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## Positive Changes Following Adversity

Throughout human history the theme of positive changes following adversity is found in literature, religions, and philosophies. Most notable is Nietzsche's famous dictum, "What doesn't kill me makes me stronger." It was an idea also common to the existential and humanistic traditions of psychology of the mid-twentieth century. Viktor Frankl wrote about the will to meaning following his experiences in Theresienstadt and Auschwitz, and Abraham Maslow noted that confrontations with tragedy were often precursors to self-actualization. Scientific interest was sparked when a handful of studies appeared in the late 1980s and early 1990s, reporting positive changes in, for example, rape survivors (Burt & Katz, 1987), male cardiac patients (Affleck, Tennen, Croog, & Levine, 1987), bereaved adults (Edmonds & Hooker, 1992), and combat veterans (Elder & Clipp, 1989).

Interest took hold during the 1990s as the construct was elaborated (e.g., O'Leary & Ickovics, 1995; Tedeschi & Calhoun, 1995) and with the emergence of several psychometric self-report tools, the Changes in Outlook Questionnaire (CiOQ: Joseph, Williams, & Yule, 1993), the Posttraumatic Growth Inventory (PTGI: Tedeschi & Calhoun, 1996), the Stress-Related Growth Scale (SRGS: Park, Cohen, & Murch, 1996), the Perceived Benefit Scales (PBS: McMillen & Fisher, 1998), and the Thriving Scale (TS: Abraido-Lanza et al., 1998). But it is only over the past decade, bolstered by the new positive psychology movement, that the topic has become firmly established as a field of scientific research and clinical interest. Recent major texts include Calhoun and Tedeschi's (2006) *Handbook of Posttraumatic Growth*, and Joseph and Linley's (2008) *Trauma, Recovery and Growth*.

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Positive changes are difficult to study well, and much of the research is open to criticism. The field is still young, and as such, the reader should beware over-generalized interpretations of specific results to new situations and clinical practice. With apologies to all of those whose work was omitted, we have tried to select articles that reflect the development of the field and the diversity of contexts and populations that have been studied and that illustrate a method, trend, issue, or conclusion that is important.

### Terminology

The term *posttraumatic growth* has now become the most widely used term to describe the field. Other terms which have been used include *stress-related growth*. There is debate over the use of the term *growth*, which others have used explicitly to invoke the biological metaphor associated with the humanistic psychology tradition and how growth arises through the resolution of an adversarial tension between pre-existing assumptive worlds and the new trauma-related information. To avoid such theoretical connotations, other terms such as *benefit-finding*, *perceived benefits*, and *positive change* have been used. Although within the literature the various terms are often used interchangeably, it needs to be recognized that different epistemological positions are represented by each. Mindful of this, we have chosen to generally use the term *positive change* in this brief review.

### Correlates

The bulk of research has relied on the use of the aforementioned, or other similar, retrospective self-report measures. Particularly important have

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been reviews of the literature. A systematic review of 39 studies by Linley and Joseph (2004) suggested that positive change is commonly reported in around 30-70% of survivors of various traumatic events, including transportation accidents (shipping disasters, plane crashes, car accidents), natural disasters (hurricanes, earthquakes), interpersonal experiences (combat, rape, sexual assault, child abuse), medical problems (cancer, heart attack, brain injury, spinal cord injury, HIV/AIDS, leukaemia, rheumatoid arthritis, multiple sclerosis), and other life experiences (relationship breakdown, parental divorce, bereavement, immigration), and that growth is associated with higher socio-economic status, higher education, younger age, personality traits such as optimism and extraversion, positive emotions, social support, and problem focused, acceptance, and positive reinterpretation coping. More recently, Helgeson et al. (2006) conducted a meta-analytic review of 87 studies, concluding that benefit finding was related to lower depression and higher well-being, but also greater severity of intrusive and avoidant posttraumatic experiences. This latter finding has caused some confusion, leading some to question the adaptive utility of growth, while others propose that posttraumatic stress symptoms should be viewed as signs of the cognitive processes that give rise to growth. Evidence from the Stanford Internet survey following 9/11 (Butler et al., 2005) indicated that there might be a curvilinear relation between levels of posttraumatic stress and positive change, suggesting that there may be a range of traumatic experience most conducive to growth.

