

A Meta-Analytic Review of Benefit Finding and Growth

Vicki S. Helgeson, Kerry A. Reynolds, and Patricia L. Tomich
Carnegie Mellon University

The authors conducted a meta-analysis to examine the relations of benefit finding to psychological and physical health as well as to a specific set of demographic, stressor, personality, and coping correlates. Results from 87 cross-sectional studies reported in 77 articles showed that benefit finding was related to less depression and more positive well-being but also more intrusive and avoidant thoughts about the stressor. Benefit finding was unrelated to anxiety, global distress, quality of life, and subjective reports of physical health. Moderator analyses showed that relations of benefit finding to outcomes were affected by the amount of time that had passed since stressor onset, the benefit finding measured used, and the racial composition of the sample.

Keywords: benefit finding, posttraumatic growth, meta-analysis, health

Over the past decade, researchers have moved away from an exclusive focus on the negative aftermath following traumatic events. There is now a large and growing literature that documents that people with cancer, parents of children with severe health problems, people who have suffered a heart attack, and people who have served in war, to name a few, identify positive ways in which their lives have changed as a result of the traumatic event. The names that have been assigned to these positive changes vary tremendously but are most frequently referred to as “posttraumatic growth,” “stress-related growth,” or “benefit finding.”

An intriguing question that has emerged in the literature is whether these types of growth are related to better psychological and physical health or worse psychological and physical health or whether they are unrelated to health outcomes. To the extent that people make major life changes as a result of traumatic events that are for the good (e.g., quit a mundane job and devote their lives to something more meaningful), one would expect growth to be related to positive health outcomes. By contrast, the experience of making life changes in and of itself is disruptive, which might lead growth experiences to be related to negative outcomes—especially if the life changes are still ongoing. Finally, it also has been suggested that benefit finding or growth reports are really coping strategies used to manage distress. To the extent that they are successful, benefit finding would be related to positive mental health; to the extent they are unsuccessful or ongoing, benefit finding would be related to poor mental health. Positive, negative,

and null relations of benefit finding to well-being have been documented (see Linley & Joseph, 2004; Stanton, Bower, & Low, 2006, for reviews).

Until recently, there had not been enough studies in the area to conduct any kind of statistical review. However, the benefit finding and growth literature has burgeoned over the last few years. Over half of the published articles on benefit finding examined in this article were published in the last 5 years! To the extent a consistent relation of benefit finding to health outcomes can be detected, one may gain a better understanding of the meaning of this construct. Thus, the primary goal of this article is to conduct a meta-analytic review of the relation of benefit finding and growth to psychological and physical health.

We have three aims in conducting this meta-analytic review. First, we examine the relation of benefit finding or growth to a broad range of indexes of well-being. We defined *benefit finding* as the positive effects that result from a traumatic event. Because so few studies are longitudinal, we focus on cross-sectional reports. Thus, we recognize from the start that we will not be able to make any causal claims in regard to interpreting the relations between benefit finding and health. A negative correlation may mean that benefit finding reduces distress, that distress inhibits benefit finding, or that some third variable is responsible for the relation.

Second, we examine five moderators of the relation of benefit finding to health. It is possible that the contradictory findings from previous research are due to the fact that benefit finding is associated with health outcomes under some circumstances but not others. The moderator variables that we investigate in this meta-analysis are aimed to address this question. What are the circumstances under which benefit finding is related to health?

One way to distinguish among the relations of growth to health outcomes, which also might contribute to distinguishing among different kinds of growth or stages of growth, is to focus on the time that has transpired since the event occurred. We examine whether relations to health differ between studies that assess growth proximal to the event versus those that assess growth more distal to the event. Investigators have argued that growth takes time to emerge (Tedeschi & Calhoun, 1995). It may be the case

Vicki S. Helgeson, Kerry A. Reynolds, and Patricia L. Tomich, Department of Psychology, Carnegie Mellon University.

Patricia L. Tomich is now at the Department of Psychology, Kent State University.

Work on this article was partly supported by National Institutes of Health Grant R21CA104078 to Vicki S. Helgeson and by American Cancer Society Grant PF PBP-104706 to Patricia L. Tomich. We thank Laura Viccaro and Michelle Merriman for their assistance with coding some of the articles.

Correspondence concerning this article should be addressed to Vicki S. Helgeson, Department of Psychology, Carnegie Mellon University, Pittsburgh, PA 15213. E-mail: vh2e@andrew.cmu.edu

that measures of benefit finding taken soon after the event reflect a cognitive strategy that people use to reduce distress (see McFarland & Alvaro, 2000, for an elaboration of this issue), whereas benefit finding measured some time after the event reflects actual change or growth. That being the case, benefit finding may be associated with poor health outcomes when assessed soon after the event but better health outcomes when assessed when more time has elapsed since the traumatic event occurred. That is, the relation of benefit finding to health outcomes may depend on, or be moderated by, the time that has elapsed since the trauma.

A second moderator that we examine is the nature of the traumatic event. Because many of the studies in this area have focused on people diagnosed with a life-threatening illness (e.g., cancer), we have the opportunity to examine whether growth is related to health outcomes among people who face health threats versus people who face other kinds of traumatic events. We have no predictions about whether the nature of the event will moderate the relations of benefit finding to health outcomes.

We also examine whether the way that benefit finding is measured influences relations to health outcomes. The two most widely used instruments are the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and the Stress-Related Growth Scale (SRGS; Park, Cohen, & Murch, 1996). Three other inventories that have been used by a handful of investigators are very similar in content to the PTGI and SRGS: two are named the Benefit Finding Scale (Mohr et al., 1999; Tomich & Helgeson, 2004) and one is called the Perceived Benefits Scale (McMillen & Fisher, 1998). To the extent that benefit finding is related to health, we expect more consistent relations to emerge when standardized measures are used. We compare the relation of benefit finding to outcomes in studies that use more well-established instruments with studies that derive their own close-ended measures or use open-ended questions.

Finally, we examine whether two characteristics of the participants influence the effect sizes for benefit finding—the percentage of minority participants in the study and the percentage of female participants in the study. Although there is some suggestion that women derive more benefits than men (see Linley & Joseph, 2004, for a review) and non-White persons derive more benefits than White persons following trauma (see Stanton et al., 2006, for a review), these findings do not address the question of whether benefit finding is more strongly related to health outcomes among women than among men or among non-White than among White persons. We do not have any predictions here and view these analyses as exploratory.

Our third and final aim is to address the question of who is likely to experience positive changes following traumatic events by examining other correlates of growth. Our goal was not to examine all possible correlates of benefit finding or to compile a list of measures that have been related to benefit finding. Instead, we focused on four categories of correlates that are often evaluated in the literature: demographic, stressor characteristics, personality, and coping (e.g., positive reappraisal).

Among the demographic correlates, narrative reviews have suggested that women and non-White persons experience more growth (Linley & Joseph, 2004; Stanton et al., 2006). These same reviews suggest that relations to marital status, age, and socioeconomic status are inconsistent across studies. Among the stressor characteristics, one might expect the severity of the trauma to be

positively related to growth because growth is thought to emerge from trauma. We examine both the objective severity of the trauma (i.e., physician rating of disease severity) and the subjective severity of the trauma (i.e., person's report of amount of stress experienced). Stanton et al.'s (2006) review of studies among people with cancer suggested that growth is positively related to perceived stress but not necessarily objective disease severity. A second stressor characteristic that we examine is time since the trauma. Because actual growth is thought to take time to occur, one would expect time since the trauma to be related to more growth. However, to the extent that growth reports are really coping strategies, more growth may be reported when less time since the trauma has occurred. It is not clear from previous research whether time since trauma is related to growth (Stanton et al., 2006).

We note that three of the correlates described above are also examined as moderator variables. Two of the demographic correlates, sex and race, are examined as moderator variables in the sense that we determine whether the overall sex and racial compositions of the samples influence the effect sizes. Time since trauma also is examined as both a correlate of benefit finding and a moderator of the relation of benefit finding to health.

We examine three personality characteristics: optimism, religiosity, and neuroticism. Narrative reviews have found strong evidence for relations of optimism to benefit finding (Linley & Joseph, 2004; Stanton et al., 2006). Because spirituality is a domain of growth, one might expect religiosity to be related to more benefit finding. We examined the relation of neuroticism to benefit finding partly to rule out the possibility that benefit finding is a coping strategy that some individuals engage in to reduce distress.

Finally, we examined three coping strategies: positive reappraisal, acceptance, and denial. We chose these three strategies because they are the most commonly used in the benefit-finding literature. We only had predictions for positive reappraisal. Because positive reappraisal is the attempt to look on the bright side of things and to put a positive spin on stressful situations, it would make sense that positive reappraisal and benefit finding are positively related.

Method

Article Identification

The literature search was aimed at identifying published evaluations of the relation of benefit finding to physical and mental health outcomes. We also examined the relation of benefit finding to a set of specific correlates of interest. We focused on published, peer-reviewed studies because we expected them to be the most methodologically rigorous and thus yield the strongest conclusions in regard to benefit finding. (Time constraints related to the deadline for publication did not permit a thorough search for unpublished studies.) The analysis did not include studies conducted in non-Western cultures because other cultures may interpret benefit finding in quite different ways.

Articles were identified through computerized literature searches of electronic databases for studies published through April of 2005 (i.e., PsycINFO, 1967–2005; Medline, 1966–2005). Searches were limited to peer-reviewed, English-language journals. Keywords used for the identification of articles were *positive life changes*, *benefit finding*, *posttraumatic growth*, *stress-related growth*, and derivations of these terms (i.e., *positive change*). The reference lists of two recent narrative review articles on benefit finding (Linley & Joseph, 2004; Stanton et al., 2006) also were

searched to identify additional articles, as benefit finding or growth are not always explicit in the title or abstract of an article. In addition, we e-mailed the leading researchers in the field asking for their most recent publications on benefit finding and growth.

To be eligible for the meta-analysis, articles had to meet a number of criteria. First, the study had to focus on an adult population (i.e., 18 years or older). Only a few studies have been conducted on benefit finding in younger populations (e.g., Milam, Ritt-Olson, & Unger, 2004; Salter & Stallard, 2004). It is not clear that children or adolescents conceptualize benefit finding in the same way as adults. Because children are still in the process of acquiring the abstract thinking skills that may be necessary to experience growth, we did not include them in a meta-analysis that largely involved adult samples. However, children do experience traumatic events, and we urge future researchers to explore benefit finding in this population.

A second criterion was that the work had to include a clear measure of benefit finding. This criterion could be met if an article used the PTGI (Tedeschi & Calhoun, 1996), the SRGS (Park et al., 1996), one of the Benefit Finding Scales (Mohr et al., 1999; Tomich & Helgeson, 2004), the Perceived Benefit Scale (McMillen & Fisher, 1998), another close-ended measure, or an open-ended measure of benefit finding. The close-ended measure had to ask about or include a list of positive consequences that resulted from a traumatic event; the open-ended measure had to ask about positive changes that have resulted from such an event. Studies that measured "meaning in life" with items that reflected enjoyment in life that did not identify specific positive consequences from trauma were not included. The benefit-finding measures also had to focus exclusively on positive consequences or compute a score for positive consequences. Items that could be scored in a positive or negative direction (improvement vs. deterioration) were not included because we would not know whether relations to outcomes were due to the positive or negative end of the scale.

