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### Assessing meaning and meaning making in the context of stressful life events: Measurement tools and approaches

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## Assessing meaning and meaning making in the context of stressful life events: Measurement tools and approaches

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Theory and research on meaning has proliferated in recent years, focusing on both global meaning and processes of making meaning from difficult life events such as trauma and serious illness. However, the measurement of meaning constructs lags behind theoretical conceptualizations, hindering empirical progress. In this paper, we first delineate a meaning-making framework that integrates current theorizing about meaning and meaning making. From the vantage of this framework, we then describe and evaluate current approaches to assessing meaning-related phenomena, including global meaning and situational meaning constructs. We conclude with suggestions for an integrative approach to assessing meaning-related constructs in future research.

**Keywords:** meaning; meaning making; measurement; stress; trauma; worldviews

Interest in meaning and meaning making has proliferated in recent years. Meaning is considered crucial in understanding human experience (Frankl, 1963; Yalom, 1980) and behavior (Baumeister, 1991; Heine, Proulx, & Vohs, 2006). Meaning making is seen as central in recovering from highly stressful experiences such as bereavement, cancer, and traumatic events (see Davis, Wortman, Lehman, & Silver, 2000; Gillies & Neimeyer, 2006; Janoff-Bulman, 1989, 1992). Meaning-making models, which posit that stressful events may violate individuals' sense of meaning and initiate a process of meaning making (Park, 2010), are widely accepted as accurate descriptions of the process of recovery from highly stressful events, and form the basis of a variety of approaches to clinical interventions for trauma (e.g. Monson et al., 2006) and bereavement (e.g. Neimeyer, 1999).

Although the meaning-making framework is widely accepted, empirical findings regarding the framework are mixed, and support for many of the specific propositions is weak or absent (see Park, 2010, for a review). Many studies have found that searching for meaning is related to less distress (e.g. Davis, Nolen-Hoeksema, & Larson, 1998; Sears, Stanton, & Danoff-Burg, 2003), while others have found it to be related to higher levels of distress and dysfunction (e.g. Bonanno, Papa, Lalande, Zhang, & Noll, 2005; see Park, 2010, for a review; Roberts, Lepore, & Helgeson, 2006). In addition, there is little evidence that meaning making results in meanings made (e.g. Kernan & Lepore, 2009; McIntosh, Silver, & Wortman, 1993; Thompson, 1991).

Inconsistent findings regarding the meaning-making framework are not surprising given the tremendous variations in design and measurement across studies. Further, assessment of meaning making has been particularly problematic. Often, studies use measures that focus on one or two aspects of the model, while ignoring others. In other cases, studies fail to differentiate between key aspects of the model and use concepts interchangeably. Indeed, empirical work falls far short of the rich theoretical underpinnings of meaning-making frameworks, and operational definitions of meaning-making phenomena almost always fall short of capturing the depth and breadth of the theorized constructs (Davis et al., 2000; Thompson & Janigian, 1988). Thus, inadequate measurement greatly constrains current knowledge of meaning making.

Given the central role that meaning making purportedly plays in adapting to highly stressful events, research providing a better understanding of this phenomenon is essential. A first step in advancing this line of research is better measurement strategies (Davis et al., 2000; White, 2004). In this paper, we first delineate a meaning-making framework that integrates current theorizing about meaning and meaning-making phenomena. From the vantage of this framework, we review current approaches to assessing meaning-related phenomena and suggest an integrative approach to future research. Such an approach allows for more precise delineation and operationalization of the distinct components of meaning making, and highlights core aspects essential to the process.

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### A meaning-making framework

The meaning-making framework outlined here draws upon the work of many meaning-making theorists (e.g. Davis et al., 2000; Gillies & Neimeyer, 2006; Janoff-Bulman & Frantz, 1997; Joseph & Linley, 2005; Thompson & Janigian, 1988; Wortman & Silver, 1987). These theories generally concern two levels of meaning, global and situational (see Figure 1). Global meaning refers to individuals' systems of beliefs about the world and themselves and their overarching goals along with their concomitant subjective sense of life meaningfulness or purpose. Global beliefs form the core schemas through which people interpret their experiences (Koltko-Rivera, 2004) and consist of many beliefs regarding aspects such as justice, controllability, predictability, and the self (Janoff-Bulman, 1992; Leary & Tagney, 2012). Global goals are internal representations of desired processes, events, or outcomes (Austin & Vancouver, 1996). These can be desired end states or an existing state that one seeks to maintain (Karoly, 1999). A subjective sense of meaning refers to feelings of 'meaningfulness' (Klinger, 1977) that include a sense significance, comprehension, and purpose regarding one's life and existence (Baumeister, 1991; Ryff, 1989; Yalom, 1980).

Situational meaning refers to meaning in the context of a particular environmental encounter. It refers to how individuals understand, construe, or make sense of a particular event or occurrence. The meaning-making framework proposes that confrontation with severe stressors often leads to situational appraisals that the stressors in some way violate individuals' global

meaning (Park, 2010). This assertion that severe stressors violate global meaning is central to many models of adjustment (Davis et al., 2000; Janoff-Bulman, 1992; Joseph & Linley, 2005; Thompson & Janigian, 1988). Currently, empirical evidence is far from conclusive as to whether stressors violate global meaning. Some evidence supports this assertion (see Park, 2010, for a more in-depth discussion). For example, in a cross-sectional study of college students, perceptions of a stressor as violating global beliefs and goals were related to PTSD symptoms (Park, Mills, & Edmondson, 2012). As we discuss in more detail below, few studies have explicitly assessed violations; clearly, much additional research focused directly on this central aspect of the meaning making model is necessary.