## Theoretical Development

Janoff-Bulman's (1992) shattered assumptions theory was developed prior to the establishment of the field but has provided the fundamental theoretical architecture for the two main theories of positive change, notably the transformational model (Tedeschi & Calhoun, 2004) and the organismic valuing theory (Joseph & Linley, 2005). Organismic valuing theory attempts to provide an account of positive changes rooted in humanistic psychology wherein posttraumatic stress is viewed as indicative of normal, natural cognitive processes that have the potential to generate positive change. Theoretically, the largest challenge facing the field over the coming years is whether it succeeds in providing a useful alternative non-medical paradigm for the study of traumatic stress.

The empirical literature has been limited by an over-reliance on cross-sectional studies, but increasingly longitudinal studies are available and beginning to paint a clearer picture of which factors lead to positive change. For example, in a study of 206 long-term cancer survivors (Schroevers, Helgeson, Sanderman, & Ranchor, 2010), the more emotional support was received at 3 months after diagnosis, the greater was the experience of positive consequences of the illness at 8 years after diagnosis, even when controlling for concurrent levels of emotional support at that follow-up.

Of interest is whether positive changes lead to better outcomes on other more-traditional indices. Linley, Joseph, and Goodfellow (2008) found that people who report positive change are less likely to experience problems of posttraumatic stress at six months. Frazier et al. (2004) asked 171 rape survivors to complete a specially designed questionnaire to measure positive changes at 2 weeks following the assault, and then again 2, 6, and 12 months later. This well-designed study allowed the investigators to see how positive changes related to well-being over time. Four groups were created:

(1) those who reported low levels of positive change at 2 weeks and high levels at 12 months ("gained positive change" group); (2) those who reported high levels of positive change at 2 weeks and low levels at 12 months ("lost positive change" group); (3) those who reported low levels at both time points ("never had positive change" group), and (4) those who reported high levels at both time points ("always had positive change" group). Results indicated that those in the "always had positive change" group did the best, showing the lowest levels of depression and posttraumatic stress.

Affleck, Tennen, Croog, and Levine (1987) reported that heart attack patients who found benefits immediately after their first attack had reduced re-occurrence and morbidity statistics eight years later. Turning to biological markers, Epel, McEwen, and Ickovics (1998) found that high levels of positive change were related to lowered cortisol levels in women exposed to laboratory stress, as did Cruess et al. (2000) who reported lower cortisol levels through the enhancement of benefit finding among women with breast cancer. Dunigan, Carr, and Steel (2007) reported that among patients with hepatoma, those scoring high on positive change survived 186 days longer than their lower-scoring peers, due to higher peripheral blood leukocytes. Furthermore, Bower et al. (1998) reported that lower AIDS-related mortality was associated with self-reported benefit finding among bereaved HIV-positive men. Milam (2004) also reported greater immune system functioning among HIV patients with higher levels of positive change.

## Issues, Controversies, and Directions

Research has progressed considerably with the introduction of standardized self-report instruments to assess positive change, allowing comparisons to be made between studies, but there is still no consensus regarding the parameters that define the universe of positive change. The most widely used of the measures is the Posttraumatic Growth Inventory (PTGI), which assesses five domains: (1) perceived changes in self (becoming stronger, more confident); (2) developing closer relationships with family, friends, neighbours, fellow trauma survivors, and even strangers; (3) changing life philosophy/increased existential awareness; (4) changed priorities; and (5) enhanced spiritual beliefs. As research has continued to develop and mix in-depth qualitative analysis into the inquiry, many aspects of positive change appear to be absent from the current scales of measurement, suggesting the need to use multiple measures, to recognize that change can be in both positive and negative schematic directions, and to include study-specific measurement.

One of the main current criticisms is the overreliance on retrospective self-report, with some questioning the validity of the concept itself. However, evidence for positive change arises when before-and-after measures are used. A fortuitous study by Peterson and Seligman (2003) had 4817 respondents complete the on-line Values in Action Classification of Strengths prior to September 11. When scores for individuals who completed the survey in the 2 months immediately after September 11 were compared with the scores for those who completed the survey before September 11, seven character strengths showed increases: gratitude, hope, kindness, leadership, love, spirituality, and teamwork. So, while the use of retrospective self-report is limited, the notion of positive change when measured through other means seems substantiated.

One of the issues that makes measurement so problematic is that the various measures of positive change ask respondents to rate their perceptions of how much they have changed as a result of the event. Ford, Tennen, and Albert (2008) described the complex cognitive operations required of respondents, all of which can be subject to bias. Data on the validity of these retrospective self-reports was questioned by Patricia Frazier and her colleagues (2009) who asked over 1500 students in an on-line survey to complete a battery of questionnaires, including a measure of psychological well-being. Eight weeks later they were asked to complete the questionnaires again and report whether they had experienced any major life events in the interim. Ten percent of the sample reported the experience of a traumatic event in the preceding eight weeks, and increases in psychological well-being were noted when the measure of psychological well-being after the event was compared with that completed before the event. But ratings of how people thought they had changed did not correspond well to these actual changes. A further complication when considering the validity of self-report is the suggestion that some reports of positive change are illusory, such as those that are fleeting or due to positive reporting biases or wishful, defensive, or even superstitious thinking. While illusory change should not be considered as real positive change, most commentators agree that a certain amount of illusory positive reappraisal coping can be psychologically helpful.