The third criterion was that participants had to experience a stressful event, although the events could differ across the participants in a particular study. Reports of personal growth due to maturation were eliminated.

Fourth, the work had to include a measure of physical or mental health or one of our correlates of interest (identified below). We did not analyze data that addressed case-control comparisons; that is, comparisons of benefit-finding levels among people who sustained a traumatic event versus a comparison group. These studies were heterogeneous across a variety of design dimensions, including the nature of the stressor, the nature of the comparison group, and the time at which benefit finding was assessed. We also did not examine changes in benefit finding over time. We had planned to conduct a cross-sectional and a longitudinal meta-analysis, but there were not enough longitudinal studies for meta-analysis. Among the longitudinal studies that had been conducted, often times only cross-sectional relations of benefit finding to outcomes were reported (which were then included in the meta-analysis) or longitudinal relations were reported without statistical controls for baseline. In other longitudinal studies, benefit finding was only examined as a change score. Finally, some longitudinal studies examined benefit finding as a predictor of health outcomes (i.e., benefit finding measured before the health outcome) and other studies examined benefit finding as an outcome of distress (i.e., distress measured before benefit finding). In total, there were only six longitudinal studies that reported the relation of benefit finding at one time to an outcome at a later time with baseline levels of the outcome statistically controlled, and these outcomes varied across studies. Thus, we focused this meta-analysis on cross-sectional relations. We also did not include intervention studies in our analyses if they only measured benefit finding after the intervention, as the other variables of interest were usually measured prior to the intervention. There were not enough studies to examine the effects of interventions on benefit finding.

Of the 235 studies identified and reviewed, 87 met the criteria for inclusion. These studies were reported in 77 articles and are designated in the reference list by asterisks. The studies and their characteristics also are listed in Table 1. Studies were typically excluded because a clear measure

of benefit finding as described above was not included, no quantitative data were presented, or benefit finding was not examined in relation to health outcomes or one of the correlates of interest to this article.

Health Outcomes and Correlates Examined

We examined the relation of benefit finding to eight health outcomes: depression, anxiety, positive well-being (positive affect, self-esteem, life satisfaction), global distress (i.e., negative affect, overall mood), intrusive-avoidant thoughts, quality of life (i.e., measures that included aspects of both physical and mental health), and subjective physical health (i.e., physical functioning, participants' rating of physical health). We had planned to examine relations to objective physical health outcomes, but too few studies examined this outcome and the measures were quite varied. It also was difficult to distinguish between objective physical health outcomes and objective indicators of disease severity because the studies were cross-sectional. For example, the number of grafts following bypass surgery could be viewed as an indicator of disease severity but also as a physical health outcome. We placed these kinds of variables into the disease severity category but remind the reader that these variables also can be thought of as reflecting the objective state of physical health at the time the benefit-finding measure was administered.

We examined four categories of correlates: demographic characteristics (sex, ethnicity, marital status, age, socioeconomic status), stressor characteristics (time since onset of event, objective severity of event [e.g., stage of disease, physician rating], perceived stress), select personality characteristics (optimism, religiosity, neuroticism), and select coping strategies (positive reappraisal, acceptance, denial). The personality characteristics and coping strategies examined were largely chosen on the basis of the frequency with which they have been evaluated in the benefit-finding literature.

To ensure that we were correctly placing a variable into one of the above-mentioned categories, we had two people review all of the studies and calculated the overall agreement between these two raters. There were only occasional disagreements, which centered on outcome variables and were easily resolved by discussion between the two raters. The overall interrater reliability was very high ($\kappa = .95$).

Meta-Analytic Procedure

Meta-analytic procedures are statistical methods for combining and comparing findings from multiple studies. The procedure effectively treats each study as a respondent. Effect sizes are calculated for the relation of benefit finding to a specific outcome for each study and then aggregated across studies.

We used Pearson's r as the effect size metric in this meta-analysis. Effect sizes for individual studies were computed using descriptive statistics and values from statistical tests (e.g., t values) presented in the original published reports. We used an Excel macro created by Lipsey and Wilson (2001) to compute effect sizes from a variety of available information. When this program was unable to compute an effect size on the basis of available information, we used formulae in Lipsey and Wilson's text to abstract the effect sizes. When variables that we viewed as continuous (i.e., time since event) were examined as categorical factors, we first abstracted Cohen's d and then converted this into a Pearson's r . In these cases, we computed Cohen's d values from descriptive statistics and values from statistical tests (e.g., t values) using the above-mentioned Excel macro.

Occasionally, authors of studies failed to report the descriptive or inferential statistics needed to compute an effect size. If the authors referred to the effect as significant and referred to the direction of the effect in the text, we derived effect sizes assuming that p values were equivalent to .05. This represents a conservative approach because the actual p values are likely to have been smaller. If the direction of the effect could not be determined

(text continues on page 806)

Table 1
Studies Used in the Meta-Analysis

Study	N	Age	Racial composition ^a	Sex composition	Nature of event	Time since onset	Measure
Abrardo-Lanza, Guiter, & Colón (1998)	66	M = 51 years, range = 19–86 years	100% Hispanic	100% female	Rheumatic diseases	M = 169 months	PTGI, SRGS
Affleck, Tennen, Croog, & Levine (1987)	287	10% 30–39 years, 26% 40–49 years, 54% 50–59 years		100% male	Heart attack	M = 8 years	Open ended
Affleck, Tennen, & Gershman (1985)	42			100% female	Mothers of infants discharged from NICU	M = 8.67 weeks	Open ended
Aldwin, Levenson, & Spiro (1994)	1,287	M = 63.56 years, range = 43–91 years		100% male	Military service		Other close ended
Antoni et al. (2001)	100	M = 50 years, range = 29–79 years	74% White, 16% Hispanic, 6% Black, 4% Other	100% female	Breast cancer	6 weeks	BFSI
Bellizzi (2004)	74	M = 53 years, range = 26–93 years	90% White, 10% Black	55% male, 45% female	Cancer	M = 57 months, range = 2–9 years	PTGI
Best, Streisand, Catania, & Kazak (2001)	113		88% White, 6% Asian, 3% Black, 3% Hispanic	58% female, 42% male	Parent of child with cancer	M = 3.7 years, range = 7 months–8.6 years	PTGI
Bower, Kemeny, Taylor, & Fahey (1998)	40	M = 40 years, range = 27–50 years	98% White, 2% Hispanic	100% male	Bereavement	M = 8 months, range = 4 days–18 months	Open ended
Bower et al. (2005)	763	M = 59 years, range = 33–90 years	83.7% White, 8.7% Black, 7.6% Other	100% female	Breast cancer	M = 3.4 years, range = 1–5 years	Other close ended
Britt, Adler, & Bartone (2001)	1,953		56% White, 25% Black, 9% Hispanic, 10% Other	92% male, 8% female	War	8 months	Other close ended
Burt & Katz (1987)	113	21% < 20 years, 39% 20–25 years, 21% 26–35 years, 19% 36+ years	81% White, 17% Black, 1% Asian, 1% Hispanic	100% female	Rape	Mdn = 3 years ^b	Other close ended
Cadell (2003)	176	M = 41 years, range = 19–79 years	91% Canadian	52% male, 46% female, 2% transgender	Caregiving	Mdn = 4.3 years, range = 1 month–18 years	PTGI
Cadell, Regehr, & Hemsworth (2003)	174	M = 41 years, range = 19–79 years		52% male, 46% female, 2% transgender	Bereavement	1 month–18 years	PTGI, SRGS
Calhoun, Cann, Tedeschi, & McMillan (2000)	54	M = 23 years	80% White, 13% Black, 7% Asian/Native American	35% male, 65% female	Major traumatic event within past 3 years	0–3 years	PTGI
Carver & Antoni (2004)	96	M = 59 years, range = 33–79 years	67% White, 22% Hispanic, 11% Black	100% female	Breast cancer	6.22 years	BFSI

Table 1 (*continued*)

Study	N	Age	Racial composition	Sex composition	Nature of event	Time since onset	Measure
Collins, Taylor, & Skokan (1990)	55	<i>Mdn</i> = 54 years, range = 30–66 years		45% male, 55% female	Cancer	<i>M</i> = 3.2 years	Open ended
Cordova, Cunningham, Carlson, & Andrykowski (2001)	70	<i>M</i> = 55 years, range = 27–87 years	90% White, 9% Black, 1% Other	100% female	Breast cancer	<i>M</i> = 24 months, range = 2–58 months	PTGI
Curbow, Somerfield, Baker, Wingard, & Legro (1993)	135	<i>M</i> = 31 years, range = 18–53 years	91% White	61% male, 39% female	Bone-marrow transplant	<i>M</i> = 47 months, range = 6–149 months	Open ended
Daiter, Larson, Weddington, & Ultmann (1988)	32	<i>M</i> = 28 years, range = 18–36 years		64% male, 36% female	Cancer	3–7 months	Open ended
Danoff-Burg & Revenson (2005)	158	<i>M</i> = 58 years	75% White	82% female	Rheumatoid arthritis	<i>M</i> = 16 years	Open ended
Davis & Macdonald (2004)	80	<i>M</i> = 44 years		39% male, 61% female	September 11	6–11 weeks	Other close ended
Davis, Nolen-Hoeksema, & Larson (1998)	205	<i>M</i> = 51 years	81% White, 6% Mexican, 5% Black, 8% Other	26% male, 74% female	Bereavement	6 months	Open ended
DeRoma et al. (2003)	420	<i>M</i> = 21 years	76% White, 14% Black, 3% Hispanic, 3% Asian, 4% Other	56% male, 44% female	September 11	7–15 days	PBS
Dolinska (2003), Study 1	140				Natural disaster	9 months	Open ended
Dolinska (2003), Study 2	120				Natural disaster	36 months	Open ended
Evers et al. (2001)	430	<i>M</i> = 51 years, range = 20–85 years		33% male, 67% female	Multiple sclerosis or rheumatoid arthritis	<i>M</i> = 9.95 years, range = 0–54 years	Other close ended
Fontana & Rosenheck (1998)	1,113	<i>M</i> = 40 years	49% White, 27% Black, 23% Hispanic, 1% Other	100% male	Vietnam war	11–24 years	Open ended
Frazier, Conlon, & Glaser (2001)	88	<i>M</i> = 27 years, range = 16–52 years	77% White	100% female	Sexual assault	2 weeks	Other close ended
Fromm, Andrykowski, & Hunt (1996)	90	<i>M</i> = 39 years		58% male, 42% female	Cancer	49.5 months	Open ended
Giedzinska, Meyerowitz, Ganz, & Rowland (2004)	621	<i>M</i> = 55 years, range = 30–87 years	38% White	100% female	Breast cancer	<i>M</i> = 2.93 years, range = 1–5 years	Other close ended
Joseph et al. (2005), Study 1	80	<i>M</i> = 34 years, range = 22–59 years		81% female	Nursing, work-related stressors	<i>M</i> = 9.94 years	Other close ended
Joseph et al. (2005), Study 2	27	<i>M</i> = 41 years, range = 22–72 years		18% male, 82% female	Childhood abuse		Other close ended
Joseph, Williams, & Yule (1993)	35		United Kingdom nationals	23% male, 77% female	Ship-wreck survivors	16 months	Other close ended

