Using a Gain/Loss Framework to Measure Impact: The Perceived Impact of Life Event Scale

HEATHER L. SERVATY-SEIB

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Heather L. Servaty-Seib
Using a Gain/Loss Framework to Measure Impact: The Perceived Impact of Life Event Scale

HEATHER L. SERVATY-SEIB
Department of Educational Studies, Purdue University, West Lafayette, Indiana, USA

The author describes three interconnected investigations focused on the development and psychometric evaluation of the Perceived Impact of Life Event Scale (PILES), a measure developed using a gain/loss framework for assessing the multidimensional impact of single life events. In Study 1 (N = 160), the author describes the item generation process and results of a pilot study. In Study 2 (N = 244), exploratory factor analysis suggested a 29-item scale with the four following gain/loss factors: existential, discretionary time, romantic relationship/sexual, and career and employment. In Study 3 (N = 244), confirmatory factor analysis indicated a three-factor model (26-item scale), and findings suggested convergent validity of the measure.

KEYWORDS gains, impact, instrument development, life events, losses

Advocates for an interdisciplinary psychology of loss have argued the need for unifying theory, initial taxonomic systems, and broadly conceived research strategies (Harvey & Miller, 1998). The primary purpose of the present article...
is to offer one such general framework and an associated assessment tool. The gain/loss framework of life events is grounded in a foundation of loss and also incorporates key elements of well-established theories within disciplines such as counseling and developmental psychology. The main assumption of the gain/loss framework is that all life events, regardless of whether they are primarily desirable or undesirable, will involve the perception of both gains and losses. The Perceived Impact of Life Event Scale (PILES) measures the impact of life events through assessing the gains and losses, in various life domains, that individuals attribute to those life events. The article includes an overview of the theoretical underpinnings of the gain/loss framework and details regarding the development and psychometric evaluation of the PILES.

LOSS AS A BROAD CONCEPT

Although the term loss is often connected with experiences of death, the broad concept of loss has been used to conceptualize many non-death-related life experiences and events. Peretz (1970) defined loss as “a state of being deprived of or being without something one has had” (p. 4) and offered four different types of loss: (a) loss of a significant person (total or partial, permanent or temporary), (b) loss of an aspect of the self, (c) loss of an external object, and (d) a developmental loss. With regard to this last type of loss, Viorst (1998) argued that loss is a necessary part of life and growth and that development actually involves a series of conscious and unconscious losses (e.g., mother-child connection, youth). A full listing of the life experiences and events that have been conceptualized through a loss lens is beyond the scope of the current article. However, edited volumes focused on the concept of loss (e.g., Harris, 2011; Harvey & Miller, 2000) highlight the connections scholars have made between the construct of loss and life events as varied as leaving home, moving to a new culture, diagnosis of an illness, organizational downsizing, sexual abuse, adoption, and infertility. Murray (2001), in her discussion of loss as a universal concept, identified common aspects of loss and grief (regardless of specific life events) including themes such as the normative nature of grief; the potential for both growth and deterioration after loss; grief as an individual, private, and lonely experience; and the idea that losses rarely exist alone.

PSYCHOLOGY OF LOSS

Harvey and his colleagues (Harvey & Miller, 1998; Harvey & Weber, 1998) argued for the development of a psychology of loss. They suggested that the construct of loss often forms an “implicit assumptive base” (Harvey & Weber, 1998, p. 320) for much of the scholarship in psychology and that an explicit
psychology of loss would allow for greater scholarly exchange and convergence among researchers who focus on seemingly disparate life experiences/events. Harvey (2000) defined a major loss as “the loss of something in a person’s life, whether another person by death, dissolution of a relationship, or some entity other than a person, to which the person was emotionally invested” (p. 18). Although he and his colleagues emphasized how each person will uniquely perceive and experience a particular constellation of responses following a major loss, they also noted that there are likely commonalities in how people deal with different losses (Harvey, 2000). They also described how major losses will vary in type and magnitude, with some primary losses being subsequently accompanied by secondary loss experiences through a kind of ripple effect (Harvey & Miller, 1998). These secondary losses might emerge in various life domains (e.g., career, sexual relationship, self-esteem; Harvey & Weber, 1998). Overall, their contention is that through conceptualizing loss in a single theoretical framework and then building an organized and broad research strategy, the field of psychology could better empower individuals to grow through their loss experiences (Harvey & Miller, 1998).

A significant challenge in the area of loss studies is the lack of instrumentation that would allow researchers and clinicians to assess the extent of loss experienced by individuals who are facing specific life events. Harvey and his colleagues defined the term major loss and indicated differentiation regarding the uniquely perceived magnitude of specific major losses (Harvey & Miller, 1998), but did not address how this differentiation in magnitude might be assessed. It is possible that the magnitude of a major loss can be assessed through determining the level of secondary losses (in a variety of life domains) individuals perceive in connection with a major loss experience. In addition, Harvey and his colleagues noted that growth can come following major losses, but did not indicate how both gains and losses might be assessed after a specific major loss experience or event.

In his reflection on the argument for a psychology of loss, Neimeyer (1998) offered concerns regarding the breadth of life experiences and events encompassed by the proposed new field. He argued that the seeking of a grand unifying theory or a common factors model that subsumed such a broad range of life experiences would potentially limit divergent thinking and also create the risk of ignoring or potentially minimizing the important factors that are unique to specific loss situations. He suggested a strategy of expanding on well-developed existing theories to be applied to loss situations and called for greater emphasis on the therapeutic implications and “healing dimensions of loss studies” (p. 340). A focus on commonalities regarding the domains in which secondary losses are experienced could provide a unifying focus for the psychology of loss while allowing critical differences to be detected. An instrument assessing secondary losses would also offer important implications for both research and clinical practice.
CONCEPT OF LOSS IN EXISTING PSYCHOLOGICAL THEORIES

In order to incorporate theoretical concepts from various fields within psychology and to honor the psychology of loss emphasis on convergence across disparate psychological phenomena, well-developed, existing psychological theories and scholarly approaches that explicitly reference the concept of loss were reviewed and elements from theories within counseling psychology, developmental psychology, and stress and coping were synthesized.