Methodologically, the bulk of the research to date is cross-sectional and high-quality longitudinal studies remain relatively rare, and it cannot yet be concluded what factors are predictive of positive change. It is likely, given the example of the wider trauma literature, that there are complex interactions among demographic, personality, coping, and social support variables, such that the effects of one variable are only found at certain levels of other variables. Of note, one prospective study examining reactions to the SARS epidemic among a sample of Chinese who had recovered from the illness, their family members, and other healthy adults living in Hong Kong (Cheng, Wong, & Tsang, 2006) found those who reported "mixed" accounts (accounts that included both benefits and costs to the experience) fared better over the longer term than those reporting exclusively positive or exclusively negative experiences, suggesting that enduring positive change may involve the development of a complex, balanced, and realistic understanding of the experience.

As well as more sophisticated interactional research, there is a need for longitudinal research in order to test the relation of proposed predictive factors with subsequent reports of positive change. Directionality is an issue that deserves further attention, as positive changes might be as likely to lead to increases in many of the factors that have been posited as predictors.

## Clinical Application

One common misunderstanding is the expectation that those who report positive changes should be free of distress, but this is neither what the evidence suggests nor how researchers in the field understand positive change. Positive changes refer to the eudaimonic rather than the hedonic side of well-being (Joseph & Linley, 2005). Whereas the hedonic approach focuses on emotions, the eudaimonic approach is derived from Aristotelian philosophy and is concerned with the optimal functioning and development of the

person. In current positive psychology terminology, the eudaimonic approach refers to psychological well-being (PWB) as opposed to subjective well-being (SWB). SWB refers to people's affective states, the balance between their positive and negative feelings, and the extent to which they are satisfied with life. In contrast, PWB is concerned with the more existential side of life – autonomy, mastery, personal growth, positive relations with others, self-acceptance and purpose in life. Moreover, growth cannot undo what has happened; neither is it necessarily psychologically pervasive. Experiences of positive change may be domain-specific, and distress and growth may co-exist – a condition often observed clinically in those who have suffered a significant loss. As such, theorists argue that positive changes are of value in themselves and that facilitation of growth is a worthwhile clinical outcome in its own right and not simply to be valued in relation to how well positive changes predict lower distress. Advice for therapists is available (Calhoun & Tedeschi, 1999).

Group interventions have been shown to be effective. Antoni et al. (2001) tested the effects of a 10-week group cognitive-behavioral stress management intervention among 100 women newly treated for Stage 0-II breast cancer. The intervention increased participants' reports that breast cancer had made positive contributions to their lives, and it increased generalized optimism at a 3-month follow-up. While such results are encouraging, caution is still warranted in terms of whether and how this research can be applied in the real world (Lechner, Stoelb, & Antoni, 2008). The topic opens up debate on the ethics of the therapeutic process. Researchers and clinicians are urged to be wary of the potential for patients to experience a tyranny of positive thinking wherein they feel that they must inhibit expression of their concerns and distress and forgo psychotherapeutic work in an effort to remain "positive." Professionals should also consider carefully the moral issues associated with interventions deliberately aimed at helping patients find benefits, as opposed to non-directive interventions that work only with clients' growth when it spontaneously occurs.

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Affleck, G., Tennen, H., Croog, S., & Levine, S. (1987). **Causal attributions, perceived benefits, and morbidity after a heart attack: An 8-year study.** *Journal of Consulting and Clinical Psychology, 55*, 29-35. In a sample of 287 heart attack victims who were interviewed 7 weeks and 8 years after their attack or who were known to have died during follow-up, interrelations among causal attributions for the attack, perceived benefits of the attack, survivor morbidity, and heart attack recurrence were explored. Analyses focused on early cognitive predictors of heart attack recurrence and 8-year morbidity and on the effects of surviving another heart attack on cognitive appraisals. Independently of sociodemographic characteristics and physicians' ratings of initial prognosis, patients who cited benefits from their misfortune 7 weeks after the first attack were less likely to have another attack and had lower levels of morbidity 8 years later. Attributing the initial attack to stress responses (e.g., worrying, nervousness) was also predictive of greater morbidity in 8-year survivors and blaming the initial attack on other people was predictive of reinfarctions. Men who survived a subsequent heart attack were more likely than men who did not have additional attacks to cite benefits and made more attributions 8 years after the initial attack.