(table continues)

Table 1 (continued)

Study	N	Age	Racial composition	Sex composition	Nature of event	Time since onset	Measure
Katz, Flasher, Cacciopaglia, & Nelson (2001)	87	M = 53 years	73% White, 6% Black, 2% Asian, 12% Hispanic, 8% Other	13% male, 87% female	Cancer and lupus	9 years	Other close ended
King & Patterson (2000)	87		95% White non-Hispanic	28% male, 72% female	Parents of child with Down syndrome	M = 6.7 years, range = 3 months–38 years	SRGS
Klauer, Ferring, & Filipp (1998)	100	M = 53 years		58% male, 42% female	Cancer	40% 1 year, 20% 2 years, 25% 2–5 years, 15% 5+ years	Other close ended
Koenig, Pargament, & Nielsen (1998)	577	M = 68.4 years, range = 55–97 years	62% White, 38% Black	52% male, 48% female	Medically ill and hospitalized		SRGS
Lechner et al. (2003)	83	M = 63 years, range = 34–85 years	90% White	29% male, 71% female	Cancer	M = 38.8 months, range = 0–172 months	PTGI
Lehman et al. (1993)	94	M = 43 years	86% White	26% male, 74% female	Bereavement	4–7 years	Open ended
Lev-Wiesel & Amir (2003)	97	M = 68 years		48% male, 52% female	Holocaust		PTGI
Linley & Joseph (2005)	78	M = 50.05 years, range = 19.08–71.92 years	100% White	89.7% male, 11.4% female	Death exposure	M = 11.60 years, range = 3–30 years	Other close ended
Maercker & Herrle (2003)	47	M = 73 years, range = 57–95 years		19% male, 81% female	Bombing of Dresden (1945)	52 years	SRGS
McCausland & Pakenham (2003)	58	M = 43 years, range = 19–70 years	89% White	59% male, 41% female	Caregiver	M = 39 months, range = 1–180 months	Open ended
McMillen & Cook (2003)	42	M = 43 years	24% Black, 71% White, 5% Other	81% male, 19% female	Spinal cord injury	18–36 months	PBS
McMillen & Fisher (1998)	289	M = 41 years	96% White	30% male, 70% female	Most distressing event in past 5 years	0–5 years	PBS
McMillen, Smith, & Fisher (1997)	224				Mass killing, tornado, plane crash	4–6 weeks	Open ended
McMillen, Zuravin, & Rideout (1995)	154	M = 31 years	62% Black, most others White	100% female	Childhood sexual abuse	Before 14 years of age	Other close ended
Milam (2004)	835	M = 38 years	40% White, 37% Hispanic, 17% Black, 7% Other	87% male, 13% female	HIV-AIDS	M = 6.39 years	PTGI
Mohr et al. (1999)	99	M = 43 years, range = 18–66 years		26% male, 74% female	Multiple sclerosis	M = 97.2 months, range = 6 months–30 years	Other close ended

Table 1 (continued)

Study	N	Age	Racial composition	Sex composition	Nature of event	Time since onset	Measure
Pakenham (2005)	404	M = 48 years, range = 18–78 years		23% male, 77% female	Multiple sclerosis	M = 120 months, range = 6–627 months	BFS2
Pakenham, Sofronoff, & Samios (2004)	59	M = 41 years, range = 28–51 years		20% male, 80% female	Parents of child with Asperger syndrome		Other close ended
Pargament, Smith, Koenig, & Perez (1998), Study 1	296	M = 59 years	97% White	37% male, 63% female	Oklahoma City bombing		SRGS
Pargament et al. (1998), Study 2	540	M = 19 years	92% White	31% male, 69% female	Negative event in past 3 years	Past 3 years	SRGS
Pargament et al. (1998), Study 3	551	M = 68 years, range = 55–97 years	62% White	52% male, 48% female	Medical illness		SRGS
Pargament, Koenig, & Perez (2000)	540	M = 19 years	93% White	69% female	Major life stressors	1.5 years	SRGS
Park, Cohen, & Murch (1996), Study 1	506	College students	90% White	32% male, 68% female	Most stressful event in past 12 months	M = 4.86 months	SRGS
Park et al. (1996), Study 2	160		More than 90% White	44% male, 56% female	Most stressful event in past 12 months	M = 6.11 months	SRGS
Park et al. (1996), Study 3	147		More than 90% White	26% male, 74% female	Most stressful event in past 6 months	M = 3.28 months	SRGS
Park & Fenster (2004)	94	M = 19 years	92% White, 5% Black, 1% Latino, 2% Asian	17% male, 83% female	Most stressful event in past 6 months	M = 2.88 months, range = 0–6 months	SRGS
Petrie, Buick, Weinman, & Booth (1999), Study 1	104	M = 53 years	89% European, 5% Maori, 5% Pacific Islander	87% male, 13% female	Heart attack	3 months	Open ended
Petrie et al. (1999), Study 2	49	M = 54 years	92% European, 4% Maori, 4% Other	100% female	Breast cancer	3 months postirradiation	Open ended
Polatinsky & Esprey (2000)	67	30–75 years	100% White	26% male, 74% female	Bereavement	6 months–8 years	PTGI
Rini et al. (2004)	144	M = 37 years	77% White, 10% Black, 8% Latina, 5% Other	100% female	Parents of children with cancer	M = 102 weeks, Mdn = 37 weeks	Other close ended
Roesch, Rowley, & Vaughn (2004)	1070	M = 20 years	51% White	27% male, 73% female	Most stressful event in past year	Within 1 year	SRGS
Salmon, Manzi, & Valori (1996)	200	17% < 50 years, 45% 50–65 years, 38% > 75 years		58% male, 42% female	Cancer	Mdn = 52 weeks, range = 2–884 weeks	Other close ended

(table continues)

Table 1 (continued)

Study	N	Age	Racial composition	Sex composition	Nature of event	Time since onset	Measure
Sears, Stanton, & Danoff-Burg (2003)	60	M = 52 years, range = 28–76 years	87% White, 7% Black, 3% Latina, 1% Asian-American, 1% Native American	100% female	Breast cancer	M = 80 weeks	PTGI
Sheikh (2004)	110	M = 64 years, range = 36–81 years	89% White, 10% Black	21% female, 79% male	Heart disease	M = 61 months, range = 2–384 months	PTGI
Siegel & Schrimshaw (2000)	54	M = 36 years, range = 25–44 years	34% Black, 32% Puerto Rican, 34% White	100% female	HIV-AIDS	M = 50.7 months	Open ended
Snape (1997)	53	M = 37 years	76% White	76% male, 24% female	Accident or assault	2 months	PTGI
Sodergren, Hyland, Crawford, & Partridge (2004)	197	M = 57 years, range = 18–85 years	76% White	53% male, 47% female	Respiratory diseases	M = 10 years, range = 0.3–81.0 years	Other close ended
Tarakshwar & Pargament (2001)	45		93% White, 5% Black, 2% Other	4% male, 96% female	Parents of children with autism		SRGS
Tashiro & Frazier (2003)	92	M = 20 years, range = 18–35 years	85% White	25% male, 75% female	Romantic relationship break-up	M = 3 months, range = 1–9 months	PTGI
Tedeschi & Calhoun (1996), Study 1	604	92% 17–25 years		33% male, 67% female	Trauma in past 5 years	Mdn = 18 months, range = 6 months–4 years	PTGI
Tedeschi & Calhoun (1996), Study 2	237–449				Trauma in past 5 years	Mdn = 18 months, range = 6 months–4 years	PTGI
Tennen, Affleck, Urrows, Higgins, & Mendola (1992)	54	M = 53 years		24% male, 76% female	Rheumatoid arthritis	9 years	Other close ended
Thompson (1985)	32	M = 63 years		25% male, 75% female	Fire	Immediately after	Open ended
Thornton & Perez (2006)	82	M = 61 years, range = 41–78 years	90% White	100% male	Prostate cancer	1 year after surgery	PTGI
Tomich & Helgeson (2004)	364	M = 48 years, range = 27–75 years	93% White, 6% Black, 1% Hispanic	100% female	Breast cancer	4 months	BFSI
Updegraff, Taylor, Kemeny, & Wyatt (2002)	189	M = 37 years, range = 19–62 years	48% Black, 33% White, 20% Latina	100% female	HIV	M = 4.65 years	Open ended
Waysman, Schwarzwald, & Solomon (2001), Study 1	164	M = 22 years, range = 18–35 years (at time of war)		100% male	POWs in 1973		Other close ended

Table 1 (continued)

Study	N	Age	Racial composition	Sex composition	Nature of event	Time since onset	Measure
Waysman et al. (2001), Study 2	184	$M = 22$ years, range = 18–35 years (at time of war)		100% male	War in 1973		Other close ended
Weiss (2004a)	72	$M = 57$ years, range = 35–84 years	Primarily White	100% male	Wife diagnosed with breast cancer	$M = 39$ months, range = 15–66 months	PTGI
Weiss (2004b)	72	$M = 54$ years, range = 37–78 years	Primarily White	100% female	Breast cancer	$M = 38.7$ months, range = 15–66 months	PTGI
Widows, Jacobsen, Booth-Jones, & Fields (2005)	72	$M = 47.62$ years, range = 25–66 years	85% White, 7% Black, 8% Hispanic	26% male, 74% female	Cancer	$M = 24.05$ months, range = 8–47 years	PTGI
Wild & Paivio (2003)	193	$M = 20$ years	76% White, 8% Black, 4% East Indian, 3% Hispanic, 7% Other	12% male, 88% female,	Traumatic events in past 5 years	$M = 1.30$ years, range = 0–5 years	PTGI
Woike & Matic (2004), Study 1	150	College students		13% male, 87% female	September 11	4–6 weeks	SRGS
Woike & Matic (2004), Study 2	73	College students		16% male, 84% female	Personal trauma		SRGS

Note. PTGI = Posttraumatic Growth Inventory; SRGS = Stress-Related Growth Scale; NICU = neonatal intensive care unit; BFS1 = Benefit Finding Scale (Tomich & Helgeson, 2004); PBS = Perceived Benefits Scale (McMillen & Fisher, 1998); BFS2 = Benefit Finding Scale (Mohr et al., 1999); POWs = prisoners of war.

^a In some cases, nationality was used in place of race. ^b Median estimated on the basis of frequency data.

from the text, then the effect size was excluded. In other cases, the authors reported effects as nonsignificant but failed to provide any further statistical information. When this occurred, we assumed an effect size of zero. Because effect sizes seldom equal zero, this also represents a conservative strategy. The number of studies in which an effect size of zero was assumed ranged from zero to two for the outcome measures and the majority of the correlates. This value exceeded two for several of the demographic variables. Effect sizes of zero were assumed for 12 of the 37 studies that examined age, 11 of the 25 studies that examined socioeconomic status, 11 of the 26 studies that examined sex, and 5 of the 8 studies that examined marital status. Effect sizes of zero also were assumed for 5 of the 28 studies that examined time since the stressor and 4 of the 24 studies that examined objective severity of the event.