Counseling Psychology

The discipline of counseling psychology has a long-standing focus on assisting individuals in their negotiation of developmental transitions and life crises (Gelso & Fretz, 2001). In addition, scholars within the field have dedicated theoretical and empirical attention to the areas of assets, adaptation, and coping with life events and problems (e.g., Heppner, Witty, & Dixon, 2004). Within counseling psychology, Schlossberg (1981) argued that life experiences and events are best viewed as complex transitions during which individuals struggle and experience confusion. Schlossberg (1981) and her colleagues (Goodman, Schlossberg, & Anderson, 2006) referred specifically to the concept of loss within the approaching transitions element of their adults in transition model. They emphasized that the impact of any one transition is not held within the event itself but rather is best determined through assessing individuals' perceptions of the changes or gains/losses (in the domains of roles, routines, relationships, and assumptions about self and the world) they attribute to that life transition.

The positive psychology movement is closely connected to the field of counseling psychology (Robitschek & Spering, 2012) and is also relevant to a focus on viewing life events through a loss lens (Miller & Harvey, 2001). The purpose of positive psychology is to encourage growth and fulfillment within human beings through an expansion of empirical and clinical foci, moving beyond an emphasis on treating mental illness to studying concepts related to optimal human functioning (e.g., strengths, talents, flow; Peterson, 2006; Seligman & Csikszentmihalyi, 2000). A significant criticism of the movement has been an overemphasis on the positive in connection with a general lack of focus on the negative experiences in life (Lazarus, 2003), including experiences of loss and grief (Harvey & Pauwels, 2003), and how such negative life experiences may actually lead to growth and development.

Developmental Psychology

Life-span development psychology is marked by an emphasis on both multidimensionality and multidirectionality (Baltes, 1987). More specifically,
development is viewed as a lifelong process involving an ongoing dialectic between gains (growth) and losses (decline) across various life domains (e.g., intelligence, personality, self-related; Baltes, 1987; Smith, 2003). Smith (2003) argued that, although the gain-loss dynamic is frequently used as a metalevel concept, there is limited empirical work that incorporates this concept; an obstacle has perhaps been the lack of instrumentation that would allow for direct assessment of perceptions of gains and losses associated with life experiences. Although the focus in life-span psychology is clearly on the unfolding of development rather than individuals’ perceptions of specific life events, the emphases in the field on taking a balanced view of gains and losses and on the importance of the multidimensionality of experience are critical.

Stress, Coping, and Life Events

The psychological study of stress, coping, and the impact of life events is fraught with conceptual and methodological complexity (Brown, 1989; Miller, 1996). One continuing assessment challenge is recognition and measurement of the variability in individuals’ perceptions of the impact of seemingly similar life events (Dohrenwend, Link, Kern, Shrouit, & Markowitz, 1990). Empirical work done with scales that assess the experience of multiple recent life events, such as the Social Readjustment Rating Scale (Holmes & Rahe, 1967), has offered important information and direction for researchers and clinicians regarding the cumulative impact of life events (e.g., Caley, 2012). However, such research does not provide direction regarding the idiosyncratic perception of specific life events.

Within the field of stress and coping, Lazarus and Folkman (1987) referred specifically to the concept of loss in their cognitive-relational theory of emotion and coping. As they discussed their central concept of cognitive appraisal, they emphasized how humans “constantly evaluate what is happening to them from the standpoint of its significance for their well-being” (Lazarus & Folkman, 1987, p. 145). The key is that it is individuals’ subjective appraisals of experiences, rather than the fact of the experiences themselves, that are connected with stress. Within their discussion of the primary appraisal of experiences (i.e., whether an experience is relevant to well-being), Lazarus and Folkman (1984) described three types of stress appraisals: harm/loss, threat, and challenge.

Hobfoll (1989), in his model of the conservation of resources (COR), also explicitly referred to the concepts of gains and losses. He defined resources as “those entities that either are centrally valued in their own right (e.g., self-esteem, close attachments, health, inner peace) or act as a means to obtain centrally valued ends (e.g., money, social support, and credit)” (Hobfoll, 2002, p. 307) and argued that the loss of resources is the primary mechanism that drives stress reactions. According to COR, people are motivated to seek, keep, and guard their resources when there is a threat of loss,
and resource loss has a more powerful impact on the experience of stress than does resource gain. COR is focused broadly on individuals’ global assessment of their resource losses and gains rather than on the connection between specific life events and the gains and losses individual attribute to those life events, but the model clearly highlights the key nature of loss in the human experience (Hobfoll, 1989).

GAIN/LOSS FRAMEWORK OF LIFE EVENTS

The gain/loss framework of life events builds upon the call for a psychology of loss while incorporating key concepts from theories within the fields of counseling psychology, developmental psychology, and stress and coping. The framework maintains that loss can be used as a broad concept through which to view a wide range of life events and that the use of the term loss is important as it appeals to a commonsense understanding of life experiences (Harvey, 2001; Harvey & Miller, 1998). In addition, the framework expands beyond the psychology of loss through an emphasis on the balance in individuals’ perceptions of life events and a more explicit recognition that all life events involve the perception of both gains and losses. In fact, an individual’s perception of the gains and losses attributed to a specific life event is a key form of cognitive appraisal, and appraisal (of gains and losses) is plastic rather than static. More specifically, the core assumptions of the gain/loss framework of life events are as follows:

1. All significant life events, regardless of overall perceived valence (i.e., desirable vs. undesirable), result in perceptions of gains and losses in a variety of life domains (e.g., roles, relationships, assumptions of self, assumptions of world, economic conditions, and psychological and biological faculties; cf. Baltes, 1987; Goodman et al., 2006).
2. The level of impact (or magnitude) of significant life events can be determined by assessing the perceptions of gains and losses individuals attribute to life events (cf. Dohrenwend et al., 1990; Goodman et al., 2006; Hobfoll, 1989).
3. Perceptions of gains and losses attributed to significant life events vary based on the specific life domains; individuals can perceive gains in one life domain and losses in another (cf. Baltes, 1987; Smith, 2003).
4. The impact of life events (i.e., perceptions of gains vs. losses) is malleable and will vary as a result of factors such as time, engagement in therapy, and so forth (cf. Harvey, 2001).
5. The relative level of perceived gains versus losses associated with significant life events will be positively associated with desirable outcomes (e.g., well-being) and negatively associated with undesirable outcomes (e.g., stress; cf. Hobfoll, 1989).
THE PRESENT ARTICLE

Based on the core assumptions of the gain/loss framework of life events, three interrelated investigations were conducted to develop the PILES. The PILES offers researchers and clinicians a tool for measuring idiosyncratic appraisals of specific life events through assessing the gains and losses (in multiple life domains) that individuals attribute to those life events. In Study 1, scale items were generated through a review of life event literature bases where scholars frequently reference the concept of “loss.” In Study 2, an exploratory factor analysis (EFA) was performed to determine the internal structure of the PILES. In Study 3, a confirmatory factor analysis (CFA) was performed to test the fit of the EFA-based factor structure with a new sample, to preliminarily assess the convergent validity of the scale, and to examine potential associations between PILES factors and a measure of social desirability.