Violations of global meaning initiate cognitive processing or 'meaning-making' efforts to integrate the appraisal of the stressor with individuals' global meaning systems. This integration process is assumed to lead to better adjustment, particularly if adequate meaning is found or created (see Collie & Long, 2005; Gillies & Neimeyer, 2006; Lee, Cohen, Edgar, Laizner, & Gagnon, 2004; Park, 2010; Skaggs & Baron, 2006, for reviews). According to the meaning-making framework, discrepancy or violation is central to initiating and maintaining the meaning-making process. For example, although there are individual differences, people typically believe that their lives are predictable, ordered, and meaningful (Epstein, 1991; Janoff-Bulman, 1989) and that the world is coherent and fair or just (Furnham, 2003; Lerner, 1980). The occurrence of highly stressful events, such as trauma or the diagnosis of a serious illness often violates

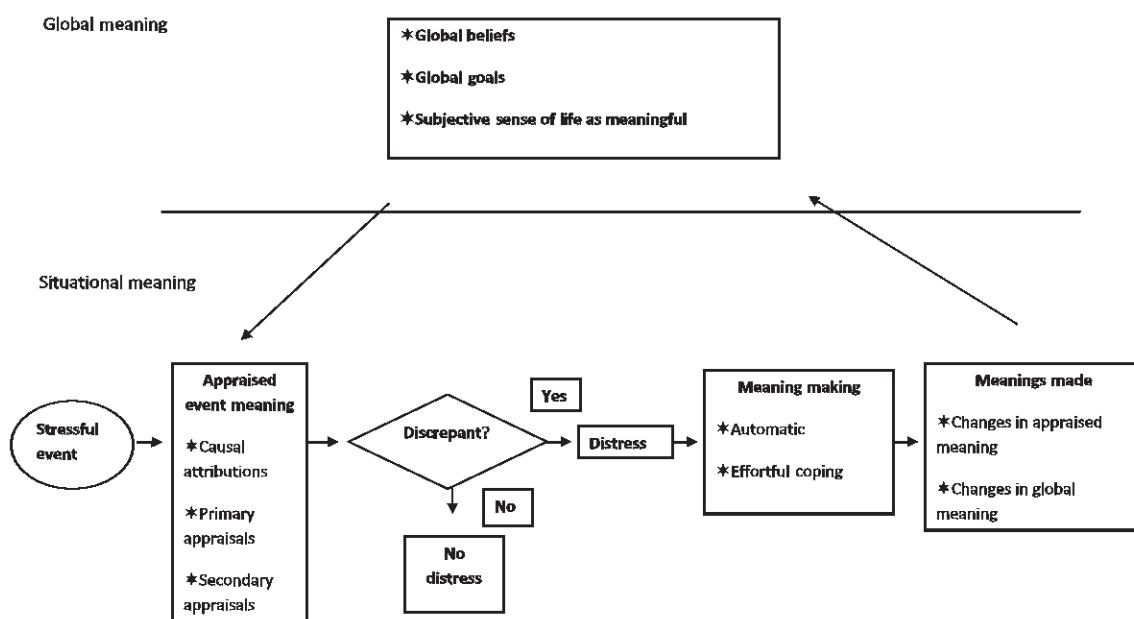


Figure 1. The meaning making model.

individuals' beliefs in these areas (Holland & Reznik, 2005; Janoff-Bulman & Frantz, 1997). Further, such events almost invariably violate people's desires about what they want to have happen (Maes & Karoly, 2005) and often impinge on their sense of life as meaningful (Janoff-Bulman & Frantz, 1997).

Meaning making following stressful events entails attempts to fit individuals' appraisals of events together with their global meaning in order to reduce the discrepancy between them (Horowitz, 1997; Park & Folkman, 1997). Meaning-making processes appear to entail both deliberate coping efforts to understand the situation in a different way, such as making positive reinterpretations and reattributions and trying to accept the situation (Folkman & Moskowitz, 2007), and automatic or unconscious processes such as repeated intrusive thoughts (Greenberg, 1995; Horowitz, 1986).<sup>1</sup>

According to the meaning-making framework, meaning-making processes can result in a number of different types of products, or meanings made. These include both changes in appraised meaning, such as coming to see the stressor as less problematic or aversive or identifying positive aspects (e.g. post-traumatic growth), and changes in global meaning, such as altered global beliefs or reordered priorities (Bower et al., 2005; Holland & Reznik, 2005).

### Assessment approaches to meaning-making phenomena

In the following section, we describe and critique current approaches to measuring components of the meaning-making framework.

#### Global meaning

Global meaning consists of beliefs, goals, and a subjective sense of meaning, and these three components are closely tied with one another. For example, religious beliefs may be intricately related to goals that reflect those beliefs (Emmons, 2005). Moreover, these beliefs and goals may in turn generate a subjective sense of meaning (Emmons, 1999). Current measurement approaches to global meaning typically use measures that focus on only one or two of these components. Considering that the three components are closely linked, this may seem adequate. However, this approach may overlook important information regarding individuals' global meaning. Beliefs, goals, and a subjective sense of meaning may not always be closely tied. For example, not all beliefs and goals may generate a subjective sense of meaning. Only beliefs and goals that are congruent with one's true self are likely to generate a subjective sense of meaning (Weinstein, Ryan, & Deci, 2012). Furthermore, the three components of global meaning may be

differentially important in the context of stressors. For example, the goals of an individual who experiences vicarious trauma may remain unaffected, but some of his or her core beliefs, such as belief in a safe world, may very well be disrupted. Likewise, it is easy to conjecture a scenario in which an individual's goals are disrupted, while salutary beliefs, such as the belief that 'everything will work out,' may remain intact and may even play a protective role in dealing with the stressor. Thus, in the context of stressors, different components of global meaning may play different roles. Researchers should take into account all of the components of global meaning in order to better understand how individuals deal with and adjust to stressors. Table 1 presents a list of measures that assess the three components of global meaning. This list is not meant to be an exhaustive review of measures and only consists of popular and newly developed ones that seem promising. Researchers are by no means limited to these and should do a thorough literature review to explore all available measures and to find ones that best match their study goals.

#### Global beliefs

Although several existing measures examine global beliefs regarding the self and the world, most of these also contain items pertaining to a stressor within its subscales, and therefore cannot be used to specifically assess global beliefs; they confound global beliefs with situational beliefs. For example, the Post-Traumatic Cognition Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) assesses negative views of the self and the world but also contains items that ask about a stressful event. The PTCI contains items such as 'my reaction since the event show that I am lousy coper.' As such, the PTCI subscales do not cleanly assess the global beliefs component of the model.