Because meta-analysis assumes independence of effect sizes, each study could only contribute one effect size to a given analysis. In cases in which a study provided data on two or more measures of the same outcome, a combined effect size was computed by transforming each r into a Fisher's Z_r coefficient, averaging across the Fisher Z_r s, and converting the resulting Z_r back into an r (Rosenthal, 1991).

We also had to address issues of independence if studies used multiple measures of benefit finding. First, if a study used both a close-ended and an open-ended measure of benefit finding, then we used the close-ended measure. If a study used more than one valid and reliable close-ended measure of benefit finding ($n = 2$ studies), then we averaged across the r s before calculating the overall effect size. If there was a total benefit-finding score and subscale scores, then only the total score's relations to variables were included. The vast majority of studies examined total scores. If only benefit-finding domains were examined, then we averaged across domain effect sizes to get a single effect size. If benefit finding was assessed at more than one point in time, we used the measure most proximal to the event. We did not average across cross-sectional relations because we wanted to examine time since event as a moderator variable.

SPSS macros were used for computations in this meta-analysis (Lipsey & Wilson, 2001). Effect sizes and weights are entered into a data file and the macro calculates an aggregated weighted effect size. Effect sizes that we conceptualized as continuous relations (i.e., effect size coded as r) were first transformed to Fisher's Z before being weighted and aggregated. After aggregation, Fisher's Z was transformed back to r . For all effect sizes (continuous and categorical), we weighted the effect sizes with the inverse variance. This weight enables larger studies to contribute to effect size estimates to a greater extent than smaller ones.

We determined whether each aggregate effect size was statistically significant and arose from a heterogeneous group of studies. Following convention, aggregate effect sizes were considered statistically different from zero when their corresponding Z value was greater than 1.96 and the 95% confidence interval around them did not include zero (Rosenthal, 1991; Shadish & Haddock, 1994). To examine whether the studies con-

tributing to each aggregate effect size shared a common population value, we examined the heterogeneity statistic Q (Shadish & Haddock, 1994). A statistically significant Q value indicates that there is more variability across studies than expected by chance. The Q statistic is distributed as a chi-square with k (number of studies) - 1 degree of freedom.

The effect sizes for all of the outcomes, with the exception of one, were heterogeneous (see Table 2), suggesting that viable moderator variables may exist. We used meta-analysis to examine five moderators of the relation of benefit finding to outcomes. We examined the relation of three continuous moderator variables to the effect sizes: (a) time since event, (b) proportion of sample that was White, and (c) proportion of sample that was female. We examined whether effect sizes differed between two broad categories of events: health problems versus other personal trauma (natural disaster, sexual abuse-assault, war). Finally, we examined whether effect sizes differed between studies that used one of the standard close-ended benefit-finding inventories (e.g., PTGI) and studies that created their own close-ended measure or examined responses to open-ended questions. We examined each of these moderator variables with Hedges and Olkin's (1985) modified weighted multiple regression using the macro developed by Lipsey and Wilson (2001) to estimate the correct standard errors.

Finally, because studies that find significant results are more likely to be published than studies that find null results, we needed to address the possibility that our results would be biased in the direction of finding significant effect sizes, or what is commonly known as the "file-drawer problem." To estimate the extent of this bias, we calculated the fail-safe N statistic developed by Rosenthal (1979), or the number of unpublished studies with null findings that would have to exist for our significant effect sizes to be nonsignificant. We used the formula developed by Orwin (1983) to calculate the fail-safe N . With this formula, we set a criterion level for an effect size that would not be meaningful. We chose a criterion effect size of .01. Therefore, our fail-safe N shows the number of null studies that would need to exist to reduce our significant effect size to this criterion level. To interpret the meaning of this fail-safe N , we used the rule of thumb developed by Rosenthal (1991): Meta-analysis results are robust to the file-drawer problem if the fail-safe N is less than five times the number of existing studies plus 10. As shown in Tables 2 and 3, this heuristic leads to the conclusion that our significant effects are robust to the file-drawer problem.

After accruing the studies, we examined the power that we had to detect significant effects with this meta-analysis. Ideally, one would conduct a power analysis prior to conducting the meta-analysis and, in fact, Hedges and Pigott (2001) advised against calculating power after the fact. Using the formula that these authors provided, our power to detect the significant effects that we present here exceeded 99%. We thought it would be more informative to estimate our power to detect a certain level of an effect. The average number of studies that we had for our outcome variables was 17 and the average study sample was slightly above 200. With this number of

Table 2
Effect Sizes (r) for Mental and Physical Health Outcomes Associated With Benefit Finding

Variable	k	N	Effect size	95% confidence interval	Q	Fail-safe N
Depression	17	6,396	-.09***	-.12 to -.07	130.59***	153
Anxiety	9	2,484	-.02	-.07 to .03	61.65***	
Positive well-being	17	2,268	.22***	.18 to .25	75.04***	374
Global distress	39	8,431	.00	-.02 to .02	282.43***	
Intrusive-avoidant thoughts	14	1,717	.18***	.13 to .23	51.94***	252
Quality of life	7	1,609	.01	-.04 to .06	8.92	
Subjective physical health	18	3,413	-.02	-.05 to .01	55.32***	

Note. For the Q statistic, significant values indicate that there is more variability in effect sizes than would be expected by chance.

*** $p < .001$.

Table 3
Effect Sizes (r) for Correlates of Benefit Finding

Variable	k	N	Effect size	95% confidence interval	Q	Fail-safe N
Sex	26	7,113	-.08***	-.10 to -.06	75.54***	208
Race	8	1,947	.11***	.07 to .15	40.04***	88
Marital status	8	1,281	-.02	-.07 to .04	3.39	
Age	37	8,089	-.07***	-.09 to -.04	91.50***	259
SES	25	5,499	-.01	-.03 to .02	67.53***	
Time since event	28	5,430	.01	-.02 to .03	77.36***	
Objective severity	24	4,185	.07***	.04 to .10	71.28***	168
Perceived threat-stress	20	4,992	.14***	.11 to .17	29.34	280
Optimism	11	2,628	.27***	.24 to .31	28.76**	297
Religiosity	8	1,478	.17***	.12 to .22	22.63**	136
Neuroticism	7	1,295	-.05	-.18 to .11	15.17*	
Positive reappraisal	7	1,091	.38***	.32 to .43	11.90	266
Acceptance	7	1,078	.20***	.14 to .26	8.72	140
Denial	7	1,086	.16***	.10 to .22	4.42	112

Note. For the Q statistic, significant values indicate that there is more variability in effect sizes than would be expected by chance. SES = socioeconomic status.

* $p < .05$. ** $p < .01$. *** $p < .001$.

studies and these sample sizes, our power exceeded 99% to detect a small effect size ($r = .10$). Power was only slightly lower (97%) to detect a small effect size with the smallest number of studies that were available for an outcome variable ($n = 7$). Power was substantially lower (47%) to detect a much smaller effect size ($r = .05$) with seven studies.

Results

Table 1 provides descriptive information for the 87 studies included in the meta-analysis. Stressful events were placed into 11 categories: health problems, not included in another category ($n = 12$); war-terror, which included the September 11 attacks ($n = 11$); caregiving ($n = 8$); cancer that is not exclusively breast cancer ($n = 9$); breast cancer ($n = 9$); bereavement ($n = 6$); sexual assault-abuse ($n = 3$); HIV-AIDS ($n = 3$); natural disaster ($n = 5$); and heart disease ($n = 3$). In addition, 18 studies were classified as "other" because the event did not fit into one of the above categories or, more commonly, participants were asked to select their own stressful event over some time frame.

Meta-analytic results for the relations of benefit finding to psychological and physical health outcomes are presented in Table 2. The effect sizes in Table 2 are r s. As a rule of thumb, effect sizes less than .10 are considered small, .25 is considered medium, and effect sizes greater than .40 are considered to be large (Cohen, 1988; Lipsey & Wilson, 2001). Results for the relations of benefit finding to demographic, stressor, and coping correlates are shown in Table 3. Again, effect sizes are reported as r s. The 95% confidence interval for effect sizes also is reported in Tables 2 and 3.

Values in the first column of these tables refer to the number of studies (k) available for computation of a specific effect size; k values ranged from 7 to 39 in our analyses. The second column provides the sample size on which the effect size was based. The third column shows the aggregate effect size, r , followed by the 95% confidence interval. The fifth column displays the Q statistic, which indicates whether the effect size is homogeneous across studies. The last column indicates the fail-safe N , when applicable.

Relations of Benefit Finding to Health

Benefit finding was related to less depression and greater positive well-being but was unrelated to anxiety and measures of global distress (see Table 2). Benefit finding also was related to more intrusive and avoidant thoughts about the stressor. Benefit finding was unrelated to global quality of life, which includes aspects of mental and physical health, and was unrelated to subjective physical health. All of the effect sizes were small, with the exception of the relation of benefit finding to positive well-being, which approached a medium effect size. Using the Rosenthal (1991) criterion, none of these effects appears to be vulnerable to the file-drawer problem.

With the exception of quality of life, all of the effect sizes were heterogeneous, suggesting all of the effect sizes do not come from a single population. First, we examined the distribution of effect sizes with stem-and-leaf plots for each of the outcome variables. These plots are shown in Figure 1.¹ Inspection of these data revealed no substantial outliers. Even when outliers were removed, overall effect sizes changed only slightly. Second, we examined the presence of moderator variables as an explanation for the heterogeneity in effect sizes.

Moderators of the Relation of Benefit Finding to Health

We examined moderation with respect to six of the seven mental and physical health outcomes. The null effect size for quality of life was homogenous across the sample of studies. Thus, there was no need to examine moderation for that outcome. The results of our moderator analyses are shown in Table 4. For each moderator, we report the Q due to the regression (Q_r), which indicates whether

¹ Stem-and-leaf plots for all of the variables are available from Vicki S. Helgeson. Single outliers were observed for age, ethnicity, and sex. Removal of those outliers did not alter the overall conclusions from the meta-analytic results reported in this article.

