for dispositional hope in parents of children with cancer to identify those at greater risk. Capitalization- and strengths-based therapeutic approaches may also be beneficial (Cheavens, Strunk, Lazarus, & Goldstein, 2012; Sheridan & Burt, 2009), and clinicians can build upon this strength in parents using specific strategies to enhance hope (e.g., Gum & Snyder, 2002) and facilitate growth during this challenging life event. For those parents who do have lower dispositional hope, they may benefit from cognitive-behavioral interventions to enhance hope (e.g., Cheavens, Feldman, Gum, Michael, & Snyder, 2006; Lopez, Floyd, Ulven, & Snyder, 2000).

Acknowledgments

A portion of Dr. Hullmann's contribution to this work was supported by the National Cancer Institute of the National Institutes of Health under Award Number R25CA117865.

References

- Affleck G, Tennen H. Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality*. 1996; 64:899–922. [PubMed: 8956517]

- Babyak MA, Snyder CR, Yoshinobu L. Psychometric properties of the Hope Scale: A confirmatory factor analysis. *Journal of Research in Personality*. 1993; 27:15–30.
- Barakat LP, Kazak AE, Meadows AT, Casey R, Meeske K, Stuber ML. Families surviving childhood cancer: A comparison of posttraumatic stress symptoms with families of health children. *Journal of Pediatric Psychology*. 1997; 22:843–859. [PubMed: 9494321]
- Barakat L, Alderfer M, Kazak A. Posttraumatic growth in adolescent survivors of cancer and their families. *Journal of Pediatric Psychology*. 2006; 31:413–419. [PubMed: 16093518]
- Barakat, LP.; Pulgaron, ER.; Daniel, LC. Positive psychology in pediatric psychology. In: Roberts, MC.; Steele, RG., editors. *Handbook of Pediatric Psychology*, Fourth Edition. New York: Guilford Press; 2009. p. 205-215.
- Barnum DD, Snyder CR, Rapoff MA, Mani MM, Thompson R. Hope and social support in the psychological adjustment of pediatric burn survivors and matched controls. *Children's Health Care*. 1998; 27:15–30.
- Cheavens JS, Feldman D, Gum A, Michael ST, Snyder CR. Hope therapy in a community sample: A pilot investigation. *Social Indicators Research*. 2006; 77:61–78.
- Cheavens JS, Strunk DR, Lazarus SA, Goldstein LA. The compensation and capitalization models: A test of two approaches to individualizing the treatment of depression. *Behaviour Research and Therapy*. 2012; 50:699–706. [PubMed: 22982085]
- Davis, CG.; Nolen-Hoeksema, S. Making sense of loss, perceiving benefits, and posttraumatic growth. In: Lopez, SJ.; Snyder, CR., editors. *Oxford Handbook of Positive Psychology*. New York: Oxford University Press; 2009. p. 641-649.
- Eiser C, Hill JJ, Vance YH. Examining the psychological consequences of surviving childhood cancer: Systematic review as a research method in pediatric psychology. *Journal of Pediatric Psychology*. 2000; 25:449–460. [PubMed: 10980049]
- Feldman DB, Snyder CR. Hope and the meaningful life: Theoretical and empirical associations between goal-directed thinking and life meaning. *Journal of Social and Clinical Psychology*. 2005; 24:401–421.
- Gum A, Snyder CR. Coping with terminal illness: The role of hopeful thinking. *Journal of Palliative Medicine*. 2002; 5:883–894. [PubMed: 12685535]
- Ho SMY, Ho JWC, Bonanno GA, Chu ATW, Chan EMS. Hopefulness predicts resilience after hereditary colorectal cancer genetic testing: A prospective outcome trajectories study. *BMC Cancer*. 2010; 10:279. [PubMed: 20537192]
- Ho S, Rajandram RK, Chan N, Samman N, McGrath C, Zwahlen RA. The roles of hope and optimism on posttraumatic growth in oral cavity cancer patients. *Oral Oncology*. 2011; 47:121–124. [PubMed: 21183398]
- Kazak AE, Stuber ML, Barakat LP, Meeske K. Assessing posttraumatic stress related to medical illness and treatment: The Impact of Traumatic Stressors Interview Schedule (ITSIS). *Families, Systems and Health*. 1996; 14:365–380.
- Lechner, S.; Tennen, H.; Affleck, G. Benefit finding and growth. In: Lopez, SJ.; Snyder, CR., editors. *Oxford Handbook of Positive Psychology*. New York: Oxford University Press; 2009. p. 633-640.
- Lloyd TJ, Hastings R. Hope as a psychological resilience factor in mothers of children with intellectual disabilities. *Journal of Intellectual Disability Research*. 2009; 53:957–968. [PubMed: 19744261]
- Lopez, JS.; Floyd, RK.; Ulven, JC.; Snyder, CR. Hope therapy: Helping clients build the house of hope. In: Snyder, CR., editor. *The Handbook of Hope*. San Diego, CA: Academic Press; 2000. p. 123-150.
- Mednick L, Cogen F, Henderson C, Rohrbeck CA, Kitessa D, Streisand R. Hope more, worry less: Hope as a potential resilience factor in mothers of very young children with type 1 diabetes. *Children's Health Care*. 2007; 36:385–396.
- Morrill EF, Brewer NT, O'Neill SC, Lillie SE, Dees EC, Carey LA, Rimer BK. The interaction of post-traumatic growth and post-traumatic stress symptoms in predicting depressive symptoms and quality of life. *Psycho-Oncology*. 2008; 17:948–953. [PubMed: 18213677]
- Phipps S, Larson S, Long A, Rai SN. Adaptive style and symptoms of posttraumatic stress in children with cancer and their parents. *Journal of Pediatric Psychology*. 2006; 31:298–309. [PubMed: 15917493]