As of now, it is not clear which beliefs ought to be included in the global beliefs construct and are most relevant in the context of stressful life events. Many global beliefs such as beliefs in randomness, justice, and controllability (Janoff-Bulman, 1989), and beliefs regarding trust, safety, and intimacy (Pearlman, 2003) have been established as important in studying individuals dealing with stressors. Popular measures such as the World Assumptions Scale (Janoff-Bulman, 1989) and the Trauma and Attachment Belief Scale (Pearlman, 2003) tap these beliefs. Other researchers have, however, conceptualized global beliefs much more broadly and have hypothesized that beliefs regarding a variety of concepts, like metaphysics and authority, are also aspects of one's core beliefs and affect perception and behavior (e.g. Koltko-Rivera, 2004). The literature would benefit from a greater understanding of the roles that these other unexamined beliefs play in individuals' response to

Table 1. Measures for assessing global meaning components of the meaning-making model.

| Scale  | Construct definition  | Details of measures<br>(number of items,<br>subscales, etc.)   | Available psychometric<br>data  | Appropriateness for<br>meaning-making model        | Other comments   |
|--|---|--|---|--|--|
| <i>Global beliefs</i><br>Belief in an Afterlife Scale<br>(Osarchuk & Tatz, 1973) | Beliefs about the existence<br>of an afterlife  | Two equivalent versions<br>are available with 10<br>items in each version  | Some evidence of<br>discriminant validity<br>(Osarchuk & Tatz, 1973);<br>overall, only limited<br>psychometric data are<br>available  | Appropriate measure of a<br>specific global belief | Appropriate measure of a<br>specific global belief   |
| Internal–External Locus of<br>Control Scale (Rotter, 1966)                       | Generalized expectancies<br>regarding whether the<br>events of one's life are<br>determined by oneself or<br>by external forces | 29 items, including six<br>filler items<br>No subscales  | 1 month test-retest<br>reliability: .70; convergent<br>and discriminant validity<br>(Rotter, 1966); factor<br>analytic studies do not<br>support a single-factor<br>model (Collins, 1974) | Appropriate measure of a<br>specific global belief | This scale assesses locus<br>of control as a<br>unidimensional construct.<br>Other scales which offer<br>multidimensional<br>assessments of locus of<br>control also exist (see<br>Levenson, 1981; Paulhus,<br>1983)   |
| Just World Scale-Revised<br>(Rubin & Peplau, 1975)                               | The belief that the world is<br>a place where good people<br>are rewarded and bad<br>people are punished                        | 20 items<br>No subscales   | Concurrent validity; factor<br>analytic studies do not<br>suggest a unidimensional<br>structure (see Furnham,<br>2003 for a brief review)   | Appropriate measure of a<br>specific global belief | Although this scale is<br>widely used, evidence<br>suggests that belief in a<br>just world and belief in an<br>unjust world are<br>orthogonal and are not<br>necessarily opposing<br>beliefs. Just world beliefs<br>in one domain may also<br>be unrelated to just world<br>beliefs in another. See<br>Furnham, 2003 for a more<br>detailed discussion |
| Religiosity Scale – Ideological<br>subscale (Rohrbaugh &<br>Jessor, 1975)        | Beliefs about God and the<br>afterlife  | Two items<br>No subscales  | Good reliability and<br>convergent and<br>discriminant validity<br>(Nicholas & Durheim,<br>1996; Rohrbaugh &<br>Jessor, 1975)   | Appropriate measure of<br>specific global beliefs  | The two items refer to two<br>separate beliefs and<br>therefore, they should not<br>be lumped together and<br>should be examined as<br>two separate scores   |
| Trauma and Attachment Belief<br>Scale (Pearlman, 2003)                           | Beliefs about oneself and<br>others related to five need<br>areas sensitive to the<br>effects of traumatic<br>experiences       | 84 items<br>Two subscales, one<br>reflecting beliefs regarding<br>the self and another for<br>beliefs regarding others,<br>for each of the following<br>five areas: safety, trust, | 1 to 2 week test-retest<br>reliability: .75 (Pearlman,<br>2003); overall good<br>psychometric properties,<br>however, subsequent<br>factor analytic studies<br>have suggested a three-    | Appropriate measure of<br>specific global beliefs  | (Continued)  |

Table 1. (Continued).

| Scale  | Construct definition   | Details of measures<br>(number of items,<br>subscales, etc.) | Available psychometric<br>data  | Appropriateness for<br>meaning-making model   | Other comments  |
|--|--|--|---|---|---|
| Views of Suffering Scale<br>(Hale-Smith, Park, &<br>Edmondson, 2012) | Beliefs (mostly religious)<br>regarding the reasons for<br>human suffering   | esteem, intimacy, and<br>control                             | factor model (Varra,<br>Pearlman, Brock, &<br>Hodgson, 2008)<br><br>30 items; 10 subscales<br>representing different<br>perspectives on human<br>suffering  | 14 day test-retest<br>reliability for the subscales<br>ranged from .7 to .9; good<br>construct and convergent<br>validity (Hale-Smith et al.,<br>2012)  | Appropriate measure of a<br>set of specific global<br>beliefs                           |
| World Assumptions Scale<br>(Janoff-Bulman, 1989)                     | Basic propositions<br>regarding the self and<br>world on which people<br>operate   |  | 32 items<br>Eight subscales:<br>Benevolence of the world<br>Benevolence of people<br>Justice<br>Controllability<br>Randomness<br>Self-worth<br>Self-controllability   | Has not been<br>independently validated or<br>validated in heterogeneous<br>samples (culturally,<br>ethnically, and religiously<br>heterogeneous samples)<br><br>Although widely used,<br>mixed evidence regarding<br>psychometric properties;<br>researchers have raised<br>concerns over the<br>temporal stability and<br>construct validity of the<br>instrument (Kaler et al.,<br>2008) | Appropriate measure of<br>specific global beliefs                                       |
| Worldview Assessment<br>Inventory (Koltko-Rivera,<br>2000)           | A 'set of interrelated<br>beliefs about the nature of<br>reality and human life,<br>including beliefs about<br>motivations, social<br>behavior, and human<br>capacities' (Koltko-Rivera,<br>2000, p. 25) | Luck   | 54 items<br>Six subscales:<br>Metaphysics (spirituality<br>vs. materialist)<br>Responsibility (external<br>vs. internal)<br>Agency (voluntarist vs.<br>determinist)<br>Group (collectivist vs.<br>individualist)<br>Authority (linear vs.<br>lateral)<br>Mutability (changeable vs.<br>permanent) | Adequate reliability and<br>preliminary evidence of<br>validity (Koltko-Rivera,<br>2000); has not been<br>independently validated   | Allows for the<br>examination of a wider set<br>of beliefs than those often<br>examined |
| Global goals<br>Interview Questionnaire<br>(Klinger, 1987)           | Current concerns defined<br>as 'the state of an<br>organism between the time   |  | Taps subject goals and<br>various goals construals  | Good overall psychometric<br>properties (Klinger, 1987)   | Appropriate measure of<br>global goals  |

(Continued)

Table 1. (Continued).