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. The authors tested effects of a 10-week group cognitive-behavioral stress management intervention among 100 women newly treated for Stage 0-II breast cancer. The intervention reduced prevalence of moderate depression (which remained relatively stable in the control condition) but did not affect other measures of emotional distress. The intervention also increased participants' reports that having breast cancer had made positive contributions to their lives, and it increased generalized optimism. Both remained significantly elevated at a 3-month follow-up of the intervention. Further analysis revealed that the intervention had its greatest impact on these 2 variables among women who were lowest in optimism at baseline. Discussion centers on the importance of examining positive responses to traumatic events—growth, appreciation of life, shift in priorities, and positive affect—as well as negative responses.

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. This study investigated whether finding meaning in response to an HIV-related stressor was associated with changes in immune status and health. Forty HIV-seropositive men who had recently experienced an AIDS-related bereavement completed interviews assessing cognitive processing and finding meaning after the loss and provided blood samples for a 2- to 3-year follow-up. AIDS-related mortality over an extended follow-up was determined from death certificates. As predicted, men who engaged in cognitive processing were more likely to find meaning from the loss. Furthermore, men who found meaning showed less rapid declines in CD4 T cell levels and lower rates of AIDS-related mortality (all  $ps < .05$ ),

independent of health status at baseline, health behaviors, and other potential confounds. These results suggest that positive responses to stressful events, specifically the discovery of meaning, may be linked to positive immunologic and health outcomes.

Butler, L. D., Blasey, C. M., Garlan, R. W., McCaslin, S. E., Azarow, J., Chen, X., et al. (2005). **Posttraumatic growth following the terrorist attacks of September 11, 2001. Cognitive, coping and trauma symptom predictors in an internet convenience sample.** *Traumatology, 11*, 247-267. Cognitive, coping, and trauma symptom predictors of posttraumatic growth (PTG; measured with the Posttraumatic Growth Inventory) were examined in a large convenience sample ( $n = 1,505$ ) participating in a longitudinal Internet-based study following the terrorist attacks of 9/11/01. Results indicated that initial PTG levels (mean 9 weeks post-attacks) were generally associated with higher trauma symptoms (measured with the PTSD Checklist - Specific), positive changes in worldview (measured with the Changes in Outlook Questionnaire), more denial, and less behavioral disengagement (measured with the Brief COPE). Additionally, PTG had a curvilinear association with level of trauma symptoms, such that those reporting symptoms at intermediate levels reported the highest levels of growth. Levels of PTG declined somewhat over time with the exception of Spiritual Change. As expected, PTG levels at follow-up (mean 6.5 months post-attacks) were primarily predicted by initial PTG levels; however, decreases from baseline in trauma symptoms and increases from baseline in positive worldview, acceptance, and positive reframing were also associated with higher reported posttraumatic growth at follow-up. These findings suggest that there may be a range of traumatic experience most conducive to growth and they also highlight the important contributions of cognitive and coping variables to psychological thriving in short- and longer-term periods following traumatic experience.

Calhoun, L. G., & Tedeschi, R. G. (Eds.) (2006). *Handbook of post-traumatic growth: Research and practice*. Mahwah, NJ: Erlbaum. Posttraumatic growth is an area in which investigations are now being undertaken in many different parts of the world. The view that individuals can be changed, sometimes in radically good ways, by their struggle with trauma is ancient and widespread. The systematic focus by scholars and clinicians on the possibilities for growth from the struggle with crisis, however, is relatively recent. There are now a growing number of studies and scholarly papers on the antecedents, correlates, and consequences of posttraumatic growth, and there are also theoretical models that can help guide the research further. It is clear, however, that this phenomenon is not yet well understood. This volume is designed with two general goals in mind. First, to provide both clinicians and researchers with a comprehensive and up-to-date view of what has been done so far. Second, to use the foundation of what has been done to provide suggestions for the next useful steps to take in understanding posttraumatic growth. [Preface] TOPICS TREATED: Posttraumatic growth: theory and method (The foundations of posttraumatic growth: an expanded framework; Relationships between posttraumatic growth and resilience: recovery, resistance, and reconfiguration; Measurement issues in assessing growth following stressful life experiences; Re-storying loss: fostering