STUDY 1: SCALE DEVELOPMENT AND FORMAT PILOT TESTING

The process of item development for the PILES began with a review of literature focused on specific life events (Servaty-Seib et al., 2006). Rather than emphasizing how individuals may experience similar reactions to a variety of major life events, the PILES is focused on the potential that there are unifying life domains in which individuals (regardless of their specific life event) may perceive gains and losses associated with major life events. In order to generate potential items, each member of a research team (N=6) analyzed readings from two of the following literature bases: natural disaster, graduation from college, alcoholism, recovery from alcoholism, sexual abuse, death of a pet, chronic illness, job loss, dissolution of close relationships, homelessness, war, and body weight. Team members generated a list of the losses associated with each life event, resulting in 12 “loss” lists.

Schlossberg’s (1981) categories of change/loss associated with life transitions (i.e., roles, routines, relationships, assumptions of self, assumptions of the world) were used as an initial guide (possible unifying life domain categories) for organizing and discussing these potential items. First, the research team determined definitions of each of Schlossberg’s categories. More specifically, (a) roles were defined as sets of expectations and behaviors associated with a particular status; (b) routines were defined as regularly occurring tasks or activities of daily life that are ordered, predictable, and familiar; (c) relationships were defined as dialectical connections between two or more persons that vary with regard to depth, emotionality, dependency, and level of interaction; (d) assumptions of self were defined as an individual’s subjective beliefs and views of his or her personal identity; and (e) assumptions of the world were defined as an individual’s subjective beliefs and views of
how the world operates and what can be expected based on such modes of operation. After these definitions were established, each team member was provided with a copy of all 12 loss lists. Team members independently worked to place each potential item into one of the change/loss categories. Next, the group came together and worked through the categories to assess consistency of placement. This process resulted in a synthesized list of 76 items across seven categories. To enhance content validity, this list was then sent to two experts for purposes of establishing the validity of the items and soliciting general feedback (S. A. Hobfoll, personal communication, March 2005; N. K. Schlossberg, personal communication, January 2005).

A pilot study using the PILES was undertaken to determine the most appropriate format for item presentation and to assess participants’ response processes. In addition, the pilot study allowed an assessment of the clarity of the instructions and further validation of the comprehensiveness of the item list. Six versions that varied by two levels of terminology (i.e., gain vs. loss, positive change vs. negative change) and three levels of item presentation were piloted (e.g., double listing, side by side listing, continuum). In the double listing versions of the measure, the list of 77 items was presented twice, and participants were directed to first indicate the gains they attributed to the life event and then indicate the losses. In the side by side versions, the list of 77 items was presented once and included a gain scale on the left side of the items and a loss scale on the right, such that participants could indicate both gains and losses for each item. The continuum versions included a single listing of all 77 items, and participants were directed to indicate the gains/losses they attributed to the life event using a scale from extreme gain to extreme loss. The double listing and side by side versions were included to examine the possibility that participants would/could indicate simultaneous gains and losses even at the item level (S. A. Hobfoll, personal communication, March 2005).

Method

Participants (N = 160, 78% female, 91% White, M age = 37.15, SD = 19.28) ranged in age from 18 to 95 years. With regard to marital status, 46% of the sample was single, 32% married, 9% partnered, 9% divorced, 4% widowed, and 1% separated. Almost half of the participants were full-time students (46%), whereas 43% were non-students. The remaining participants were either part-time students (6%) or did not respond (5%). With regard to education, 43% had completed some college, 24% had completed post-undergraduate courses/degrees, 20% had graduated college, and 11% had graduated high school (1% GED and 1% grade school). In terms of employment, 41% were employed full-time, 29% were employed part-time, 17% were unemployed, and 10% were retired (1% disabled, 2% did not respond).
Participants were asked to select one of their most significant life events and to then indicate the perceived gains/losses (or positive and negative changes) they currently attributed to that life event. The most frequent significant life events spontaneously listed by participants included death (15%), attending college (13.8%), ending of a relationship (10%), birth of a child (9.4%), marriage (8.8%), personal injury/illness (8.8%), and a religious experience (5%). With regard to the desirability of the significant life event chosen (assessed at the end of the questionnaire), 60.6% indicated that the life event was primarily desirable and 33.8% indicated that it was primarily undesirable. Half of the participants (50%) indicated that their significant life event was currently occurring, and half (50%) indicated that it was a not a current experience.

The research team distributed flyers and pen and paper packets containing (a) an introductory statement and instructions, (b) a consent form, (c) a demographics sheet, (d) one of six different versions of the PILES, and (e) 10 feedback questions about the PILES (e.g., What was the most difficult part of responding to this instrument? What did you think of the instructions?). A total of 445 packets were distributed to students at a large midwestern university (35%) and members of the surrounding community (65%; waiting areas of hair salons, senior living facilities); the response rate was 36%. The number of returned completed packets for each version of the PILES ranged from 24 to 29. Participants returned completed packets through self-addressed stamped envelopes or campus mail.