- Rand, KL.; Cheavens, JS. Hope theory. In: Lopez, SJ.; Snyder, CR., editors. Oxford Handbook of Positive Psychology. New York: Oxford University Press; 2009. p. 323-333.
- Schottenbauer MA, Dougan BK, Rodriguez BF, Glass CR, Arnkoff DB. Attachment and affective resolution following a stressful event: General and religious coping as possible mediators. *Mental Health Religion & Culture*. 2006; 9:448-471.
- Seligman MEP, Csikszentmihalyi M. Positive psychology: An introduction. *American Psychologist*. 2000; 56:216-217.
- Sheridan, SM.; Burt, JD. Family-centered positive psychology. In: Lopez, SJ.; Snyder, CR., editors. Oxford Handbook of Positive Psychology. New York: Oxford University Press; 2009. p. 551-559.
- Singer, B.; Ryff, CD., editors. New horizons in health: An integrative approach. Washington, DC: National Academy Press; 2001.
- Snyder, CR. The psychology of hope: You can get there from here. New York: Free Press; 1994.
- Snyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, Harney P. The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*. 1991; 60:570-585. [PubMed: 2037968]
- Snyder CR, Hoza B, Pelham WE, Rapoff M, Ware L, Danovsky M, Stahl KJ. The development and validation of the Children's Hope Scale. *Journal of Pediatric Psychology*. 1997; 22:399-421. [PubMed: 9212556]
- Snyder, CR.; Rand, KL.; Sigmon, DR. Hope theory: A member of the positive psychology family. In: Snyder, CR.; Lopez, SJ., editors. Handbook of Positive Psychology. New York: Oxford University Press; 2002. p. 231-243.
- Stanton, AL.; Bower, JE.; Low, CA. Posttraumatic growth after cancer. In: Calhoun, LG.; Tedeschi, RG., editors. Handbook of Posttraumatic Growth: Research and Practice. Mahwah, NJ: Lawrence Erlbaum; 2006. p. 138-175.
- Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*. 1996; 9:455-471. [PubMed: 8827649]
- Tedeschi, RG.; Calhoun, LG. Posttraumatic Growth: Conceptual Foundation and Empirical Evidence. Philadelphia, PA: Lawrence Erlbaum Associates; 2004.
- Thompson, RJ.; Gustafson, KE. Adaptation to chronic childhood illness. Washington, DC: American Psychological Association; 1996.
- Truitt M, Biesecker B, Capone G, Bailey T, Erby L. The role of hope in adaptation to uncertainty: The experience of caregivers of children with Down syndrome. *Patient Education and Counseling*. 2012; 87:233-238. [PubMed: 21937189]
- Unwin J, Kacperek L, Clarke C. A prospective study of positive adjustment to lower limb amputation. *Clinical Rehabilitation*. 2009; 23:1044-1050. [PubMed: 19717504]

Table I**Demographic Characteristics**

	<i>N (%)</i>	<i>M (SD)</i>	Range
Child Age (in years)		7.72 (4.67)	2 – 18
Child Gender (female)	47 (55.3%)		
Illness Duration (in months)		12.34 (6.67)	6 – 41.67
Cancer Type			
Leukemia/Lymphoma	44 (55.7%)		
Solid Tumor	24 (30.4%)		
Brain Tumor	11 (13.9%)		
Parent Age (in years)		34.26 (7.86)	20 – 61
Parent Gender (female)	70 (82.4%)		
Relationship to the Child			
Mother	70 (82.4%)		
Father	15 (17.6%)		
Race/Ethnicity			
Caucasian American	52 (61.2%)		
African American	8 (9.4%)		
Hispanic/Latino	8 (9.4%)		
Asian/Pacific Islander	3 (3.5%)		
Native American	10 (11.8%)		
Multiracial	2 (2.4%)		
Other	2 (2.4%)		
Annual Family Income			
Up to \$19,999	23 (27.0%)		
\$20,000–39,999	14 (16.4%)		
\$40,000–59,999	17 (20.0%)		
\$60,000–79,999	9 (10.6%)		
\$80,000–99,999	8 (9.4%)		
More than \$100,000	9 (10.6%)		
Not reported	5 (5.9%)		
Parent Marital Status (Married)	56 (65.9%)		
Parent's Highest Level of Education			
Did not complete high school	4 (4.8%)		
High school graduate/GED	16 (19.0%)		
Partial college/ Technical school	38 (45.2%)		
College graduate	23 (27.4%)		
Graduate/professional degree	3 (3.6%)		

Table II

Descriptive Statistics for Study Variables

	Possible Range	Observed Range	<i>M (SD)</i>
Hope Total Score	8 – 64	27 – 64	47.38 (9.02)
Agency	4 – 32	9 – 32	23.18 (5.36)
Pathways	4 – 32	5 – 32	24.22 (4.92)
Posttraumatic Growth Total Score	0 – 105	14 – 98	66.09 (19.08)
Relating to Others	0 – 35	3 – 34	22.18 (7.45)
New Possibilities	0 – 25	0 – 24	12.38 (5.59)
Personal Strength	0 – 20	4 – 20	13.27 (4.28)
Spiritual Change	0 – 10	0 – 10	6.675 (2.96)
Appreciation of Life	0 – 15	3 – 15	11.51 (2.97)