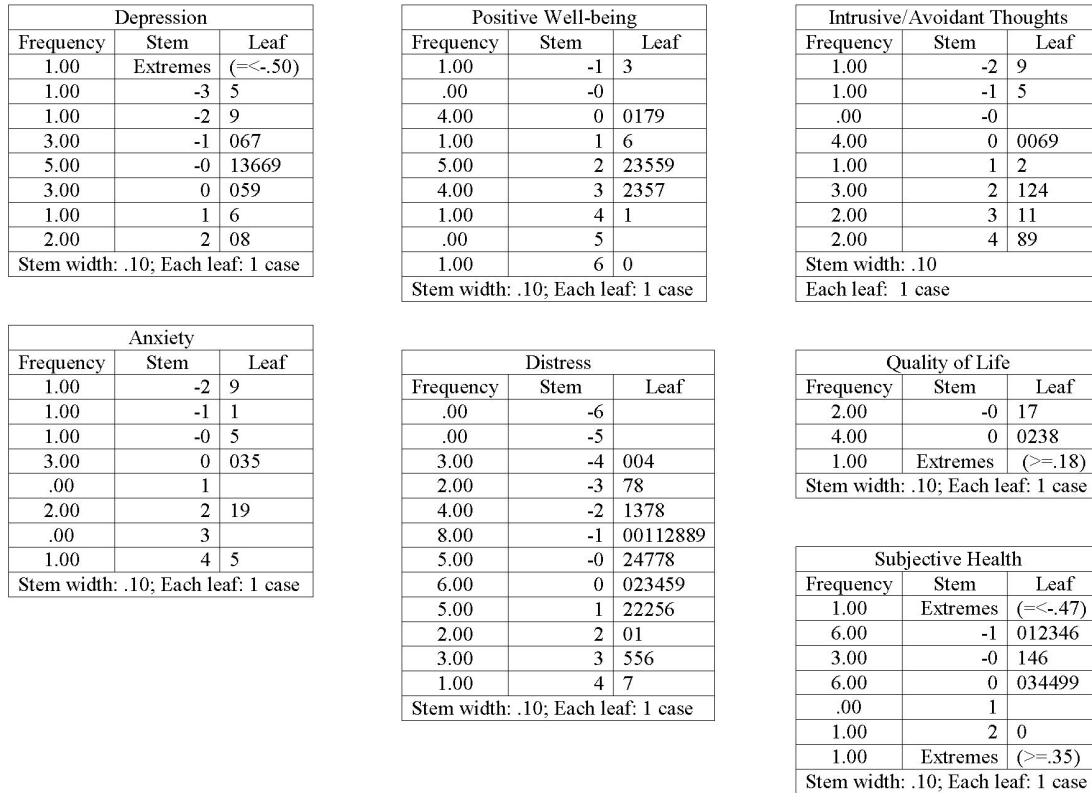


Figure 1. Stem-and-leaf displays of effect sizes for outcome variables.

the moderator variable accounts for a significant amount of variability in the effect size. In all cases, a significant amount of variability remained in the effect size even when the moderator was taken into consideration. Unfortunately, we could not examine all of the moderators simultaneously for a single outcome variable because there are missing data for some of the moderators (e.g., 24 studies did not report the racial composition of the sample). Thus, we examined each moderator variable separately. To interpret the direction of moderation, we provide the effect size estimates for the different levels of each moderator variable.

Time since trauma. We examined the average time since the trauma occurred as a moderator variable. Some studies only provided a range of time since the traumatic event (e.g., 1 to 5 years) rather than providing an average. If data were not provided for us to derive an average, we used the average of the range for our analyses. The average time since trauma ranged from immediately after the trauma (scored as 0 months) to 624 months (52 years). The median was 30 months or 2.5 years.

Time since trauma emerged as a significant predictor of the effect sizes for depression ($\beta = -.42, p < .001$), anxiety ($\beta = .59, p < .05$), positive well-being ($\beta = .62, p < .001$), and global distress ($\beta = -.30, p < .001$) but not intrusive-avoidant thoughts or subjective physical health. As shown in Table 4, benefit finding was more strongly related to less depression and greater positive affect when the time since the traumatic event was more than 2 years. By contrast, benefit finding was related to more global distress only when the time since the traumatic event was 2 years or less. Benefit finding also was only related to less anxiety

when the time since the traumatic event was 2 years or less, but only six studies were available to examine these relations. In all cases, significant variability remained in the dependent variables when time since trauma was taken into consideration.

Nature of stressor: Health versus other personal trauma. Stressful events were grouped into two categories: health-related stressors ($n = 44$) and personal traumas ($n = 23$). Two categories of stressors were excluded from these analyses: bereavement and most of the “other” category. Bereavement was excluded because it was ambiguous as to whether it was health related. The “other” category consisted mostly of studies in which participants were asked to recall the most traumatic event over a given time frame. Because some of these would be health related and some would not, we excluded those studies. If the study categorized as “other” focused on a specific event (e.g., work-related stressors), then we classified it as either health related or not.

The nature of the stressor predicted the effect size for anxiety ($\beta = .90, p < .001$) and subjective physical health ($\beta = .28, p < .05$), but both of these cases were driven by a single study. In both cases, these moderators were significant because of a single study. For anxiety, the overall effect size was not significant for the four health-related stressors but was significant for the single personal trauma. For subjective physical health, the same occurred. The nature of the stressor was a significant predictor of global distress ($\beta = .26, p < .001$), such that benefit finding was related to less distress in health stressor samples and unrelated to distress in personal trauma samples. The nature of the stressor did not predict depression or intrusive-avoidant thoughts. With the

Table 4
Moderators of the Relation of Benefit Finding to Outcomes

Variable	Q_r	Time since trauma			
		≤ 24 months		> 24 months	
		k	Effect size	k	Effect size
Depression	19.54***	7	-.08**	7	-.12**
Anxiety	5.68*	3	-.09**	3	.04
Positive well-being	24.16***	8	.13**	9	.28**
Global distress	19.17***	18	.06**	17	-.04
Intrusive-avoidant thoughts	0.83	8	.23**	5	.08*
Subjective physical health	0.10	6	-.05	10	.01

Variable	Q_r	Nature of stressor			
		Health stressor		Personal trauma	
		k	Effect size	k	Effect size
Depression	0.22	10	-.11**	2	-.13**
Anxiety	17.83***	4	.04	1	.45*** ^a
Positive well-being	3.08†	10	.18**	3	.30**
Global distress	15.38***	20	-.07**	12	.03
Intrusive-avoidant thoughts	2.30	4	.03	6	.14**
Subjective physical health	3.72*	16	-.01	1	.35*** ^a

Variable	Q_r	Benefit-finding measure			
		Well established		Study specific	
		k	Effect size	k	Effect size
Depression	2.54	10	-.11**	7	-.07**
Anxiety	1.22	6	-.03	3	.03
Positive well-being	0.14	9	.21**	8	.22**
Global distress	43.55***	18	.09**	21	-.06**
Intrusive-avoidant thoughts	4.39*	9	.21**	5	.07
Subjective physical health	5.19*	8	-.06**	10	.02

Variable	Q_r	Racial composition			
		$\geq 75\%$ White		$< 75\%$ White	
		k	Effect size	k	Effect size
Depression	43.00***	8	-.01	6	-.15**
Anxiety	0.53	2	.02	3	-.10**
Positive well-being	18.58***	12	.16**	2	.51**
Global distress	30.27***	22	.08**	5	-.08**
Intrusive-avoidant thoughts	0.56	7	.19**	1	.00 ^a
Subjective physical health	0.12	8	.01	4	-.10**

Variable	Q_r	Sex composition					
		100% female		50%–99% female		0%–49% female	
		k	Effect size	k	Effect size	k	Effect size
Depression	22.00***	5	-.04	5	-.02	7	-.15**
Anxiety	0.12	1	-.05 ^a	5	-.03	3	.13
Positive well-being	0.05	4	.16**	7	.26**	5	.16**
Global distress	1.17	8	-.02	20	.01	10	.01
Intrusive-avoidant thoughts	5.05*	4	.03	7	.22**	2	.27**
Subjective physical health	8.15**	5	.05†	8	-.06**	5	-.06†

^a Effect size is based on a single study.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

exception of anxiety, significant variability remained in the effect sizes when the nature of the stressor was taken into consideration. Taken collectively, the nature of the stressor did little to help us understand the conditions under which benefit finding was related to outcomes.

Benefit-finding measure. Well-established measures of benefit finding included the PTGI ($n = 20$), SRGS ($n = 16$), Benefit Finding Scale 1 ($n = 3$; Tomich & Helgeson, 2004), Benefit Finding Scale 2 ($n = 2$; Mohr et al., 1999), and the Perceived Benefits Scale ($n = 3$; McMillen & Fisher, 1998). (In addition, two studies used both the PTGI and the SRGS.) This category of instruments was compared with studies that either developed their own study-specific measure of benefit finding ($n = 20$) or used an open-ended measure to elicit benefit finding ($n = 22$).

The benefit-finding measure was a significant predictor of the effect sizes for global distress ($\beta = -.41, p < .001$), intrusive-avoidant thoughts ($\beta = -.31, p < .05$), and subjective physical health ($\beta = .32, p < .05$). In each case, the effect sizes were stronger for well-established measures. With well-established measures, benefit finding was related to more global distress, more intrusive-avoidant thoughts, and worse subjective physical health. Again, significant variability remained in the effect sizes when this moderator was taken into consideration.

Racial composition of the sample. The proportion of the sample that was White emerged as a significant predictor of the effect sizes for depression ($\beta = .63, p < .001$), positive well-being ($\beta = -.56, p < .001$), and global distress ($\beta = .40, p < .001$) but not anxiety, intrusive-avoidant thoughts, or subjective physical health. In each case, benefit finding was more strongly associated with better health when minority respondents comprised 25% or more of the sample. In the case of global distress, benefit finding was related to less distress when the sample was composed of 25% or more minority participants, and benefit finding was related to more distress when less than 25% of the sample were minorities.

Sex composition of the sample. The proportion of the sample that was female was a significant predictor of the effect size for depression ($\beta = .43, p < .001$), intrusive-avoidant thoughts ($\beta = -.34, p < .05$), and subjective physical health ($\beta = .40, p < .001$). To interpret these effects, we examined three categories of the samples' sex composition: 100% female, majority female (50%–99% female), and majority male (0%–49% female). The studies that comprised 100% female samples all focused on breast cancer. Therefore, the sex composition of the sample was confounded with the nature of the stressor. The effect size for depression was only significant when the sample was mostly male; the effect size for intrusive-avoidant thoughts was significant when the sample was mostly male or mostly female but not exclusively female; and the effect size for subjective physical health was marginally significant when the sample was mostly male, statistically significant when the sample was mostly female, and marginally significant in the opposite direction when the sample was exclusively female. Thus, the results from these moderator analyses were largely due to the confound between the sex composition of the sample and the nature of the stressor. The sex composition of the sample itself did little to explain the variability in the effect sizes. Again, in all cases, significant variability in effect sizes remained when this moderator was taken into consideration.

Relations of Benefit Finding to Correlates

We examined the relation of benefit finding to demographic variables, characteristics of the stressful event, personality, and coping. Among the demographic variables examined, effect sizes for sex, race, and age were significant (see Table 3). Women engaged in more benefit finding than men, and non-White individuals engaged in more benefit finding than White individuals. In addition, younger age was associated with more benefit finding. Marital status and socioeconomic status were unrelated to benefit finding.

Among the characteristics of the event examined, time since trauma was unrelated to benefit finding. However, the objective severity of the event and perceived stress associated with the event were related to more benefit finding. The latter effect was homogeneous across studies.

Among the personality traits examined, benefit finding was related to greater optimism and greater religiosity but was unrelated to neuroticism. Benefit finding was related to all three coping strategies examined, positive reappraisal, acceptance, and denial. The effect sizes for the coping variables were homogenous. The effect size for positive reappraisal was large.

Discussion

Relations of Benefit Finding to Health

This meta-analytic review of the literature revealed that benefit finding was associated with better mental health outcomes when such outcomes were operationalized as depression and positive well-being. The larger effect size appeared for positive well-being. This underscores the idea that benefit finding may be an outcome of interest in its own right and one that reflects the positive outcomes from trauma rather than a mere lack of distress.