growth in the posttraumatic narrative; Schema-change perspectives on posttraumatic growth; Posttraumatic growth and other outcomes of major loss in the context of complex family lives); Posttraumatic growth in specific contexts (Spirituality: a pathway to posttraumatic growth or decline?); Posttraumatic growth after cancer; Bereavement and posttraumatic growth; Posttraumatic growth after war; Positive changes attributed to the challenge of HIV/AIDS; Posttraumatic growth in disaster and emergency work; Growing out of ashes: posttraumatic growth among Holocaust child survivors; Resilience and posttraumatic growth in children); Clinical applications of posttraumatic growth (Expert companions: posttraumatic growth in clinical practice); The link between posttraumatic growth and forgiveness: an intuitive truth; Posttraumatic growth and psychotherapy; Resilience and posttraumatic growth: a constructive narrative perspective).

Cruess, D. G., Antoni, M. H., McGregor, B. A., Kilbourn, K. M., Boyers, A. E., Alferi, S. M., et al. (2000). **Cognitive-behavioral stress management reduces serum cortisol by enhancing benefit finding among women being treated for early stage breast cancer.** *Psychosomatic Medicine*, 62, 304-308. **OBJECTIVE:** This study examined the effects of a cognitive-behavioral stress management (CBSM) group intervention on serum cortisol levels in women being treated for stage I or II breast cancer. **METHODS:** Participants were randomly assigned to undergo a 10-week intervention ( $N = 24$ ) within 8 weeks after surgery or were placed on a waiting list ( $N = 10$ ). Cortisol was assessed by means of a radioimmunoassay of blood samples collected at the same time of day just before the start of the intervention and immediately after its completion. The women also reported the degree to which breast cancer had made positive contributions to their lives. **RESULTS:** Intervention participants showed increased benefit finding and reduced serum cortisol levels, whereas control subjects experienced neither change. Path analysis suggested that the effect of CBSM on cortisol was mediated by increases in benefit finding. **CONCLUSIONS:** These findings suggest that positive growth enhanced during a time-limited intervention can influence physiological parameters such as cortisol among women with early stage breast cancer.

Ford, J. D., Tennen, H., & Albert, D. (2008). **A contrarian view of growth following adversity.** In S. Joseph & P. A. Linley (Eds.), *Trauma, Recovery and Growth: Positive psychological perspectives on posttraumatic stress* (pp. 297-324). Hoboken, NJ: Wiley. The concept of posttraumatic growth is a potentially important paradigm shift in the traumatic stress field. Reports of individuals experiencing personal growth in the face of adversity run contrary to the dominant scientific, clinical, and lay views that psychological trauma primarily causes damage to the body, mind, and relationships. Although posttraumatic growth has become an icon in the positive psychology movement, we review evidence that suggests that growth in the aftermath of psychological trauma is better conceptualized as the resumption or continuation of preexisting psychological development, or as an artifact of cognitive attribution processes that lead persons who experience psychological trauma to believe that they have experienced growth.

Frazier, P., Tashiro, T., Berman, M., Steger, M., & Long, J. (2004). **Correlates of levels and patterns of positive life changes following sexual assault.** *Journal of Consulting and Clinical Psychology*, 72, 19-30. This study builds on previous work suggesting that many survivors report positive life changes soon after a sexual assault and that those who retain those changes over time report the least distress 1 year post-assault (P. Frazier, A. Conlon, & T. Glaser, 2001). The purposes of this study were to assess correlates of early reports of positive life changes and individual trajectories of self-reported positive changes over time among female sexual assault survivors ( $n = 171$ ) using hierarchical linear modeling. The factors most related to reporting positive life change soon after the assault were social support, approach and religious coping, and perceived control over the recovery process. Increases in these factors also were associated with increases in self-reported positive life changes over time. The relations between social support and positive change also were mediated by coping strategies and control appraisals, particularly perceived control over the recovery process.

Frazier, P., Tennen, H., Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). **Does self-reported posttraumatic growth reflect genuine positive change?** *Psychological Science: Research, Theory, & Application in Psychology and Related Sciences*, 20, 912-919. In this study, we evaluated the validity of self-reported posttraumatic growth (PTG) by assessing the relation between perceived growth and actual growth from pre- to posttrauma. Undergraduate students completed measures tapping typical PTG domains at Time 1 and Time 2 (2 months later). We compared change in those measures with scores on the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) for those participants who reported a traumatic event between Time 1 and Time 2 ( $n = 122$ ). PTGI scores generally were unrelated to actual growth in PTG-related domains. Moreover, perceived growth was associated with increased distress from pre- to posttrauma, whereas actual growth was related to decreased distress, a pattern suggesting that perceived and actual growth reflect different processes. Finally, perceived (but not actual) growth was related to positive reinterpretation coping. Thus, the PTGI, and perhaps other retrospective measures, does not appear to measure actual pre- to posttrauma change.