| Scale  | Construct definition  | Details of measures<br>(number of items,<br>subscales, etc.)   | Available psychometric<br>data   | Appropriateness for<br>meaning-making model                               | Other comments |
|--|---|--|--|---|----------------|
| Life Goals Inventory (Bower, Kemeny, Taylor, & Fahey, 2003)          | it becomes committed to pursuing a particular goal and the time that it either consummates the goal or abandon its pursuit and disengages from the goal' (Klinger, 1987, p. 33)                           | such as commitment and value of the goal   | Factor analytic evidence support the proposed two-factor structure (Bower et al., 2003)                              | Appropriate measure of global goals                                       |                |
| Major Life Goals (Roberts & Robins, 2000)                            | A 'person's aspirations to shape his/her life context and establish general life structures such as having a career, a family, a certain kind of life style, and so on' (Roberts & Robins, 2000, p. 1285) | 16 items<br>Two subscales: Intrinsic goals<br>Extrinsic goals  | Adequate reliability and validity (Roberts & Robins, 2000)   | Appropriate measure of global goals                                       |                |
| Personal Projects Analysis (Little, 1983; Little & Gee, 2007)        | Personal projects defined as 'a set of interrelated acts extending over time, which is intended to maintain or attain a state of affairs foreseen by the individual' (Little, 1983, p. 276)               | Contains modules that capture goals, various goal construals, the impact of goals on other goals, and linkages between goals | Good overall psychometric properties (Little, 1983; Little & Gee, 2007)  | Appropriate measure of global goals                                       |                |
| Personal Strivings Assessment (Emmons, 1999)                         | The things that people are typically or characteristically trying to do in everyday behavior  | Assesses subject goals, various goal construals, and the impact of goals on other goals                                      | Good overall psychometric properties (Emmons, 1999)  | Appropriate measure of global goals                                       |                |
| <i>Subjective sense of meaning</i>                                   |   |  |  |   |                |
| Life Attitude Profile Revised – Personal Meaning Index (Reker, 1992) | 'Having life goals, having a mission in life, having a sense of direction, and having a logically integrated and consistent understanding of self, others, and life in general' (Reker, 2000, p. 48)      | Two subscales:<br>Purpose<br>Coherence   | Good psychometric properties including good internal consistency, reliability, and convergent validity (Reker, 1992) | Items appear to comprehensively assess a subjective sense of meaning      |                |
| Life Engagement Test (Scheier et al., 2006)                          | 'The extent to which a person engages in activities that are personally valued'   | Six items<br>No subscales  | Good psychometric properties including reliability, internal   | Engagement in activities that are personally valued is only one part of a |                |

(Continued)

Table 1. (Continued).

| Scale   | Construct definition   | Details of measures (number of items, subscales, etc.)  | Available psychometric data   | Appropriateness for meaning-making model  | Other comments  |
|---|--|---|---|---|---|
| Life Regard Index-Revised (Debats, 1998)            | The degree to which individuals can envision their lives within some perspective or context, derive a set of life-goals or purpose from this perspective, and see themselves as fulfilling or as being in the process of fulfilling such life goals Meaning defined as 'the sense made of, and significance felt regarding the nature of one's being and existence' (Steger et al., 2006, p. 81) | 28 items<br>Two subscales:<br>Framework<br>Fulfillment<br><br>10 items<br>Two subscales:<br>Presence of meaning<br><br>Search for meaning | consistency, and convergent and discriminant validity (Scheier et al., 2006)<br><br>Good psychometric properties overall (Debats, 1998); concerns have been raised over its factor structure (Steger, 2007; Yockey, 2006) | subjective sense of meaning and therefore the scale is likely not broad enough to capture one's overall sense of meaning<br><br>The framework subscale, which measures the degree to which individuals envision their lives as part of a meaningful framework, is an appropriate scale for assessing a subjective sense of meaning<br><br>Good psychometric properties including stable factor structure, convergent and discriminant validity, and reliability (Steger et al., 2006) | Items on the fulfillment subscale may overlap with positive outcomes such as feeling good (Mascaro et al., 2004; Steger, Frazier, Oishi, & Kaler, 2006)<br><br>The presence subscale is appropriate for the subjective meaning component<br><br>Items contain the term 'meaning' and leave it up to the subject as to what meaning means; unclear as to how broad a conceptualization of meaning this assesses<br><br>Factor analytically derived subscales; some evidence of convergent validity (Morgan & Farsides, 2009); has not been independently validated |
| Meaning in Life Questionnaire (Steger et al., 2006) |  |   |   | Relatively new scale.<br>This scale provides a comprehensive assessment of the subjective sense of meaning component  | Relatively new scale.<br>Factor analytically derived from three popular meaning measures  |
| Meaningful Life Measure (Morgan & Farsides, 2009)   | Appears to be borrowing Reker's (2000) definition of meaning as 'a multidimensional construct consisting of the cognizance of order, coherence, and purpose in one's existence, the pursuit and attainment of worthwhile goals, and the accompanying sense of fulfillment' (Morgan & Farsides, 2009, p. 198)<br><br>Individuals who have purpose are described as                                | 23 items<br>Five subscales:<br>Exciting life<br>Accomplished life<br>Principled life<br>Purposeful life<br>Valued life                    |   | Good psychometric properties including  | Items are centered on having goals and a sense  |

(Continued)

Table 1. (Continued).