Results

Qualitative data were analyzed through a semantic content analysis (Krippendorff, 2003). More specifically, the brief responses provided to the 10 feedback questions were divided by both PILES version and question. Team members read the responses independently and determined categories and the frequency of responses in each category. The team then met, compared results of analyses, and reached consensus regarding the primary themes associated with responses to each question across the versions as well as for each specific version of the PILES. Results indicated that the most difficult aspects of responding to the PILES included selecting the life event, the length of the instrument (primarily the two double listing versions), quantifying the level of each response, and weighing how to respond when asked to assess both level of gain (positive change) and loss (negative change) for each item. Participants tended to choose life events that had resulted in the greatest life change, were the most important, had the most impact, or had occurred most recently. About 20% of those responding to the side by side versions of the measure completed one rather than both sides of the instrument. Although the intention had been to capture the complexity of gains and losses even at the item level, this approach did not resonate for participants. Results
provided minimal guidance about the anchor terms, as participants preferred the labels (loss vs. gain, negative change vs. positive change) used in the version of the instrument they completed. Findings suggested the addition of three items to the measure: educational achievement, time spent alone, and taking time for self. The item “marital status” was changed to marital/partner situation. Quantitative results indicated that the internal consistency of PILES total scores for each format was virtually identical and ranged from .92 to .99, likely a function of the long length of the measure.

Overall, the results indicated use of one of the continuum versions of the PILES. The double listing versions were too long, and the side by side versions were confusing. As participants did not appear to have strong opinions about the labels of the anchors and the development of the items came out of a loss foundation, the team decided on the continuum format with the gain and loss anchors. The final result was an 80-item version of the PILES wherein participants indicate, on a continuum from extreme loss (1) to extreme gain (7), the extent of gain/loss for each item that they attributed to their life event. Responses below 4 (no change) indicate a perception of loss, and responses of 5 or above indicate a perception of gain.

STUDY 2: EXPLORATORY FACTOR ANALYSIS

The aims of Study 2 were to determine the internal structure of the PILES (including item reduction), to compare the structure that emerged with Schlossberg’s categories of loss/change, and to preliminarily examine (a) associations among the PILES factors and (b) the gain/loss framework core assumptions.

Method

Participants in Study 2 and Study 3 were faculty and staff from a large midwestern university (data were collected in fall 2010). The full sample (N = 739) ranged in age from 22 to 80 years. A total of 241 participants were eliminated for reasons including having 5% or more missing data (n = 235), not listing a life event (n = 2), listing a nonsensical life event (n = 1), and multivariate outliers (n = 3). The final sample consisted of 488 individuals. The data set was evenly divided such that half could be used for the Study 2 EFA and half could be used for the Study 3 CFA. The recruitment e-mail went out to a general listserv that did not allow for confirmation regarding who received and/or opened the e-mail. However, about 5,000 individuals may have received the e-mail (possible response rate of 14.8%).

For Study 2, participants (N = 244) were primarily female (65%), White (89%), employed full-time (91%), and non-students (74%); they ranged in age from 22 to 73 years (M = 46.36, SD = 11.86). With regard to marital status,
73% were married, 11% single, 10% divorced, 5% partnered, and 1% divorced and remarried (one person chose not to respond). In terms of education, 62% had completed post-undergraduate courses/degrees, 25% had graduated college, 9% had completed some college, and 1% had graduated high school (3% chose not to respond).

Participants were asked to select one of their most significant life events and to then indicate the perceived gains/losses they currently attributed to that event. The most frequent significant life events (>5%) spontaneously listed by participants included (in descending order) death (19%), career/education change (13%), illness of other (10%), birth of child (10%), illness of self (9%), divorce (8%), marriage (8%), and international moves/experiences (5%). With regard to the desirability of the significant life event chosen, 50% indicated that the life event was primarily desirable and 48% indicated that it was primarily undesirable (2% did not respond). A bit more than half of the participants (55%) indicated that their significant life event was not currently occurring, and 43% indicated that it was a current experience (2% did not respond). The length of time since the significant life event ranged from 0 days to 46 years, with a mean of 13.10 years (SD = 13.33) and a median of 9.13 years (n = 236).

Results

**Exploratory Factor Analysis**

The adequacy of the sample was suggested by the Kaiser-Meyer-Olkin measure of sampling adequacy (.97) and a significant result for Barlett’s test of sphericity (p < .001). The process of parallel analysis (Kahn, 2006) included generation of 100 random data matrices (244 × 80) from the data set, computation of the mean eigenvalues from the random data, and comparison of these values to the eigenvalues of the original data set. The first five eigenvalues from the original data set exceeded the mean eigenvalues produced through the parallel analysis. The scree plot supported this finding, as did the fact that eigenvalues 1–5 were above 2.00, while eigenvalues 6 and above were below 2.00. Thus, five factors were extracted.

The EFA was conducted using maximum likelihood extraction with a varimax rotation; an orthogonal approach to rotation was selected as a goal of the EFA to determine if distinct domains of gains/losses would emerge from the data. The initial EFA indicated six items with communalities below .30; these items were not retained for the final solution. Items were retained if they had structure coefficients of .52 or higher on only one factor and cross-loadings of .32 or lower (Kahn, 2006). Four-, five-, and six-factor solutions were examined in order to thoroughly investigate conceptual interpretability (Kahn, 2006; Worthington & Whittaker, 2006). The four-factor solution emerged as most appropriate in terms of interpretability and because each
factor met the structure coefficient criteria, exhibited acceptable internal consistency, and contained at least three items (see Table 1).

Factor 1, existential gains/losses, consisted of 14 items and accounted for 24.68% of the variance. Items included in this factor/subscale focused on concepts generally connected with existential philosophy and therapy (May & Yalom, 2000)—more specifically, life areas such as meaning and purpose in life, view of self and personal values, and sense of belonging. Scores on this factor were internally consistent (α = .96) and met the assumption of normality (skewness = -.23, kurtosis = -.41).

Factor 2, discretionary time gains/losses, consisted of three items and accounted for 10.59% of the variance. Items included in this factor/subscale focused on concepts related to time and activities that are possible when time is available—more specifically, life areas such as time spent with friends.