However, at the same time, benefit finding was related to more intrusive and avoidant thoughts about the illness. At first glance, this would appear to be inconsistent with the above-mentioned findings. In fact, the relation of benefit finding to less depression but more intrusive thoughts may be one reason why the literature on the relation of benefit finding to mental health appears to be so inconsistent across studies. Furthermore, the literature is inconsistent if intrusive and avoidant thoughts are treated as markers of distress, which they often are. Intrusive and avoidant thoughts are most commonly measured with the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979). Many investigators have referred to these constructs as reflecting cognitive processing and attempts to understand traumatic events rather than markers of mental health. Experiencing intrusive thoughts about a stressor may be a signal that people are working through the implications of the stressor for their lives, and those implications could lead to growth. In fact, some might argue that a period of contemplation and consideration of the stressor is necessary for growth to occur. To the extent that intrusive and avoidant thoughts are markers of cognitive processing rather than of distress, the relation of benefit finding to these thoughts makes more sense and is not necessarily inconsistent with relations of benefit finding to reduced depression and greater positive affect.

We only had one physical health outcome, and it was based on people's subjective reports of their physical well-being, such as physical limitations in daily activities. Benefit finding was unre-

lated to this outcome. However, benefit finding was positively related to the correlate of disease severity that we examined. Recall that we noted that this category also could be construed as containing markers of objective physical health. Only longitudinal studies will help to disentangle whether one's objective physical health drives benefit finding or whether benefit finding has implications for physical well-being.

Benefit finding was unrelated to measures of anxiety, global distress, and quality of life. At first glance, these null findings call into question whether benefit finding has clear relations to mental health. On reflection, however, there may be reasons why clear findings did not emerge for these three outcomes. Recall that benefit finding was related to reduced depression but more intrusive thoughts. Anxiety may be an outcome that includes aspects of each of those variables. The null findings for global distress may simply be due to the fact that this outcome was really the "catch-all" variable when measures did not neatly fit into one of the other more clearly specified categories (i.e., anxiety, depression, positive well-being). Common measures of global distress included the Profile of Mood States (McNair, Lorr, & Droppelman, 1971), the SCL-90 (Derogatis, 1994), and the Positive and Negative Affect Scale (without separating positive from negative affect; Watson, Clark, & Tellegen, 1988), as well as measures of negative affect that did not distinguish among depression, anxiety, anger, and other negative mood states. These measures may have been composed of too many different constructs and constructs that differed in their relation to benefit finding for clear and consistent relations to emerge. The null findings for quality of life also are not surprising, given the fact that the quality of life category included outcomes that tap aspects of both mental and physical health and benefit finding revealed different relations to mental and physical outcomes. Thus, it is not surprising that benefit finding was unrelated to quality of life. Taken collectively, these findings suggest that benefit-finding researchers should examine specific mental health outcomes rather than administer global quality of life or distress instruments. If the latter are used, then it will be important to examine distinct constructs within the more global inventories.

Moderators

We also had the opportunity to examine moderators of the relation of benefit finding to health outcomes. The moderator that was of the most conceptual interest was time since trauma. This is a moderator variable that may have implications for the conceptualization of benefit finding. It is difficult to imagine that true growth can occur within days of a traumatic event. In the meta-analysis, time since trauma emerged as a significant moderator of the relation of benefit finding to four of the six health outcomes. From these analyses, it appears that benefit finding is more likely to be related to a good outcome when a longer time has elapsed since the trauma. In the case of reduced depression and greater positive affect, relations are stronger when there is more time since the event. For global distress, benefit finding is only related to more distress when the event is relatively recent. Anxiety is the one exception to this pattern, revealing a relation of benefit finding to reduced anxiety when the time since the trauma is shorter rather than longer. However, only three studies are examined at the two different levels of the moderator for anxiety.

These findings underscore the importance of taking into consideration the stage at which someone is dealing with a traumatic event when examining benefit finding. It is actually somewhat surprising that we found that time since the trauma so clearly moderated the effects of benefit finding as many of the cross-sectional studies include people whose distance from the event spans large ranges (i.e., days to years). In those cases, we used the average time since trauma in our analysis, but this is likely to obscure the relations of benefit finding to outcomes if those relations are very different for people who are examined early and late in the event process.

The nature of the trauma did little to help us understand the conditions under which benefit finding would be related to health. For two of the outcomes (anxiety and subjective physical health), moderator effects were driven by single studies. For global distress, benefit finding was related to reduced distress for health stressors but unrelated to distress for personal trauma stressors. The lack of a consistent pattern of moderator effects is not surprising, however, as we had no predictions here. We also lost a sizeable number of studies when we examined this question because some stressors could not be clearly categorized as health or personal trauma. The personal trauma category also was very broad, basically including any kind of stressor that could not be construed as health related. We chose to examine health-related samples as a separate category largely because so many studies of health have been conducted. Cancer, in particular, has received the greatest attention in this literature, as evidenced by the fact that a recent narrative review article on benefit finding focuses exclusively on cancer (Stanton et al., 2006). Future research should continue to explore whether benefit finding reveals different relations to outcomes for a more varied set of stressful events.

The benefit-finding measure used moderated the relations of benefit finding to three outcomes. In all three cases, effects were more likely to emerge when well-established measures of benefit finding were used. Thus, researchers who want to develop their own measure of benefit finding might consider also including a more well-established measure.

We examined two characteristics of the participants that comprised the benefit-finding studies, the racial and sex composition of the sample. The racial composition of the sample moderated the relation of benefit finding to three of the outcomes. In all three cases, benefit finding was more likely to be (or more strongly) related to better mental health when samples included a larger percentage of minority participants. Benefit finding was related to less depression only in samples with a larger percentage of minority persons, was more strongly related to positive affect in samples with a larger percentage of minority persons, and was only related to reduced distress in samples with a larger percentage of minority persons. Thus, benefit finding might be more adaptive for people who are of a minority ethnicity or race. Because minority persons also were more likely than Whites to engage in benefit finding, future research should explore whether benefit finding is interpreted differently across ethnic groups. Alternatively, perhaps minority persons' greater experience with adversity leads to a stronger pattern of deriving something good from the bad. If so, an individual's history of stressful life events should predict the ability to derive benefits when faced with a new stressor.

We gained less information from examining the gender composition of the sample as a moderator of the relation of benefit

finding to outcomes. It was more difficult to examine this moderator variable because the gender composition of the sample was confounded with the nature of the trauma. In particular, nine studies examined women with breast cancer. Thus, to understand this moderator variable, we distinguished the 100% female samples (or breast cancer samples) from samples in which the majority of participants was either female or male. The gender composition of the sample was a moderator for three outcomes. In all three cases, significant effects were more likely to be found in samples that were composed of mostly women or mostly men relative to the exclusively female or breast cancer samples. In summary, our examination of the gender composition of the sample did little to help us understand whether benefit finding is more strongly related to outcomes for men or women.

Who Engages in Benefit Finding? Relations to Correlates

Among the demographic variables examined, women, minority persons, and younger people appear to engage in the most benefit finding. The sex difference in benefit finding is consistent with a meta-analytic review of the literature on coping that showed women engage in more positive reappraisal and more positive self-talk than do men (Tamres, Janicki, & Helgeson, 2002). Marital status and socioeconomic status were unrelated to benefit finding.

Both objective severity and subjective perceptions of stress were related to more benefit finding. Threat severity is thought to motivate benefit finding. It certainly makes sense that a trauma would need to be more severe before people would make serious changes in the way they live their lives. Even if growth is only perceived, cognitive adaptation theory predicts that self-enhancement biases, such as construing benefits, is more likely to occur under conditions of severe threat (Taylor, 1983; Taylor & Brown, 1988). The findings from this meta-analysis support these ideas. To the extent that younger people find stressful events, such as a diagnosis of cancer, more stressful, perceived threat may account for the relation of benefit finding to younger age (Stanton et al., 2006).

Two of the three personality variables were associated with benefit finding. The effect size for optimism was moderate. It is not surprising that optimists are more likely to derive benefits from trauma, as the defining feature of this personality trait is having a positive outlook. Benefit finding also was related to religiosity, which may reflect the fact that one domain of benefit finding is spiritual growth. The fact that benefit finding was not related to neuroticism alleviates some concerns that people who are chronically distressed and worried are more likely to construe benefits from trauma. In fact, the direction of the effect size was opposite to this prediction.

Benefit finding was related to each of the three coping strategies we examined. Because coping strategies tend to be positively related to one another, partly as a reaction to distress (i.e., more distress leads to greater coping; see Tamres et al., 2002, for a further discussion of this issue), the relations of benefit finding to each of these three coping strategies may not be that meaningful in terms of the unique coping constructs. However, the relation of benefit finding to positive reappraisal was large in its own right and the largest effect size in the entire meta-analysis. On the one hand, this is not a surprise as positive reappraisal involves the

process of trying to find benefits (i.e., trying to look on the bright side of things, trying to find a silver lining in the clouds) and benefit-finding measures are aimed at tapping the positive result of this process, the actual finding of benefits. On the other hand, the large effect size with positive reappraisal may actually reflect another problem with the construct of benefit finding. Some researchers have confused the two and actually referred to positive reappraisal as benefit finding. Another avenue for future research is distinguishing the process of benefit finding from the outcome.

What Is Benefit Finding?

Although the relations of benefit finding to a number of the mental health outcomes were significant, the effect sizes were small and there was heterogeneity across the pool of studies. Even after taking into consideration moderator variables, there appears to be additional variance in the relation of benefit finding to outcomes that needs to be explained. One reason for some of the inconsistent relations of benefit finding to health outcomes has to do with what the construct really measures. It is not clear whether high reports of benefits reflect actual changes that people have made in their lives as the result of the traumatic event or a cognitive mechanism more in line with cognitive adaptation theory (Taylor, 1983), whereby one construes benefits as a way to relieve distress. Even if one could separate these two constructs—actual growth from perceived growth—it is not clear what one would predict in regard to mental health. Making changes in one's life, even if those changes are for the good, is likely to be disruptive and distressing. With time, however, one would expect actual growth to have positive consequences for mental health. Perceived growth should be related to better mental health to the extent that the cognitive self-enhancement strategy is effective. However, to the extent that one is engaging in this cognitive bias as a way to relieve distress, perceived growth may actually be a result of high distress.

Another distinction that needs to be made in the benefit-finding literature is between process and outcome. At earlier stages of the trauma, benefit finding may reflect a coping process rather than an outcome that has emerged from the stressful event. Our examination of time since trauma as a moderator of the relation of benefit finding to health revealed results consistent with this assertion. Longitudinal research will help to distinguish process from outcome.

Thus, one explanation for the seemingly inconsistent findings across the literature is that researchers are not all studying the same phenomenon. Growth outcomes may reflect a variety of processes, some of which have to do with actual changes in one's life, some of which have to do with coping, and others of which have to do with cognitive manipulations on the order of self-enhancement biases meant to alleviate distress. The goal of this article was not to make conceptual and empirical distinctions among different kinds of benefit finding or growth. Unfortunately, we are not at the stage in the field where we can tease these ideas apart, as we have not assigned unique terms to different phenomenon. Instead, the goal of this article was to examine what the literature tells us collectively about the studies that have examined reports of positive changes from trauma.