| Scale  | Construct definition  | Details of measures<br>(number of items,<br>subscales, etc.)                        | Available psychometric<br>data  | Appropriateness for<br>meaning-making model   | Other comments   |
|--|---|---|---|---|--|
| Psychological Well-Being<br>Scales – Purpose subscale<br>(Ryff, 1989)    | having goals, a sense of directedness, and aims and objectives for living   | Three different versions with varying lengths of 14, 9, and 3 items<br>No subscales | reliability, validity, and stable factor structure (Ryff, 1989); has been independently validated   | of direction. May not capture other aspects of the subjective sense of meaning construct such as significance and value   |  |
| Purpose in Life Test<br>(Crumbaugh & Maholick, 1964, 1969)               | Based on Frankl's (1963) concept of meaning and noogenic neurosis (a state characterized by boredom and apathy). Construct defined as 'the ontological significance of life from the point of view of the experiencing individual' (Crumbaugh & Maholick, 1964, p. 201) | 20 items<br>No subscales  | The three-item version of this scale does not have good psychometric properties, and therefore, it is recommended that researchers do not use it                            | Considering the criticisms raised regarding its validity and structure, the PIL appears to be inappropriate for assessing a subjective sense of meaning   | The meaningfulness subscale of this measure has often been used to measure meaning. However, Antonovsky (1993) cautioned against the use of subscales as stand-alone instruments as it is designed to measure coherence as a global construct and there is no theoretical basis for deriving distinguishable subscales |
| Sense of Coherence Scale – Meaningfulness subscale<br>(Antonovsky, 1987) | A global orientation regarding one's experiences characterized by a sense of comprehensibility, manageability, and meaningfulness   | 29-item and 13-item versions<br>No subscales  | Factor analytic studies of the Sense of Coherence Scale do not support using the meaningfulness items as a separate subscale (see Eriksson & Lindström, 2005, for a review) | This scale was designed to measure the perception of one's experiences in a way which facilitates successful coping. It was <i>not</i> intended to measure subjective meaning. Therefore, it is not an appropriate measure to assess individuals' subjective sense of meaning | Although spiritual meaning is likely an important part of one's subjective sense of meaning, it may not be broad enough to assess one's overall sense of meaning   |
| Spiritual Meaning Scale<br>(Mascaro et al., 2004)                        | 'The extent to which an individual believes that life or some force of which life is a function has a purpose, will, or way in which individuals participate' (Mascaro et al., 2004, p. 847)  | 14 items<br>No subscales  | Adequate psychometric properties including reliability, and convergent and discriminant validity (Mascaro et al., 2004)   |   |  |

stressors. The link between stressors and a variety of beliefs, such as those regarding God, suffering, and identity, remains to be examined. Researchers may choose to use multiple measures in order to tap into the variety of beliefs that constitute individuals' global beliefs. A list of measures that tap global beliefs is included in Table 1.

One particular set of beliefs that might be important in the context of adjustment is religious/spiritual beliefs; individuals often draw on religion/spirituality (R/S) to cope with stressors (Pargament, 1997). Although there is an extensive array of measures pertaining to R/S, few measures focus explicitly and solely on beliefs (see Park, 2012, for more information). Rather, most measures purporting to assess R/S *beliefs* gauge related constructs such as religious commitment along with beliefs and create an overall score. Researchers attempting to examine R/S beliefs should ensure that the measures that they are considering do not confound beliefs with other related constructs or that they do not combine multiple unrelated beliefs into a single score. In assessing spiritual beliefs, another important point of which researchers should be mindful is the overlap between many measures and conceptualizations of spirituality, and measures and conceptualizations of a subjective sense of meaning and purpose. Many spirituality measures contain items that explicitly ask about a subjective sense of meaning and purpose. Such spirituality measures are bound to correlate with measures of a subjective sense of meaning and purpose. In designing studies and performing data analysis, researchers should be mindful of this potential overlap in order to avoid spurious findings; it is necessary to ensure that the predictor and the outcome are conceptually distinct in order to have meaningful findings.

### Global goals

The assessment of global goals has appeared in the literature under different terms, such as current concerns (Klinger, 1987), personal strivings (Emmons, 1999), and personal projects (Little, 1983). A comprehensive assessment of global goals subsumes two parts – goal contents and goal construals (Maes & Karoly, 2005). Goal contents represent the desired outcomes or destinations towards which people are striving. Goal construals represent implicit and explicit appraisals regarding those desired outcomes or destinations (Karoly, 1999) such as expectancy of success and relative importance of a goal. Some existing measures assess both aspects by eliciting participant goals and prompting participants to rate their goals along a multitude of relevant goal construals (e.g. Emmons, 1999; Klinger, 1987).

Goals are organized hierarchically, with superordinate higher level goals determining goals lower on the hierarchy (Vallacher & Wegner, 1987). In assessing global goals, it is important to focus on higher level goals. For

example, 'being closer to God' is more crucial to measure than 'going to church today.' In assessing goals, researchers should be mindful of the location of specific goals in individuals' goal hierarchies.

Although measures may elicit goals from a variety of life domains, certain domains seem particularly relevant to meaning. After reviewing results from three different research programs using diverse methods, Emmons (2003) concluded that life goals pertaining to achievements, relationships, spirituality, and generativity seem to be most consistently related to life meaning. More recent research has also supported the importance of these domains (Reker & Woo, 2011; Schnell, 2011). Therefore, researchers should pay particular attention to these goal domains, and the relevant construals pertaining to them.

### Subjective sense of meaning

Choosing a measure of subjective meaning can be difficult, as researchers have developed many measures of this construct based on different conceptualizations of meaning. A recent review of measures of meaning in life identified nearly 60 measures (Brandstätter, Baumann, Borasio, & Fegg, 2012). This abundance reflects the complexities involved in defining and measuring individuals' subjective sense of meaning.

In selecting a measure, researchers must pay close attention to the way in which the meaning construct has been conceptually defined. Further, it is important to examine the items themselves to ensure that they map on to the construct definition and that they do not tap into related but different constructs. In the past, popular meaning measures such as the Purpose in Life Test (Crumbaugh & Maholick, 1964) have been criticized for having items that are confounded with positive affect and life satisfaction (Dyck, 1987; Yalom, 1980). Many of these problems persist in currently used measures.

Different measures emphasize different aspects of subjective meaning. For example, the Purpose subscale of the Personal Well-Being Scales (Ryff, 1989) emphasizes having goals and a sense of excitement regarding one's future, the life engagement test (Scheier et al., 2006) emphasize the degree to which one engages in activities that are personally valued and important, and the Spiritual Meaning Scale (Mascaro, Rosen, & Morey, 2004) emphasizes the presence of cosmic or spiritual meaning (as opposed to personal meaning; see Table 1 for definition). Research to date has not established which of these aspects are most relevant to individuals as they deal with stressors. Researchers who want to tap multiple aspects of subjective meaning may find it necessary to use more than one measure.

Some recent work attempts to capture several different conceptualizations within a single measure. Morgan and Farsides (2009) examined the factor

structure of three of the popular meaning measures, the Life Regard Index-Revised (Debats, 1998), the Purpose in Life Test (Crumbaugh & Maholick, 1964), and the Purpose subscale of the Psychological Well-Being Scales (Ryff, 1989), and developed a measure of subjective meaning that contains five subconstructs: exciting life, accomplished life, principled life, purposeful life, and valued life. However, this measure is relatively new and further research is needed to replicate its factor structure and to further explore its positive psychometric qualities.