**TABLE 1** Study 2: Structure Coefficients, Means, and Standard Deviations for PILES Items

<table>
<thead>
<tr>
<th>Item</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>M</th>
<th>SD</th>
</tr>
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<tbody>
<tr>
<td>19. Hope</td>
<td>.80</td>
<td>.14</td>
<td>.20</td>
<td>.26</td>
<td>4.66</td>
<td>1.71</td>
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<td>33. Meaning in life</td>
<td>.78</td>
<td>.06</td>
<td>.16</td>
<td>.17</td>
<td>4.85</td>
<td>1.55</td>
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<td>66. Life satisfaction</td>
<td>.77</td>
<td>.18</td>
<td>.16</td>
<td>.32</td>
<td>4.67</td>
<td>1.62</td>
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<td>18. Definition/view of self</td>
<td>.76</td>
<td>.20</td>
<td>.22</td>
<td>.29</td>
<td>4.76</td>
<td>1.61</td>
</tr>
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<td>62. Happiness</td>
<td>.76</td>
<td>.14</td>
<td>.30</td>
<td>.24</td>
<td>4.54</td>
<td>1.77</td>
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<tr>
<td>26. Purpose in life</td>
<td>.76</td>
<td>.22</td>
<td>.10</td>
<td>.24</td>
<td>4.99</td>
<td>1.56</td>
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<td>76. Wholeness</td>
<td>.75</td>
<td>.16</td>
<td>.26</td>
<td>.19</td>
<td>4.39</td>
<td>1.51</td>
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<td>12. Sense of belonging</td>
<td>.69</td>
<td>.21</td>
<td>.24</td>
<td>.18</td>
<td>4.47</td>
<td>1.72</td>
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<td>.28</td>
<td>.12</td>
<td>.05</td>
<td>5.22</td>
<td>1.54</td>
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<td>4. Self-esteem</td>
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<td>.29</td>
<td>.20</td>
<td>.31</td>
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<td>1.67</td>
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<td>74. Will to live</td>
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<td>.24</td>
<td>.07</td>
<td>.14</td>
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<td>1.33</td>
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<td>59. Personal values</td>
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<td>.20</td>
<td>.11</td>
<td>.18</td>
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<td>1.28</td>
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<td>72. Level of social acceptance</td>
<td>.58</td>
<td>.30</td>
<td>.30</td>
<td>.19</td>
<td>4.40</td>
<td>1.20</td>
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<td>71. Trust</td>
<td>.53</td>
<td>.29</td>
<td>.31</td>
<td>.13</td>
<td>4.07</td>
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<td>17. Time spent with friends</td>
<td>.21</td>
<td>.71</td>
<td>.21</td>
<td>.04</td>
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<td>69. Time spent with colleagues</td>
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<td>.58</td>
<td>.06</td>
<td>.31</td>
<td>4.10</td>
<td>1.31</td>
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<td>16. Exercise</td>
<td>.12</td>
<td>.54</td>
<td>.29</td>
<td>.06</td>
<td>4.06</td>
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<td>35. Sexual functioning</td>
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<td>.80</td>
<td>.23</td>
<td>3.90</td>
<td>1.32</td>
</tr>
<tr>
<td>44. Sexual pleasure</td>
<td>.19</td>
<td>.10</td>
<td>.78</td>
<td>.12</td>
<td>4.05</td>
<td>1.29</td>
</tr>
<tr>
<td>41. Time spent with romantic partner</td>
<td>.18</td>
<td>.16</td>
<td>.76</td>
<td>.18</td>
<td>4.09</td>
<td>1.56</td>
</tr>
<tr>
<td>37. Quality of romantic relationship</td>
<td>.30</td>
<td>.20</td>
<td>.76</td>
<td>.17</td>
<td>4.09</td>
<td>1.50</td>
</tr>
<tr>
<td>40. Sexual desire</td>
<td>.16</td>
<td>.23</td>
<td>.70</td>
<td>.12</td>
<td>4.01</td>
<td>1.38</td>
</tr>
<tr>
<td>27. Income</td>
<td>.20</td>
<td>.01</td>
<td>.28</td>
<td>.78</td>
<td>4.31</td>
<td>1.53</td>
</tr>
<tr>
<td>8. Current career</td>
<td>.20</td>
<td>.30</td>
<td>.06</td>
<td>.77</td>
<td>4.61</td>
<td>1.44</td>
</tr>
<tr>
<td>6. Access to employment</td>
<td>.19</td>
<td>.24</td>
<td>.08</td>
<td>.75</td>
<td>4.50</td>
<td>1.40</td>
</tr>
<tr>
<td>1. Current employment</td>
<td>.15</td>
<td>.24</td>
<td>.03</td>
<td>.72</td>
<td>4.64</td>
<td>1.60</td>
</tr>
<tr>
<td>20. Financial security</td>
<td>.31</td>
<td>.05</td>
<td>.30</td>
<td>.70</td>
<td>4.28</td>
<td>1.63</td>
</tr>
<tr>
<td>36. Educational achievement</td>
<td>.18</td>
<td>.29</td>
<td>.13</td>
<td>.62</td>
<td>4.78</td>
<td>1.33</td>
</tr>
<tr>
<td>13. Material possessions</td>
<td>.19</td>
<td>.09</td>
<td>.23</td>
<td>.61</td>
<td>4.29</td>
<td>1.38</td>
</tr>
</tbody>
</table>

*Note. F1 = existential; F2 = discretionary time; F3 = romantic relationship; F4 = career and employment. Italicized values indicate the highest structure coefficients for each item.*
time spent with colleagues, and exercise. Scores on this factor were internally consistent (α = .70) and met the assumption of normality (skewness = −.09, kurtosis = .31).

Factor 3, romantic relationship/sexual gains/losses, consisted of five items and accounted for 10.51% of the variance. Items included in this factor/subscale focused on concepts generally related to romantic and sexual relationships—more specifically, life areas such as sexual functioning and pleasure, quality of relationship, and time spent with romantic partner. Scores on this factor were internally consistent (α = .92) and met the assumption of normality (skewness = .39, kurtosis = .63).

Factor 4, career and employment gains/losses, consisted of seven items and accounted for 10.30% of the variance. Items included in this factor/subscale focused on career, employment, finances, and education—more specifically, life areas such as income, current career and employment, and educational achievement. Scores on this factor were internally consistent (α = .91) and met the assumption of normality (skewness = .35, kurtosis = −.28).