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). **A meta-analytic review of benefit finding and growth.** *Journal of Consulting and Clinical Psychology*, 74, 797-816. 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 to 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 measure used, and the racial composition of the sample.

Joseph, S., & Linley, P. A. (2005). **Positive adjustment to threatening events: An organismic valuing theory of growth through adversity.** *Review of General Psychology, 9*, 262-280. A positive psychological theory of growth through adversity is proposed. The organismic valuing theory of growth through adversity posits an intrinsic motivation toward growth, showing how this leads to the states of intrusion and avoidance that are characteristic of cognitive-emotional processing after trauma. The theory posits 3 possible outcomes of this cognitive-emotional processing, namely, assimilation, negative accommodation, and positive accommodation. The theory shows how the organismic valuing process will automatically lead to the actualization of positive changes in psychological well-being, through the positive accommodation of the new trauma-related information, provided that the social environment is able to support this positive accommodation process.

Joseph, S. & Linley, P. A. **Psychological assessment of growth following adversity: A review.** In: Joseph, S. & Linley, P. A. (Eds.), (2008). *Trauma, recovery, and growth: Positive psychological perspectives on posttraumatic stress.* (pp. 21-38). Hoboken, NJ: Wiley. Growing interest in positive change following trauma and adversity has prompted the development of new psychometric instruments. In this chapter, we provide a brief introduction to the measurement literature. First, we describe existing measures. Second, we review what is known about the structure of growth following adversity as well as the question of the relation between positive and negative changes, and how this informs considerations for choosing appropriate measures. Third, research directions and clinical implications are discussed, with recommendations for the future of psychometric assessment in this area.

Linley, P. A., & Joseph, S. (2004). **Positive change following trauma and adversity: A review.** *Journal of Traumatic Stress, 17*, 11-21. Empirical studies ( $n = 39$ ) that documented positive change following trauma and adversity (e.g., posttraumatic growth, stress-related growth, perceived benefit, thriving; collectively described as adversarial growth) were reviewed. The review indicated that cognitive appraisal variables (threat, harm, and controllability), problem-focused acceptance, and positive reinterpretation coping, optimism, religion, cognitive processing, and positive affect were consistently associated with adversarial growth. The review revealed inconsistent associations between adversarial growth, sociodemographic variables (gender, age, education, and income), and psychological distress variables (e.g., depression, anxiety, posttraumatic stress disorder). However, the evidence showed that people who reported and maintained adversarial growth over time were less distressed subsequently. Methodological limitations and recommended future directions in adversarial growth research are discussed, and the implications of adversarial growth for clinical practice are briefly considered.

O'Leary, V. E., & Ickovics, J. R. (1995). **Resilience and thriving in response to challenge: An opportunity for a paradigm shift in women's health.** *Women's Health: Research on Gender, Behavior, and Policy, 1*, 121-142. The purpose of this article is to move beyond the vulnerability/deficit model of women and to focus on women's strengths and their ability to thrive in the face of adversity.

Thriving is a dynamic process of adaptation, influenced by numerous individual and social factors; it emerges and changes over the life course and may be identified in behavioral, cognitive, or affective domains. The foundation of this concept comes from the literature on resilience, but it goes beyond the common view of resilience as homeostasis. It suggests, instead, a value-added construct whereby challenge provides an opportunity for change and growth. Understanding the concept and process of thriving can provide an important basis for theoretical development, empirical research, and clinical intervention. Thriving can provide a framework within which to examine the antecedents and consequences of differential reactions to health-related challenges. Knowledge of the factors that promote thriving can provide an important foundation for a paradigm shift away from a focus on illness and pathology toward one that understands, explains, and nurtures health.

Peterson, C., & Seligman, M.E.P. (2003). **Character strengths before and after September 11.** *Psychological Science, 14*, 381-384. Did Americans change following the September 11 terrorist attacks? We provide a tentative answer with respect to the positive traits included in the Values in Action Classification of Strengths and measured with a self-report questionnaire available on-line and completed by 4,817 respondents. When scores for individuals completing the survey in the 2 months immediately after September 11 were compared with scores for those individuals who completed the survey before September 11, seven character strengths showed increases: gratitude, hope, kindness, leadership, love, spirituality, and teamwork. Ten months after September 11, these character strengths were still elevated, although to a somewhat lesser degree than immediately following the attacks.