#### *Alternative approaches to measuring global meaning*

Not all measurement approaches to global meaning distinguish between the three components as outlined in our framework. Here, we discuss two such alternative approaches. We discuss these two in particular as they provide extensive accounts of how they conceptualize global meaning. Leontiev (2007) defines worldview (what we refer to here as global meaning) as a 'system of general understandings about how human beings, society, and the world at large exist and function' (p. 245). He developed the Ultimate Meanings Technique to assess worldview, which uses a laddering technique to elicit participant responses by repeatedly asking people why it is that they do what they do. The end result of this process is a 'meaning tree' which represents individuals' superordinate ultimate meanings (basic meanings that cannot be further explained or broken down; e.g. 'to become one with God') and subordinate meanings which flow from these ultimate meanings (e.g. to go to church daily). These meaning trees provide a window into the structure of individuals' global meaning. Leontiev postulates that in assessing global meaning, structural aspects are more important than content. This differs from our framework, which focuses on the contents of individuals' global meaning. The Sources of Meaning and Meaning in Life Questionnaire (SoMe; Schnell, 2009) is another example of a measurement approach that takes an alternative view of global meaning. The SoMe is based on a hierarchical model of meaning in which the subjective experience of meaning is at the highest level of the hierarchy. Similar to the ultimate meanings technique, the SoMe taps 'ultimate meanings' which are defined as basic orientations that motivate commitment and provide direction in various areas of life (e.g. unison with nature, knowledge, freedom). Schnell (2009) postulates that ultimate meanings are the most basic units of meaning, have intrinsic value, and cannot be reduced to other values.

Although the approaches mentioned above offer a different perspective on measuring global meaning, they may not be comprehensive. 'Ultimate meanings' defined as basic orientations seem to be closely aligned with global goals. For example, they are described as being closely associated with motivation and values, which are

goal-related constructs. Furthermore, neither explicitly taps global beliefs, which have been established to be important for individuals dealing with stressors (Janoff-Bulman, 1989; Pearlman, 2003). Thus, it is unclear how useful such approaches are in measuring global meaning in the context of stressful experiences.

#### *Situational meaning*

Situational meaning encompasses four separate components: appraisals of stressors, appraisals of the extent to which this stressor appraisal violates one's global meaning, meaning-making processes, and meanings made (Park, 2010; see Figure 1). A thorough assessment of situational meaning should include each of these components. Table 2 presents some of the instruments and approaches that have been developed for assessing each component. It should be noted that this listing includes a variety of commonly used or recently developed instruments and approaches and is not exhaustive; other variants of measures to assess each component are available. Researchers are urged to do thorough background research and select their assessment tools with careful consideration of their research aims and the strengths and limitations of the available tools.

#### *Stressor appraisals*

Both the SAM and the ALE have been widely used to capture the general characteristics of a stressor. Both include multiple-item scales for threat and challenge, and the ALE also includes a scale for loss appraisals, hewing more closely to Lazarus and Folkman's (1984) formulation. The SAM includes subscales for controllability of the stressor. Causality, centrality and controllability of a particular stressor can also be assessed by scales that are explicitly designed for that purpose, such as the CDS-II (see Table 2). Other aspects of appraisal may be particularly important to a particular study. For example, researchers who aim to examine how appraisals of an illness influence the meaning-making process may employ a measure such as the IPQ-R or even a more specific measure for a particular illness, such as using the Cancer Locus of Control Scale (Watson, Greer, Pruyn, & Van den Borne, 1990) to assess appraisals of the controllability of cause and course of one's cancer. This scale also includes a religious appraisal subscale but items on this subscale confound cause and course.

#### *Appraisals of violations or discrepancies*

Few measures have been developed to examine appraisals of violations or discrepancies between global meaning and the appraised meaning of a particular stressful situation. This lack is unfortunate because discrepancy is

Table 2. Approaches for assessing situational meaning components of the meaning-making model.

| Specific measures   | Construct definition   | Details of measures   | Available psychometric data   | Appropriateness for meaning-making model   | Other comments   |
|---|--|---|---|--|--|
| <b>Stressor appraisal</b>   |  |   |   |  |  |
| <i>General appraisal measures</i>   |  |   |   |  |  |
| Situational Appraisal Measure (SAM; Peacock & Wong, 1990)                             | Evaluation of the personal significance of events  | 24 items (six subscales and four items each): threat, centrality, challenge, uncontrollable, uncontrollable-by-self, controllable-by-others       | Factor loadings for subscales and internal reliabilities not strong. Good face validity and moderate discriminant validity (Peacock & Wong, 1990) | Good measure of appraisals   | Good measure of appraisals   |
| Appraisal of Life Events (ALE) Scale (Ferguson et al., 1999)                          | Evaluation of the nature and meaning of a particular transaction in relation to one's well-being                                   | 16 items; three subscales: threat, loss, and challenge  | Good psychometrics, including internal reliability, discriminant, and concurrent validity   | Good measure of a more limited set of appraisal dimensions   | More psychometric evaluation is needed   |
| <i>Self-blame appraisal</i>   |  |   |   |  |  |
| PTCI Self-blame subscale (and some items on Negative Self subscale; Foa et al., 1999) | Extent to which a person feels an event happened because of one's behavior or character  | Five items (e.g. 'The event happened because of the way I acted,' and 'there is something about me that made the event happen')                   | Original article presented evidence of good psychometrics but later evaluation suggested poor psychometric properties (Beck et al., 2004)         | May be useful type of appraisal to assess for some types of trauma   | More psychometric evaluation is needed   |
| <i>Attributions</i>   |  |   |   |  |  |
| Revised Causal Dimension Scale (CDS-II; McAuley, Duncan, & Russell, 1992)             | Appraisals of the causality, controllability, and stability of an event  | 12 items forming four subscales: external control, personal control, stability, and locus of causality  | Good reliability and validity. It is widely used  | Causal understanding is an important aspect of appraisal   | Causal understanding is an important aspect of appraisal   |
| <i>Centrality</i>   |  |   |   |  |  |
| Centrality of Event Scale (CES; Benistien & Rubin, 2006)                              | Appraisal of the extent to which a negative event has become central to one's identity, life story, and understanding of the world | 20 items (e.g. 'I feel that this event has become a central part of my life story') rated on a five-point scale                                   | Good reliability and validity for both full CES and short (seven items) version   | Centrality is believed to be an important dimension of appraised and reappraised meaning                     | Centrality is believed to be an important dimension of appraised and reappraised meaning                     |
| <i>Illness characteristics</i>  |  |   |   |  |  |
| Illness Profile Questionnaire-Revised (IPQ-R; Moss-Morris et al., 2002)               | Cognitive and emotional representations of one's illness   | 50 items comprising 6 subscales: identity, consequences, timeline acute/ chronic, timeline cyclical, control, coherence, and emotional dimensions | Good psychometrics, including internal and test-retest reliability, and discriminant and predictive validity                                      | Useful in examining illness appraisals, especially identity, control, coherence, and consequences of illness | Useful in examining illness appraisals, especially identity, control, coherence, and consequences of illness |
| <b>Appraisals of violations/discrepancies between global and situational meaning</b>  |  |   |   |  |  |
| Global Meaning Violation (Park, Mills, & Edmondson, 2012)                             | Extent to which global meaning (beliefs and goals) is violated   | Belief violation: five items<br>Goal violation: 12 items  | Preliminary evidence of reliability and validity. Additional psychometric information is needed   | Good brief tool for assessing violations of beliefs and goals  | A larger set of belief violation items should be developed   |