**PILES PRELIMINARY FINDINGS**

Pearson product-moment correlations among the four factors/subscales were generally medium in size (Cohen, 1988). Factor/subscale scores were determined through calculating the average rating of items loading on each factor. Existential gains had a medium association with discretionary time gains (r = .50, p < .001), romantic relationship/sexual gains (r = .53, p < .001), and career and employment gains (r = .56, p < .001). In addition, discretionary time gains had small/medium associations with romantic relationship/sexual gains (r = .43, p < .001) and career and employment gains (r = .40, p < .001). Finally, romantic relationship/sexual gains had a small/medium association with career and employment gains (r = .44, p < .001).

Preliminary findings suggested support for the core assumptions of the gain/loss framework. More specifically, time since life event was significantly and positively associated (small to medium) with perceived gains (vs. losses) for all four of the PILES factors (existential, r = .28, p < .001; discretionary time, r = .32, p < .001; romantic, r = .18, p < .01; career, r = .39, p < .001). In addition, a MANCOVA (with time since event as the covariate) indicated that respondents who identified their life event as primarily desirable displayed higher perceptions of gains (vs. losses) on all four domains of the PILES (existential, M = 5.35, SD = .93; discretionary time, M = 4.21, SD = 1.04; romantic, M = 4.42, SD = 1.24; career, M = 5.00; SD = 1.19) than did their counterparts who identified their life event as primarily undesirable (existential, M = 3.98, SD = 1.11; discretionary time, M = 3.80, SD = 1.10; romantic, M = 3.61, SD = 1.24; career, M = 3.97, SD = .98) (Wilks’s Λ = .67, F(4, 229) = 27.94, p < .001, partial η² = .33 (large effect; Cohen, 1988).

Eight specific life events were indicated by at least 5% of the sample (n = 197), and a MANCOVA (with time since event as the covariate) indicated
both omnibus (Wilks’s Λ = .35), $F(28, 668) = 8.12, p < .001$, partial $\eta^2 = .23$ (large effect; Cohen, 1988), and univariate differences. Differences emerged for existential, $F(7, 188) = 6.70, p < .001$, partial $\eta^2 = .20$ (large effect; Cohen, 1988), with those who selected the birth of a child ($M = 5.40, SD = 1.03$) scoring significantly higher than those who indicated a death ($M = 4.00, SD = .97$), illness of self ($M = 4.08, SD = 1.37$), or illness of other ($M = 4.12, SD = 1.21$; Bonferroni). Those who indicated a death ($M = 4.00, SD = .97$) also scored lower on existential gains (higher on losses) than those who selected marriage ($M = 5.39, SD = .91$), divorce ($M = 5.13, SD = 1.19$), or career/education change ($M = 5.00, SD = 1.11$). For discretionary time, those who selected divorce ($M = 4.82, SD = 1.17$) as their life event scored significant higher than those who selected death ($M = 3.90, SD = .72$), birth of child ($M = 3.57, SD = 1.15$), or illness of other ($M = 3.39, SD = 1.27$; Bonferroni), $F(7, 188) = 3.80, p < .01$, partial $\eta^2 = .12$ (medium effect; Cohen, 1988).

For romantic relationship/sexual gains, those who indicated marriage ($M = 5.50, SD = 1.28$) or divorce ($M = 5.16, SD = 1.75$), although not differing from each other, scored significantly higher than those who selected all other life events ($Ms$ ranging from 3.42 for illness of self to 4.09 for international experiences; Bonferroni), $F(7, 188) = 11.50, p < .001$, partial $\eta^2 = .30$ (large effect; Cohen, 1988). Finally, for career/employment gains, those who selected a career/education change ($M = 5.55, SD = 1.44$) or marriage ($M = 5.19, SD = 1.28$) as their life event scored significantly higher than those who selected death ($M = 4.06, SD = .83$), birth of child ($M = 4.00, SD = .85$), illness of self ($M = 3.54, SD = .79$), and illness of other ($M = 3.75, SD = .57$; Bonferroni), $F(7, 188) = 11.35, p < .001$, partial $\eta^2 = .30$ (large effect; Cohen, 1988). In addition, those who selected divorce ($M = 4.80, SD = 1.04$) scored higher than those who selected illness of self ($M = 3.54, SD = .79$) or illness of other ($M = 3.75, SD = .57$). Results regarding minimal differences based on demographic variables (e.g., sex, marital status) are available from the author.

**STUDY 3: CONFIRMATORY FACTOR ANALYSIS**

The primary aim of Study 3 was to determine the fit of the data with four competing models, including the four-factor structure that emerged in Study 2. Additional goals included a preliminary assessment of the convergent validity of the PILES and an examination of potential associations between PILES factors and a measure of social desirability.

**Method**

**PARTICIPANTS AND PROCEDURE**

As noted above, participants for Study 3 were drawn using the same data collection process as for Study 2. Study 3 participants ($N = 244$) were primarily
female (68%), White (89%), employed full-time (92%), and non-students (80%); they ranged in age from 23 to 74 years ($M = 47.59$, $SD = 11.57$). With regard to marital status, 70% were married, 10% single, 9% divorced, 5% partnered, 3% widowed, 2% divorced and remarried, and 1% separated. In terms of education, 65% had completed post-undergraduate courses/degrees, 20% had graduated college, 13% had completed some college, and 2% had graduated high school.

Participants were asked to select one of their most significant life events and to then indicate the perceived gains/losses they currently attributed to that event. The most frequent significant life events (>5%) spontaneously listed by participants included (in descending order) death (24%), career/education change (15%), birth of child (12%), illness of self (11%), marriage (8%), and illness of other (5%). With regard to desirability, 51% indicated that the life event was primarily desirable and 48% indicated that it was primarily undesirable (1% did not respond). Just over half of the participants (55%) indicated that their significant life event was not currently occurring, and 43% indicated that it was a current experience (2% did not respond). The length of time since the significant life event ranged from 6 days to 56 years, with a mean of 14.67 years ($SD = 13.80$) and a median of 10.14 years ($n = 241$).

**Measures**

The original *Benefit Finding Scale* (BFS; Tomich & Helgeson, 2004) consisted of 20 items and was designed to assess positive effects (e.g., personal growth, change in attitudes/behavior) related to breast cancer ($\alpha = .95$). Carver and Antoni (2004) reduced the scale to 17 items (internal consistency not provided) through eliminating items commonly skipped by participants or items described as confusing. Participants rated change/growth for each item on a 4-point scale ranging from not at all (1) to very much (4), with high scores indicating greater benefit. Cronbach’s alpha for the current sample, using the 17-item version, was .94.