Conclusions and Limitations

There are advantages and disadvantages of meta-analysis that are important to discuss with respect to the topic of benefit finding. The advantage is that meta-analysis provides a better representation of the “average” effect across studies than a narrative review. Studies are weighted differently in contributing to the average effect, depending on the size of the sample. The literature on benefit finding is burgeoning, with the inconsistencies in the literature becoming a focal point of attention. The meta-analytic findings reported in this issue can now speak to that issue. Benefit finding is clearly related to less depression and more positive affect but also to more intrusive and avoidant thoughts about the stressor. Another advantage of meta-analysis is that it allows one to examine moderator variables; that is, to identify conditions under which benefit finding is more and less likely to be related to health. However, in doing so, the size of the pool of studies included decreases. Many of our moderator analyses were based on a small number of studies, limiting our confidence in these findings. Future research should test moderators explicitly within studies.

The disadvantage of meta-analysis is that the findings are limited by the studies that the investigators select to include. We only included published studies. Although these studies were peer-reviewed, there may be methodologically strong unpublished studies in this area. We construed benefit finding broadly, including any study that examined the positive effects of traumatic events. Some of those studies used well-established scales and some did not. Results were stronger when better measures were used. However, even though the PTGI and SRGS have sound psychometric data, they are not sophisticated enough to capture the conceptual distinctions in benefit finding discussed here. Furthermore, it is not clear how one would alter these instruments so that they are able to distinguish actual growth from perceived growth from coping. We considered the possibility that one way to distinguish between actual growth and perceived growth would be to take into consideration the time that had transpired since the event, as actual growth would take some time to occur. The meta-analysis revealed that benefit-finding measures are more likely to be related to better mental health when some time has transpired since the initial event.

It also is important to underscore the fact that this meta-analysis was undertaken on cross-sectional data. We do not know whether benefit finding leads to better mental health or whether better mental health leads to more benefit finding. The positive relations of benefit finding to event severity and perceived stress certainly make more sense when understood as antecedents to benefit finding—that is, more severe events and greater perceived stress lead to more benefit finding. Numerous longitudinal studies are being undertaken (some of which are reported in this issue), which may help to disentangle these relations.

Future Directions

An obvious future direction is the conceptual one. Researchers in the field need to articulate a distinct set of constructs related to benefit finding and growth, with an obvious goal being to disentangle the actual life changes that one undertakes as a result of trauma from the cognitive manipulations that one conducts to

relieve distress from the process one engages in to cope with trauma. The challenge here may be more of an empirical one than a conceptual one. It is not obvious how current measures can capture this distinction.

Future research also should continue to identify moderators of the relation of benefit finding to health outcomes. To our knowledge, previous research has not examined whether benefit finding has different implications for health outcomes among people of different racial and ethnic groups. The present meta-analysis suggests that this may be the case. Threat severity may be another moderator variable. Tomich and Helgeson (2004) found that benefit finding interacted with disease stage, such that benefit finding was related to negative quality of life outcomes only among those with more severe disease. Optimism and hope also have been identified as moderators of the relation of benefit finding to outcomes. In a longitudinal study of mothers of children undergoing stem cell transplantation, benefit finding predicted positive adjustment 6 months later only among mothers who were optimists (Rini et al., 2004). In a study of women with breast cancer, positive reappraisal was measured rather than benefit finding and found to interact with hope such that positive reappraisal was related to good outcomes only among women with high hope (Stanton, Danoff-Burg, & Huggins, 2002).

Another possibility is that benefit-finding relations to correlates and outcomes are not linear. The relation of benefit finding to stressor severity was curvilinear in two studies. Among people with cancer, those with Stage II disease reported more benefit finding than those with Stage I or IV disease (Lechner et al., 2003). In a study of Vietnam veterans, the most benefits were reported by those who experienced a moderate rather than a low or high level of exposure to trauma (Fontana & Rosenheck, 1998). The relation of benefit finding to outcomes also has been shown to be curvilinear in one study. In a recent study of women with nonmetastatic breast cancer, those who reported low or high amounts of benefit finding had the best psychosocial outcomes (Lechner, Antoni, Weaver, & Carver, 2005).

In conclusion, it seems so simple to ask people whether they have experienced something positive from their traumatic event. However, the thought process underlying a person’s response may be much more complicated. In addition, the process of growth may be multifaceted, with effects on psychological and physical health that change with time. Future research needs to examine growth from multiple perspectives and from multiple points in time.

References

References marked with an asterisk indicate studies included in the meta-analysis.

- *Abraído-Lanza, A. F., Guier, C., & Colón, R. M. (1998). Psychological thriving among Latinas with chronic illness. *Journal of Social Issues, 54*, 405–424.
- *Affleck, G., Tennen, H., 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.
- *Affleck, G., Tennen, H., & Gershman, K. (1985). Cognitive adaptations to high-risk infants: The search for mastery, meaning, and protection from future harm. *American Journal of Mental Deficiency, 89*, 653–656.
- *Aldwin, C. M., Levenson, M. R., & Spiro, A. (1994). Vulnerability and resilience to combat exposure: Can stress have lifelong effects? *Psychology and Aging, 9*, 34–44.

- *Antoni, M. H., Lehman, J. M., Kilbourn, K. M., Boyers, A. E., Culver, 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.
- *Bellizzi, K. M. (2004). Expressions of generativity and posttraumatic growth in adult cancer survivors. *International Journal of Aging and Human Development, 58*, 267–287.
- *Best, M., Streisand, R., Catania, L., & Kazak, A. E. (2001). Parental distress during pediatric leukemia and posttraumatic stress symptoms (PTSS) after treatment ends. *Journal of Pediatric Psychology, 26*, 299–307.
- *Bower, J. E., Kemeny, M. E., Taylor, S. E., & Fahey, J. L. (1998). Cognitive processing, discovery of meaning, CD4 decline, and AIDS-related mortality among bereaved HIV-seropositive men. *Journal of Consulting and Clinical Psychology, 66*, 979–986.
- *Bower, J. E., Meyerowitz, B. E., Desmond, K. A., Bernaards, C. A., Rowland, J. H., & Ganz, P. A. (2005). Perceptions of positive meaning and vulnerability following breast cancer: Predictors and outcomes among long-term breast cancer survivors. *Annals of Behavioral Medicine, 29*, 236–245.
- *Britt, T. W., Adler, A. B., & Bartone, P. T. (2001). Deriving benefits from stressful events: The role of engagement in meaningful work and hardiness. *Journal of Occupational Health Psychology, 6*, 53–63.
- *Burt, M. R., & Katz, B. L. (1987). Dimensions of recovery from rape: Focus on growth outcomes. *Journal of Interpersonal Violence, 2*, 57–81.
- *Cadell, S. (2003). Trauma and growth in Canadian carers. *AIDS Care, 15*, 639–648.
- *Cadell, S., Regehr, C., & Hemsworth, D. (2003). Factors contributing to posttraumatic growth: A proposed structural equation model. *American Journal of Orthopsychiatry, 73*, 279–287.
- *Calhoun, L. G., Cann, A., Tedeschi, R. G., & McMillan, J. (2000). A correlation test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress, 13*, 521–527.
- *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.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- *Collins, R. L., Taylor, S. E., & Skokan, L. A. (1990). A better world or a shattered vision? Changes in life perspectives following victimization. *Social Cognition, 8*, 263–285.
- *Cordova, M. J., Cunningham, L. L. C., Carlson, C. R., & Andrykowski, M. A. (2001). Posttraumatic growth following breast cancer: A controlled comparison study. *Health Psychology, 20*, 176–185.
- *Curbow, B., Somerfield, M. R., Baker, F., Wingard, J. R., & Legro, M. W. (1993). Personal changes, dispositional optimism, and psychological adjustment to bone marrow transplantation. *Journal of Behavioral Medicine, 16*, 423–443.
- *Daiter, S., Larson, R. A., Weddington, W. W., & Ulmann, J. E. (1988). Psychosocial symptomatology, personal growth, and development among young adult patients following the diagnosis of leukemia or lymphoma. *Journal of Clinical Oncology, 6*, 613–617.
- *Danoff-Burg, S., & Revenson, T. A. (2005). Benefit-finding among patients with rheumatoid arthritis: Positive effects on interpersonal relationships. *Journal of Behavioral Medicine, 28*, 91–103.
- *Davis, C. G., & Macdonald, S. L. (2004). Threat appraisals, distress and the development of positive life changes after September 11th in a Canadian sample. *Cognitive Behaviour Therapy, 33*, 68–78.
- *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.
- Derogatis, L. R. (1994). *SCL-90-R: Administration, scoring and procedures manual* (3rd ed.). Minneapolis, MN: National Computer Systems.
- *DeRoma, V., Saylor, C., Swickert, R., Sinisi, C., Marable, T. B., & Vickery, P. (2003). College students' PTSD symptoms, coping, and perceived benefits following media exposure to 9/11. *Journal of College Student Psychotherapy, 18*, 49–64.
- *Dolinska, B. (2003). Positive consequences from the experience of disaster. *Polish Psychological Bulletin, 34*, 225–230.
- *Evers, A. W. M., Kraaimaat, F. W., van Lankveld, W., Jongen, P. J. H., Jacobs, J. W. G., & Bijlsma, J. W. J. (2001). Beyond unfavorable thinking: The Illness Cognition Questionnaire for Chronic Diseases. *Journal of Consulting and Clinical Psychology, 69*, 1026–1036.
- *Fontana, A., & Rosenheck, R. (1998). Psychological benefits and liabilities of traumatic exposure in the war zone. *Journal of Traumatic Stress, 11*, 485–503.
- *Frazier, P., Conlon, A., & Glaser, T. (2001). Positive and negative life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 69*, 1048–1055.
- *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.
- *Giedzinska, A. S., Meyerowitz, B. E., Ganz, P. A., & Rowland, J. H. (2004). Health-related quality of life in a multiethnic sample of breast cancer survivors. *Annals of Behavioral Medicine, 28*, 39–51.
- Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Orlando, FL: Academic Press.
- Hedges, L. V., & Pigott, T. D. (2001). The power of statistical tests in meta-analysis. *Psychological Methods, 6*, 203–217.
- Horowitz, M., Wilner, N., & Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine, 41*, 209–218.
- *Joseph, S., Linley, P. A., Andrews, L., Harris, G., Howle, B., Woodward, C., & Shevlin, M. (2005). Assessing positive and negative changes in the aftermath of adversity: Psychometric evaluation of the Changes in Outlook Questionnaire. *Psychological Assessment, 17*, 70–80.
- *Joseph, S., Williams, R., & Yule, W. (1993). Changes in outlook following disaster: The preliminary development of a measure to assess positive and negative responses. *Journal of Traumatic Stress, 6*, 271–279.
- *Katz, R. C., Flasher, L., Cacciapaglia, H., & Nelson, S. (2001). The psychosocial impact of cancer and lupus: A cross validation study that extends the generality of "benefit-finding" in patients with chronic disease. *Journal of Behavioral Medicine, 24*, 561–571.
- *King, L. A., & Patterson, C. (2000). Reconstructing life goals after the birth of a child with Down syndrome: Finding happiness and growing. *International Journal of Rehabilitation and Health, 5*, 17–30.
- *Klauer, T., Ferring, D., & Filipp, S. (1998). "Still stable after all this. . .?": Temporal comparison in coping with severe and chronic disease. *International Journal of Behavioral Development, 22*, 339–355.
- *Koenig, H. G., Pargament, K. I., & Nielsen, J. (1998). Religious coping and health status in medically ill hospitalized older adults. *The Journal of Nervous and Mental Disease, 186*, 513–521.
- Lechner, S. C., Antoni, M. H., Weaver, K., & Carver, C. S. (2005, April). *Does benefit finding predict outcomes in breast cancer: Replication and extension*. Paper presented at the annual meeting of the Society of Behavioral Medicine, Boston, MA.
- *Lechner, S. C., Zakowski, S. G., Antoni, M. H., Greenhawt, M., Block, K., & Block, P. (2003). Do sociodemographic and disease-related variables influence benefit-finding in cancer patients? *Psycho-Oncology, 12*, 491–499.
- *Lehman, D. R., Davis, C. G., Delongis, A., Wortman, C. B., Bluck, S., Mandel, D. R., & Ellard, J. H. (1993). Positive and negative life changes following bereavement and their relations to adjustment. *Journal of Social and Clinical Psychology, 12*, 90–112.