(Continued)

Table 2. (Continued).

| Specific measures   | Construct definition   | Details of measures   | Available psychometric data   | Appropriateness for meaning-making model   | Other comments   |
|---|--|---|---|--|--|
| Measures of illness or stressor as goal disturbance (e.g. Boersma et al., 2005)       | Extent to which illness or other stressor hinders achieving or maintaining important goals                                       | Participants rate importance and extent to which their illness hinders each of 26 goals, then a hindrance by importance score is calculated to reflect disturbance. (78 items in total) | Good internal reliability Preliminary evidence of validity  | Promising approach. More development and psychometrics necessary   | Various versions of these items have been used (e.g. Schroevers et al., 2007)  |
| <b>Meaning making processes</b>   |  |   |   |  |  |
| <i>Automatic Efforts Towards Integration</i>  | Extent of non-effortful processing of an event (sometimes also measured in conjunction with extent of avoidance)                 | Intrusive thoughts: seven items; Avoidance: eight items   | Excellent psychometrics reported in many studies (e.g. Sundin & Horowitz, 2002)   | Important to capture automatic or non-effortful processing. Unclear whether this scale measures this construct   | Potentially problematic conceptual overlap with PTSD symptoms  |
| Event-Related Rumination Inventory Intrusive Ruminations subscale (Cann et al., 2011) | 'unsolicited invasions of one's cognitive world-thoughts about an experience that one does not choose to bring to mind' (p. 138) | 10 items that are nearly identical to those of the IES such as 'Reminders of the event brought back thoughts about my experience'   | Good internal consistency, some evidence of validity  | Does not seem to provide any advantages over more widely used IES or revised IES intrusions subscale   | Potentially problematic conceptual overlap with PTSD symptoms  |
| <i>Deliberate searching for meaning/integration</i>                                   | Typically described as sense-making or searching for meaning   | 'How often have you found yourself searching to make sense of your [illness, loss]?' 'How often have you found yourself wondering why [you got cancer] or asking, 'Why Me?'''           | Aside from face validity, these items have not been validated as to what people mean when they endorse them   | Limited usefulness because these items do not directly assess attempts to reduce discrepancies between global meanings and appraised meaning of the stressor | Limited usefulness because these items do not directly assess attempts to reduce discrepancies between global meanings and appraised meaning of the stressor |
| Core Beliefs Inventory (Cann et al., 2010)  | Extent of processing following a trauma  | Nine items to form a single summary score. Example: 'Because of the event, I seriously examined my beliefs about my own abilities, strengths and weaknesses.'                           | Good reliability. Validity remains to be established as it is not clear what these items are tapping. Although it is described as assessing violation of core beliefs, it instead asks how much people have been reconsidering their beliefs after an event | Appears misnamed as it measures meaning-making efforts   | Appears misnamed as it asks about processing since the event occurred and thus cannot be used to assess changes in processing over time                      |
| Multiple instruments assess a range of coping   | Efforts to cope with a stressor through altering its reappaisal  | Examples: CERC subscale   | Researchers should study a broad range of meaning-  | Choices of coping subscales that constitute  | (Continued)  |

Table 2. (Continued).

| Specific measures  | Construct definition   | Details of measures  | Available psychometric data  | Appropriateness for meaning-making model   | Other comments  |
|--|--|--|--|--|---|
| activities, some of which reflect deliberate efforts to make meaning. Examples include the COPE (Carver, Scheier, & Weintraub, 1989), CERC (Ganeffski, Kraaij, 2006), and emotional approach coping (Stanton et al., 2000) | meaning such as thinking about the situation in a more positive way, processing one's emotions with other people, trying to accept that it has happened, etc | describes 'adaptive methods for coping with distress produced by unwanted thoughts' (e.g. 'I analyze the thought rationally') COPE subscales of acceptance, positive reinterpretation, and growth. Number of items varies by coping instrument, and subscale | Most coping scales demonstrate good psychometric properties  | making coping methods. For example, the CERC includes perspective taking as well as acceptance and positive reappraisal. The EAC includes emotional processing | meaning making must be carefully chosen, and time frame should be modified to reflect well-selected periods depending on particular study design                    |
| Reflection subscale of Ruminative Responses Inventory (Treynor et al., 2003)   | Neutrally valenced efforts to reflect or ponder on one's inner states  | Five items (e.g. 'Go away by yourself and think about why you feel this way')  | Good reliability and validity  | Because this is a measure of general tendency, it would need to be adapted to assess response to a specific situation  | One of the five items is depression-specific  |
| Event-Related Rumination Inventory Deliberate Processing subscale (Cann et al., 2011)  | 'more controlled thoughts focused on making sense of the experience, problem-solving, reminiscence, and anticipation' (p. 138)                               | 10 item scale (e.g. 'I thought about whether changes in my life have come from dealing with my experience')  | Good internal consistency; problematic discriminative validity (highly related to dysfunctional rumination)    | Does not distinguish among different types of cognitive processing (e.g. reappraising the event, reappraising global beliefs and goals)                        | Directions are problematic for assessing changes over time: 'extent of time spent thinking about the issues indicated during the weeks immediately after the event' |
| <b>Meanings made</b><br><i>General meaning made measures</i><br>Simple questions regarding whether one has established meaning   |  | Single questions such as 'have you made meaning from [the index stressor]?'<br>Psychometric information minimal  | Such questions have some face validity, but have been shown to mean very different things to different people. | Does not appear to be a useful measure of meaning made or integration (see Park, 2010)   |   |
| Subscales (positive cognitive restructuring, resolution, regret, and downward comparison) of the Cognitive Processing of Trauma Scale (Williams et al., 2002)  | Designed to tap into cognitive processing, but other than the denial subscale, the items reflect outcome of processing                                       | Five subscales: denial, positive cognitive restructuring, resolution, regret, downward comparison; three to four items each  | Initial studies showed good internal and test-retest reliability and preliminary evidence of validity          | Some of these subscales may be very useful to examine as meanings made, particularly resolution, downward comparison, and positive cognitive restructuring     |   |
| Integration of Stressful Life Experiences scale (ISLES; Holland, 2002)   | Extent of adaptive integration, both assimilative and accommodative  | Two subscales: footing in the world (11 items; e.g. 'Since this event, I feel like I'm in a crisis of faith')  | Fairly strong evidence of internal and test-retest reliability, modest evidence of convergent validity         | Comprehensibility appears to assess integration of the event into global meaning, (comprehensibility) but  | (Continued)   |