Schroevers, M. J., Helgeson, V. S., Sanderman, R., & Ranchor, A. V. (2010). **Type of social support matters for prediction of post traumatic growth among cancer survivors.** *Psycho-Oncology, 19*, 46-53. *Objective:* Previous research in people with cancer on social support and psychological well-being has mainly focused on the short-term negative outcomes of adjustment. Little is known about the role of social support in the experience of positive outcomes in the long term. This study examined the relation between emotional support in the period following diagnosis and the experience of positive consequences of the illness, so-called post-traumatic growth, at 8 years after diagnosis. We focused on three distinct types of emotional support: perceived availability, actual received, and dissatisfaction with received emotional support. *Methods:* This longitudinal study was conducted in a sample of 206 long-term cancer survivors. Social support was assessed with the Social Support List (SSL) at 3 months and 8 years after diagnosis. Positive consequences of the illness were assessed with the Silver Lining Questionnaire (SLQ) at 8 years after diagnosis. Correlation and regression analyses were used to examine the associations of initial levels of emotional support with the long-term report of post-traumatic growth. *Results:* Regression analyses showed that more received emotional support at 3 months after diagnosis significantly predicted a greater experience of positive consequences of the illness at 8 years after diagnosis. This association remained significant, when controlling for concurrent levels of emotional support at 8 years after diagnosis. *Conclusions:* The findings suggest that getting

support from family and friends, characterized by reassuring, comforting, and problem-solving, in the period following diagnosis is an important resource that may help cancer survivors to find positive meaning in the cancer experience.

Tedeschi, R. G., & Calhoun, L. G. (2004). **Posttraumatic growth: Conceptual foundations and empirical evidence.** *Psychological Inquiry, 15*, 1-18. This article describes the concept of posttraumatic growth, its conceptual foundations, and supporting empirical evidence. Posttraumatic growth is the experience of positive change that occurs as a result of the struggle with highly challenging life crises. It is manifested in a variety of ways, including an increased appreciation for life in general, more meaningful interpersonal relationships, an increased sense of personal strength, changed priorities, and a richer existential and spiritual life. Although the term is new, the idea that great good can come from great suffering is ancient. We propose a model for understanding the process of posttraumatic growth in which individual characteristics, support and disclosure, and more centrally, significant cognitive processing involving cognitive structures threatened or nullified by the traumatic events, play an important role. It is also suggested that posttraumatic growth mutually interacts with life wisdom and the development of the life narrative, and that it is an ongoing process, not a static outcome.

Abraído-Lanza, A. F., Guier, C., & Colón, R. M. (1998). **Psychological thriving among Latinas with chronic illness.** *Journal of Social Issues, 54*, 405-424. A measure of thriving was created on the basis of qualitative interviews and past research and then studied as an outcome in a three-year longitudinal study of Latinas. Path analyses showed that measures of competence (self-esteem and self-efficacy) and psychological well-being were related to thriving over time.

Burt, M. R., & Katz, B. L. (1987). **Dimensions of recovery from rape: Focus on growth outcomes.** *Journal of Interpersonal Violence, 2*, 57-81. The authors attempted to conceptualize and measure how women grow as a consequence of having to cope with rape and its aftermath. Factor analyses of measures completed by 113 rape victims yielded six dimensions of self-concept, five dimensions of coping techniques, and three dimensions of self-ascribed change.

Calhoun, L. G., & Tedeschi, R. G. (1999). *Facilitating posttraumatic growth: A clinician's guide.* Mahwah, NJ: Erlbaum. The authors provide a framework for clinical efforts to enhance posttraumatic growth. Chapters provide case examples, clinical approaches, and resources for both clinicians and clients.

Cheng, C., Wong, W., & Tsang, K. W. (2006). **Perception of benefits and costs during SARS outbreak: An 18-month prospective study.** *Journal of Consulting & Clinical Psychology, 74*, 870-879. In this study of persons who had recovered from SARS, family members,

and healthy adults in Hong Kong, participants were asked about costs and benefits of the illness. Participants who identified benefits only had higher levels of defensiveness than those who identified costs only or both costs and benefits. Perceived benefits given in mixed accounts were uniquely related to future gains in personal and social resources.

Dunigan, J. T., Carr, B. I., & Steel, J. L. (2007). **Posttraumatic growth, immunity and survival in patients with hepatoma.** *Digestive Diseases and Sciences, 52*, 2452-2459. In a study of 41 cancer patients, participants who scored above the median on posttraumatic growth had higher PBL counts and survived 186 days longer than participants who scored below the median.