- *Lev-Wiesel, R., & Amir, M. (2003). Posttraumatic growth among holocaust child survivors. *Journal of Loss and Trauma, 8*, 229–237.
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress, 17*, 11–21.
- *Linley, P. A., & Joseph, S. (2005). Positive and negative changes following occupational death exposure: The role of structural and psychosocial factors. *Journal of Traumatic Stress, 18*, 751–758.
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis. Applied social research methods series* (Vol. 49). Thousand Oaks, CA: Sage.
- *Maercker, A., & Herrle, J. (2003). Long-term effects of the Dresden bombing: Relationships to control beliefs, religious belief, and personal growth. *Journal of Traumatic Stress, 16*, 579–587.
- *McCausland, J., & Pakenham, K. I. (2003). Investigation of the benefits of HIV/AIDS caregiving and relations among caregiving adjustment, benefit finding, and stress and coping variables. *AIDS Care, 15*, 853–869.
- 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.
- *McMillen, J. C., & Cook, C. L. (2003). The positive by-products of spinal cord injury and their correlates. *Rehabilitation Psychology, 48*, 77–85.
- *McMillen, J. C., & Fisher, R. H. (1998). The Perceived Benefit Scales: Measuring perceived positive life changes after negative events. *Social Work Research, 22*, 173–186.
- *McMillen, J. C., Smith, E. M., & Fisher, R. H. (1997). Perceived benefit and mental health after three types of disaster. *Journal of Consulting and Clinical Psychology, 65*, 733–739.
- *McMillen, J. C., Zuravin, S., & Rideout, G. (1995). Perceived benefit from child sexual abuse. *Journal of Consulting and Clinical Psychology, 63*, 1037–1043.
- McNair, D. M., Lorr, M., & Droppelman, L. F. (1971). *EITS manual for the Profile of Mood States*. San Diego, CA: Educational and Industrial Testing Service.
- *Milam, J. E. (2004). Posttraumatic growth among HIV/AIDS patients. *Journal of Applied Social Psychology, 34*, 2353–2376.
- Milam, J. E., Ritt-Olson, A., & Unger, J. B. (2004). Posttraumatic growth among adolescents. *Journal of Adolescent Research, 19*, 192–204.
- *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.
- Orwin, R. G. (1983). A fail-safe *N* for effect size in meta-analysis. *Journal of Educational Statistics, 8*, 157–159.
- *Pakenham, K. I. (2005). Benefit finding in multiple sclerosis and associations with positive and negative outcomes. *Health Psychology, 24*, 123–132.
- *Pakenham, K. I., Sofronoff, K., & Samios, C. (2004). Finding meaning in parenting a child with Asperger syndrome: Correlates of sense making and benefit finding. *Research in Developmental Disabilities, 25*, 245–264.
- *Pargament, K. I., Koenig, H. G., & Perez, L. (2000). The many methods of religious coping: Development and initial validation of the RCOPE. *Journal of Clinical Psychology, 56*, 519–543.
- *Pargament, K. I., Smith, B. W., Koenig, H. G., & Perez, L. (1998). Patterns of positive and negative religious coping with major life stressors. *Journal for the Scientific Study of Religion, 37*, 710–724.
- *Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*, 71–105.
- *Park, C. L., & Fenster, J. R. (2004). Stress-related growth: Predictors of occurrence and correlates with psychological adjustment. *Journal of Social and Clinical Psychology, 23*, 195–215.
- *Petrie, K. J., Buick, D. L., Weinman, J., & Booth, R. J. (1999). Positive effects of illness reported by myocardial infarction and breast cancer patients. *Journal of Psychosomatic Research, 47*, 537–543.
- *Polatinsky, S., & Esprey, Y. (2000). An assessment of gender differences in the perception of benefit resulting from the loss of a child. *Journal of Traumatic Stress, 13*, 709–718.
- *Rini, C., Manne, S., DuHamel, K. N., Austin, J., Ostroff, J., Boulad, F., et al. (2004). Mothers' perceptions of benefit following pediatric stem cell transplantation: A longitudinal investigation of the roles of optimism, medical risk, and sociodemographic resources. *Annals of Behavioral Medicine, 28*, 132–141.
- *Roesch, S. C., Rowley, A. N. A., & Vaughn, A. A. (2004). On the dimensionality of the Stress-Related Growth Scale: One, three, or seven factors? *Journal of Personality Assessment, 82*, 281–290.
- Rosenthal, R. (1979). The "file drawer problem" and tolerance for null results. *Psychological Bulletin, 86*, 638–641.
- Rosenthal, R. (1991). Meta-analysis: A review. *Psychosomatic Medicine, 53*, 247–271.
- *Salmon, P., Manzi, F., & Valori, R. M. (1996). Measuring the meaning of life for patients with incurable cancer: The Life Evaluation Questionnaire (LEQ). *European Journal of Cancer, 32*, 755–760.
- Salter, E., & Stallard, P. (2004). Posttraumatic growth in child survivors of a road traffic accident. *Journal of Traumatic Stress, 17*, 335–340.
- *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.
- Shadish, W. R., & Haddock, C. K. (1994). Combining estimates of effect size. In H. Cooper & L. V. Hedges (Eds.), *The handbook of research synthesis* (pp. 261–281). New York: Russell Sage Foundation.
- *Sheikh, A. I. (2004). Posttraumatic growth in the context of heart disease. *Journal of Clinical Psychology in Medical Settings, 11*, 265–273.
- *Siegel, K., & Schrimshaw, E. W. (2000). Perceiving benefits in adversity: Stress-related growth in women living with HIV/AIDS. *Social Science and Medicine, 51*, 1543–1554.
- *Snape, M. C. (1997). Reactions to a traumatic event: The good, the bad and the ugly? *Psychology, Health and Medicine, 2*, 237–242.
- *Sodergren, S. C., Hyland, M. E., Crawford, A., & Partridge, M. R. (2004). Positivity in illness: Self-delusion or existential growth? *British Journal of Health Psychology, 9*, 163–174.
- Stanton, A. L., Bower, J. E., & Low, C. A. (2006). Posttraumatic growth after cancer. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and practice* (pp. 138–175). Mahwah, NJ: Erlbaum.
- Stanton, A. L., Danoff-Burg, S., & Huggins, M. E. (2002). The first year after breast cancer diagnosis: Hope and coping strategies as predictors of adjustment. *Psycho-Oncology, 11*, 93–102.
- Tames, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Bulletin, 6*, 2–30.
- *Tarakeshwar, N., & Pargament, K. I. (2001). Religious coping in families of children with autism. *Focus on Autism and Other Developmental Disabilities, 16*, 247–260.
- *Tashiro, T., & Frazier, P. (2003). "I'll never be in a relationship like that again": Personal growth following romantic relationship breakups. *Personal Relationships, 10*, 113–128.
- Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist, 38*, 1161–1173.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*, 193–210.
- Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage.
- *Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*, 455–471.
- *Tennen, H., Affleck, G., Urrows, S., Higgins, P., & Mendola, R. (1992).

- Perceiving control, construing benefits, and daily processes in rheumatoid arthritis. *Canadian Journal of Behavioral Science*, 24, 186–203.
- *Thompson, S. C. (1985). Finding positive meaning in a stressful event and coping. *Basic and Applied Social Psychology*, 6, 279–295.
- *Thornton, A. A., & Perez, M. A. (2006). Posttraumatic growth in prostate cancer survivors and their partners. *Psycho-Oncology*, 15, 285–296.
- *Tomich, P. 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.
- *Updegraff, J. A., Taylor, S. E., Kemeny, M. E., & Wyatt, G. E. (2002). Positive and negative effects of HIV infection in women with low socioeconomic resources. *Personality and Social Psychology Bulletin*, 28, 382–394.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- *Waysman, M., Schwarzwald, J., & Solomon, Z. (2001). Hardiness: An examination of its relationship with positive and negative long term changes following trauma. *Journal of Traumatic Stress*, 14, 531–548.
- *Weiss, T. (2004a). Correlates of posttraumatic growth in husbands of breast cancer survivors. *Psycho-Oncology*, 13, 260–268.
- *Weiss, T. (2004b). Correlates of posttraumatic growth in married breast cancer survivors. *Journal of Social and Clinical Psychology*, 23, 733–746.
- *Widows, M. R., Jacobsen, P. B., Booth-Jones, M., & Fields, K. K. (2005). Predictors of posttraumatic growth following bone marrow transplantation for cancer. *Health Psychology*, 24, 266–273.
- *Wild, N. D., & Paivio, S. C. (2003). Psychological adjustment, coping, and emotion regulation as predictors of posttraumatic growth. *Journal of Aggression, Maltreatment and Trauma*, 8, 97–122.
- *Woike, B., & Matic, D. (2004). Cognitive complexity in response to traumatic experiences. *Journal of Personality*, 72, 633–657.

Received May 31, 2005

Revision received January 4, 2006

Accepted January 26, 2006 ■

Call for Papers: Special Section on Suicide and Self-Harm Behaviors

The *Journal of Consulting and Clinical Psychology* is requesting submissions of empirical papers that focus on suicide and self-harm behaviors, including non-suicidal self-injury. In particular, submissions are requested that may address one of the following topics; (1) beyond the identification of broad biopsychosocial risk factors, what are possible specific mechanisms that promote self-harm behavior, and might be addressed in prevention/intervention efforts? (2) how might cross-disciplinary theoretical perspectives (e.g., biological, interpersonal) be integrated to understand or treat self-harm behavior? (3) what are some innovative methodological paradigms for investigating self-harm behaviors? (4) randomized clinical trial data on preventions/ interventions designed to reduce self-harm behavior. The papers must present original empirical findings. The goal of this special section is to have a set of papers that represent the lifespan.

The deadline for submissions of manuscripts is February 1, 2007. Final editorial decisions will be made by late 2007, with an anticipated publication date of early 2008. All submissions should be entered through the main submission portal for the journal (www.apa.org/journals/ccp.html). Authors should indicate in their accompanying cover letter that the paper is to be considered for the special section on “suicide and self-harm.” All submitted papers must be in APA format and conform to all the guidelines for submission for JCCP (see www.apa.org/journals/ccp).

Questions or inquiries regarding the special section should be directed to the section editor, Mitch Prinstein (mitch.prinstein@unc.edu).