The *Impact of Event Scale-Revised* (IES-R; Weiss & Marmar, 1997) consists of 22 items. The measure is intended to assess symptoms related to traumatic stress reactions and includes subscales of intrusion, avoidance, and persistent hyperarousal. Participants rated the extent to which they were distressed or bothered by each symptom on a 5-point scale ranging from not at all (0) to extremely (4). Cronbach’s alpha for the current sample was .94.

The *Marlowe-Crowne Social Desirability Scale, Form C* (MCSDS-C; Crowne & Marlowe, 1960; Loo & Thorpe, 2000; Reynolds, 1982) consists of 13 items. The measure is intended to assess people’s tendency to respond in ways that are socially desirable but unlikely to be true. Participants indicated whether statements about themselves were true or false. Cronbach’s alpha for the current sample was .75.
Results

CONFIRMATORY FACTOR ANALYSIS

The CFA was conducted using maximum-likelihood estimation (AMOS; Arbuckle, 2006) to examine the fit of the four-factor model. As suggested by Worthington and Whittaker (2006) and Kahn (2006), competing models were compared and the four-factor model (from Study 2) was tested against independence, unidimensional, and three-factor models; multiple indices were used to examine the fit of models to the data (Kline, 2005). The three-factor model was similar to the four-factor model but did not include the discretionary time factor, as that was the factor from Study 2 with the lowest number of items and also the lowest internal consistency. Table 2 includes the chi-square statistic (divided by the degrees of freedom), Tucker-Lewis Index (TLI), incremental fit index (IFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) for each of the four competing models. Established recommendations regarding the cutoff values for each of the indices were used, including .95 or above for the TLI, IFI, and CFI (Hu & Bentler, 1999; Kline, 2005) and .06 or less for the RMSEA (Kahn, 2006). The competing three-factor solution was a good fit to the data and superior to the independence, unidimensional, and hypothesized four-factor models (see Table 2 and Figure 1).

CONVERGENT VALIDITY AND SOCIAL DESIRABILITY

Scores on the PILES subscales were all significantly and positively associated with scores on the BFS (existential \( r = .55 \), romantic \( r = .25 \), career \( r = .19 \); all \( ps < .01 \)) and significantly and negatively associated with scores on the IES-R (existential \( r = -.52 \), romantic \( r = -.36 \), career \( r = -.32 \); all \( ps < .01 \)). In addition, none of the PILES subscales were significantly associated with the

<table>
<thead>
<tr>
<th>TABLE 2</th>
<th>Study 3: Confirmatory Factor Analysis Goodness-of-Fit Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index</td>
<td>1(^a)</td>
</tr>
<tr>
<td>(\chi^2 (df))</td>
<td>13.65 (406)</td>
</tr>
<tr>
<td>TLI</td>
<td>.00</td>
</tr>
<tr>
<td>IFI</td>
<td>.00</td>
</tr>
<tr>
<td>CFI</td>
<td>.00</td>
</tr>
<tr>
<td>RMSEA (90% CI)</td>
<td>(.223, .234)</td>
</tr>
</tbody>
</table>

Note. \( N = 244 \). TLI = Tucker-Lewis Index; IFI = incremental fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

\(^a\)Independence model.

\(^b\)Unidimensional model.

\(^c\)Hypothesized four-factor model.

\(^d\)Competing three-factor model.
MCSDS-C (existential $r = .09$, romantic $r = -.05$, career $r = -.06$; all $ps > .05$), an established measure of social desirability.

**DISCUSSION**

The results of the three investigations provide empirical support for the PILES, and therein offer preliminary confirmation of the applicability of the
The development of the PILES was based on best practices regarding scale development research (e.g., Pinterits, Poteat, & Spanierman, 2009; Worthington & Whitaker, 2006), and the findings indicate initial support for its factor structure and convergent validity.

**Factor Structure**

Overall, the results indicated support for an underlying three-factor structure of the PILES including subscales reflecting existential, romantic relationship/sexual, and career and employment gains/losses. Although a four-factor structure was suggested in Study 2, the findings of the CFA in Study 3 suggested that dropping the discretionary time factor resulted in a better fit with the data. However, the fit indices for the three- and four-factor models were quite similar and could suggest the use of either structure depending on purpose and focus. The results offered minimal correspondence with Schlossberg’s (1981) categories of loss/change (e.g., roles, routines, and assumptions), but there were aspects of overlap. For example, Schlossberg’s categories of assumptions of the self and of the world could be connected with the PILES factor of existential gains/losses, and her category of relationships could be connected with the PILES factor of romantic relationship/sexual gains/losses.

The correlations among the PILES factors/subscales in both Study 2 and Study 3 were significant but small to moderate, indicating that the factors shared variance but were also distinct from one another. The final three factors/subscales of the PILES correspond well with existing literature. More specifically, existential gains/losses coincide with established loss- and trauma-related concepts such as shattered assumptions (Janoff-Bulman, 1992) and meaning reconstruction (Neimeyer, 2001). In addition, Hazan and Shaver (1990) argued that “the themes of love and work are central to most psychological theories of wellbeing” (p. 270), and these themes are clearly represented in the other two factors/subscales of the PILES.

**Gain/Loss Framework Core Assumptions**

With regard to the core assumptions of the gain/loss framework, findings offer preliminary support for the idea that life events, regardless of whether or not they are perceived as desirable or undesirable, can be viewed through a gain/loss lens. The samples used in the present investigations purposefully contained a large range of variation with regard to the life events considered and, even with this variability, a stable factor structure emerged that contained consistent life domains in which gains and losses could be assessed. Findings also suggested the complexity of the perceptions of gains and losses attributed to single life events. For example, those whose life event...
was the birth of a child indicated the highest level of existential gains (lowest losses) and one of the lowest levels of gains (highest losses) with regard to discretionary time (Study 2). Also, participants who selected marriage or divorce scored similarly with regard to existential, romantic, and career-related gains/losses. Although this finding may at first seem counterintuitive, it speaks to the importance of considering individuals’ subjective appraisal of life events (e.g., Andreß & Brökel, 2007). With regard to the malleable nature of perceptions of gains/losses, participants’ perceptions of gains were significant and positively associated with the time since their life event. Although this is preliminary support for the notion of the changing nature of gain/loss perceptions, the existence of the PILES now allows for further research regarding how experiences such as therapy could contribute to changes in gain/loss perceptions.