Edmonds, S., & Hooker, K. (1992). **Perceived changes in life meaning following bereavement.** *Omega: Journal of Death and Dying, 25*, 307-318. In a study of 49 college students who recently experienced the death of a close family member, most reported experiencing a positive change in life goals. Students who reported positive change had significantly higher existential meaning than those who reported negative change in goals.

Elder, G. H. & Clipp, E. C. (1989) **Combat experience and emotional health: impairment and resilience in later life.** *Journal of Personality, 57*, 311-341. In a sample of 149 World War II and Korean conflict veterans, heavy combat veterans were at greater risk of emotional and behavioral problems in the postwar years than were noncombatants and light combat veterans. In mid-life, they hold mixed memories of painful losses and life benefits associated with military experience. Clinical ratings show that heavy combat veterans became more resilient and less helpless over time when compared to other men.

Epel, E. S., McEwen, B. S., & Ickovics, J. R. (1998). **Embodying psychological thriving: Physical thriving in response to stress.** *Journal of Social Issues, 54*, 301-322. Using data from a laboratory study of stress, the authors examined physical thriving by investigating hormonal responses to stressful situations and the roles played by psychological factors. Cortisol adaptation to stress may serve as one potential marker of resilient psychological and physical functioning.

Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma.* New York: Free Press. The author examined the major tasks with which trauma survivors are confronted, including the need to integrate the traumatic event into their experience and render it less threatening. She also discussed the most effective kinds of actions that can help survivors re-establish the means to cope.

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. The authors described initial results (internal consistency, relations to other measures) of a scale designed to assess both positive and negative responses to disaster. Much of the content for the measure was drawn from answers to open-ended questions posed to adult survivors of a ship collision.

*Citations continued on back cover*

Lechner, S. C., Stoelb, B. L., & Antoni, M. H. (2008). **Group-based therapies for benefit finding in cancer.** In S. Joseph & A. Linley (Eds.), *Trauma, recovery, and growth: Positive psychological perspectives on posttraumatic stress* (pp. 207-231). Hoboken, NJ: Wiley. This chapter focuses on clinical implications of the research on posttraumatic growth. In particular, the authors discuss the ways in which the group milieu might help to promote growth but conclude that the development of group-based interventions to specifically promote benefit-finding is not yet warranted and may involve risks.

Linley, P. A., Joseph, S., & Goodfellow, B. (2008). **Positive changes in outlook following trauma and their relationship to subsequent posttraumatic stress, depression, and anxiety.** *Journal of Social and Clinical Psychology, 27*, 877-891. In a study of 40 traumatized people who were interviewed twice over a six-month interval, the experience of positive changes predicted lower levels of PTSD symptoms, depression, and anxiety. The authors discussed implications of the findings for clinical work with traumatized people.

McMillen, J. C., & Fisher, R. H. (1998). **The Perceived Benefits Scales: Measuring perceived positive life changes after negative events.** *Social Work Research, 22*, 173-187. The authors presented a new measure of self-reported positive life changes after traumatic stressors. Factor analyses suggested that the Perceived Benefit Scales capture lifestyle change, material gain, and increases in self-efficacy, family closeness, community closeness, faith in people, compassion, and spirituality.

Milam, J. E. (2004). **Posttraumatic growth among HIV/AIDS patients.** *Journal of Applied and Social Psychology, 34*, 2353-2376. Correlates ( $n= 835$  at Time 1) and predictors ( $n= 434$  at Time 2) of posttraumatic growth were examined in HIV/AIDS patients. PTG was common—59% of participants reported having experienced at least moderate positive changes since diagnosis.

Park, C. L., Cohen, L. H., & Murch, R. L. (1996). **Assessment and prediction of stress-related growth.** *Journal of Personality, 64*, 71-105. This article reports the development of the Stress-Related Growth Scale. In a longitudinal study of college students, stress-related growth was predicted by (a) intrinsic religiousness; (b) social support satisfaction; (c) stressfulness of the negative event; (d) positive reinterpretation and acceptance coping; and (e) number of recent positive life events.

Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering.* Thousand Oaks, CA: Sage. This volume addresses a variety of topics related to trauma and posttraumatic growth including the religious and psychological roots of suffering, research findings on the negative and positive consequences of trauma, and various factors that influence coping success.

Tedeschi, R. G., & Calhoun, L. G. (1996). **The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma.** *Journal of Traumatic Stress, 9*, 455-471. The authors described the development and uses of the Posttraumatic Growth Inventory, a 21-item scale that includes factors of New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life.



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