Convergent Validity and Social Desirability

As expected, scores on the PILES factors/subscales (i.e., calculated through averaging ratings of items on each factor, with higher scores indicating greater gains) were significantly and positively associated with benefit finding and significantly and negatively associated with traumatic stress. As with the intercorrelations among the PILES factors/subscales, these associations were moderate, indicating shared variance but not redundancy. The PILES does not appear to be redundant with measures of benefit finding or stress, but rather may add a new construct to be considered in future research.

Empirical Implications

The PILES and the gain/loss framework of life events offer the potential for future research. Scholars could use the PILES to investigate possible differences in perceptions of gains/losses for a variety of significant life events. In addition, the PILES will allow researchers to explore how perceptions of gains/losses may vary based on individual (e.g., cultural differences, personality traits) and/or contextual factors (e.g., social support, family environment) and may be associated with different types of outcome variables (e.g., stress, well-being). Longitudinal designs could examine potential shifts in gain/loss perceptions and how such shifts might be associated with certain activities and/or interventions (e.g., narrative approaches) as well as how preexisting conditions or personality traits (e.g., resilience, personal resources) may affect the gains/losses individuals perceive when faced with major life events.

Although individuals in the present investigations were directed to self-select their own significant life event, prior research with similar versions of the PILES suggests that it could be successfully used when the life
event is assigned by the researcher. For example, past research indicated that college students’ perceptions of gains (vs. losses) attributed to parental divorce (as assessed by the PILES) were positively associated with hardiness and insight (Miles, 2012) and that individuals’ perceptions of gains (vs. losses) in the alcohol recovery process (as assessed by the PILES) were positively associated with involvement in Alcoholics Anonymous and recovery (Streifel, 2010). The PILES has application within the psychology of loss and perhaps also within the fields of counseling and developmental psychology as well as the scholarly area of stress, coping, and life events. Theories within these fields use the term loss and may find a tool that assesses the impact of life events using a gain/loss perspective a useful addition to their research designs.

Clinical Implications

The gain/loss framework has potential for clinical application, and the PILES could be a valuable tool for mental health clinicians. Clinicians might choose to work with clients while they complete the instrument or might ask clients to complete the instrument and then work with them to create average scores for each of the factors/subscales. Because the PILES allows for assessment of the impact of life events that are anticipated, unanticipated, traumatic, nontraumatic, developmental, desirable, undesirable, and so forth, it may have wide clinical appeal. In practice, the scale could be used to raise awareness of the variety of life domains affected by significant life events (e.g., Servaty-Seib & Wilkins, 2008), serve as a tool for focusing interventions, and offer a nonpathological approach to assessing the effectiveness of treatment. The PILES could be employed within a therapeutic assessment approach (Finn & Tonsager, 1997) wherein assessment is used as a tool for change in the therapeutic process rather than solely as an information-gathering process. Clinicians could use the PILES to more quickly come to a shared understanding with clients regarding their perception of a life experience and to help clients in considering both the gains and losses associated with their experiences.

The concept of loss (and also the gain/loss framework) is approachable for people and connects well with their commonsense understanding of life experiences (Harvey & Miller, 1998). I have offered community outreach using the gain/loss framework and the PILES, and responses have been positive. Most recently, an older woman offered appreciation of how completion of the PILES allowed her and her husband to discuss their divergent perspectives on her recent diagnosis of Parkinson’s disease. She identified existential gains related to her illness, and he had indicated only losses. The PILES has the potential to enhance understanding of diverse perceptions of seemingly similar life events and could emerge as a useful tool in individual, couples, and family counseling.
Limitations

The gain/loss framework and the PILES are both subject to limitations. The PILES was developed and psychometrically evaluated using samples composed of individuals who selected a limited number of life events upon which they based their responses. It is possible that the PILES may not assess the most critical gains/losses experienced by more diverse samples or by those reporting on life events not included here. For example, physical gains/losses are likely central for those experiencing a serious illness, but cannot be assessed using the final version of the PILES. Also, friendship gains/losses are likely to be quite important for students transitioning into or out of college, but friendship did not emerge as a factor/subscale of the PILES. The samples used in the present investigations were homogeneous with regard to many factors such as sex, race/ethnicity, geographical region, educational level, and employment status. Future research needs to explore the generalizability of the gain/loss framework and the use of the PILES with more diverse populations, as well as with those who are both close to and further away from the experience of their life event. In addition, empirical focus is needed to expand psychometric understanding of the stability (e.g., test-retest) and validity (e.g., divergent validity) of scores on the PILES. Also, the use of the continuum version of the PILES precludes the endorsement of both gains and losses at the item level. More attention to the meaning of a score of 4, currently labeled as “no change,” would be helpful. It is possible that participants could select a 4 at the item level if they experienced a balance of both gains and losses connected with the item.

Although questions could also be raised regarding how well individuals can accurately attribute gains and losses back to a specific life event or experience, it can be argued that objective accuracy is actually not necessary or desirable. Individuals have subjective perspectives of gains and losses, and it is exactly those subjective perspectives that need to be assessed and monitored as they are what is critical to therapeutic interventions and growth. Participants often present to therapy because of what they view as struggles with specific life events and situations, and therefore research that incorporates individuals’ subjective perspectives of those life events will likely have high applied value.

Conclusions

The gain/loss framework offers an additional approach to conceptualizing individuals’ appraisals of significant life events, and the PILES is a tool that measures the multidimensional impact of individual life events through assessing the gains/losses individuals attribute to those events. The results of the three investigations described here have heuristic value and offer practical implications for both research and practice.
REFERENCES


**Heather L. Servaty-Seib** is a counseling psychologist and associate professor in the Department of Educational Studies at Purdue University. Her research interests include a broad range of areas within the field of thanatology, with particular emphasis on adolescent/college student grief and using a gain/loss framework for viewing all life events.