Table 2. (Continued).

| Specific measures  | Construct definition   | Details of measures  | Available psychometric data   | Appropriateness for meaning-making model  | Other comments |
|--|--|--|---|---|----------------|
| Currier, Coleman, & Neimeyer, 2010)  | and comprehensibility (five items; e.g. 'I have difficulty integrating this event into my understanding of the world') |  |   | footing in the world items seem to be tapping distress rather than closely assessing either violations or integration               |                |
| <i>Reduced discrepancy between global and situational meaning</i>  |  |  |   |   |                |
| Repeated measurement of violation measures (described above)   | Revised extent of perceived discrepancy between global and situational meaning   | Subtracting Time 2 perceptions of violation from Time 1 perceptions, etc   | Some evidence that reductions in violations are a valid reflection of meaning making (e.g. Park, 2008; Park, Chmielewski, & Blank, 2010)  | A critical component in the meaning-making model, essential to assess   |                |
| <i>Changed situational appraised meaning</i>   |  |  |   |   |                |
| Repeated measurement of situational appraisal measures (described above)   | Revised appraisal of the stressor  | Subtracting Time 2 perceptions of appraisal from Time 1 appraisal, etc   | See above for scale psychometrics. Little information on validity of technique  | Although few studies have demonstrated such changes, it is important to show how appraised meaning of a situation changes over time |                |
| <i>Changed global meaning</i>  |  |  |   |   |                |
| Post-Traumatic Growth Inventory (Calhoun & Tedeschi, 1996), Stress-Related Growth Scale (Park, Cohen, & Murch, 1996), Perceived Benefits Scale (Tomich & Helgeson, 2004) | Perceptions of positive changes in oneself and one's life specifically as a result of having experienced the event     | PTGI has 21 items and 5 subscales (Tedeschi & Calhoun, 1996) although total score is most commonly used. SRGS has 50 items, with a 15-item short form (Cohen, Hettler, & Pan, 1998)                          | Scales have demonstrated good internal and test-retest reliability. Often correlated with distress, suggesting confounds with coping (Park, 2009) Questionable validity of these types of scales as reflecting actual change (Frazier et al., 2009) | Whether these measures are useful indicators of meaning made remains to be established  |                |
| Changed identity. This could be assessed with a single item or by assessing changes over time in elements of identity (e.g. Frazier et al., 2009)                        | Changes in one's perception of self as a result of having experienced the event  | Simple question: "Do you feel that you are different, or that your sense of identity has changed, as a result of this loss?" along with assessment of change as 'for the better', 'for the worse' or 'mixed' | Little information available on this technique  | May be a useful way to assess change, particularly with using measures with established psychometrics                               |                |
| Changed global beliefs   |  | Use repeated measure of Beliefs (listed in Table 1),   | See above for scale psychometrics. Little   | Important to include in order to examine changes in global beliefs  |                |

(Continued)

Table 2. (Continued).

| Specific measures                                 | Construct definition | Details of measures   | Available psychometric data   | Appropriateness for meaning-making model   | Other comments |
|---|----------------------|---|---|--|----------------|
| Changed global goals                              |                      | subtract Time 2 scores from<br>Time 1 scores<br>Use repeated measure of<br>goals (listed in Table 1), and<br>subtract Time 2 scores from<br>Time 1 scores<br>Use repeated measure of<br>subjective sense of meaning<br>in life (listed in Table 1), and<br>subtract Time 2 scores from<br>Time 1 scores | information on validity of<br>technique<br>See above for scale<br>psychometrics. Little<br>information on validity of<br>technique<br>See above for scale<br>psychometrics. Little<br>information on validity of<br>technique | Important to include in<br>order to examine changes<br>in global goals<br>Important to include in<br>order to examine changes<br>in sense of meaning in life |                |
| Changed sense of<br>subjective meaning in<br>life |                      |   |   |  |                |

critical to the meaning-making model and related theories such as that of Shattered Assumptions (Janoff-Bulman, 1992). We (Park et al., 2012) have been developing a measure that *directly* assesses the extent to which global meaning (beliefs and goals) is violated by a stressful situation. Although preliminary, the items and subscales of this measure have demonstrated good psychometric properties (e.g. Park, 2008; Park et al., 2012). Explicit goal violation items have also been developed by Schroevens et al. (2007), and a similar interview-based approach regarding the extent to which illness violated one's goals was recently developed by Popivker et al. (2010). A related approach can be taken to goal violation by using health-related quality of life measures that tap into the extent to which one's physical, social, and emotional well-being (all important goal end-states) are perceived as being violated by a particular medical condition or illness (Ferrans, 2005). For example, the instructions on the Minnesota Living With Heart Failure Scale asks respondents to report the extent to which their heart failure 'gets in their way of living how they want to live' (Rector, Kubo, & Cohn, 1987).

### *Meaning making*

Because there is as yet little consensus on exactly how meaning making occurs or of what it consists, approaches to assessing meaning making remain somewhat diffuse. Meaning-making processes appear to encompass both automatic and deliberate processes (see Park, 2010, for a review), thus investigations of meaning making should assess both of these aspects. Automatic efforts have typically been assessed as some variant of intrusive thoughts (e.g. Lepore, 2001) as they were initially conceptualized by Horowitz and his colleagues (Horowitz, Wilner, & Alvarez, 1979). However, intrusive thoughts are also a central indicator of post-traumatic stress disorder. The extent to which measures of unwanted and intrusive thoughts tap into 'automatic cognitive processing' vs. distress symptomatology remains unresolved (Park, 2010). A recently developed intrusive rumination measure listed in Table 2, the Intrusive Ruminations subscale of the Event-Related Rumination Inventory (Cann et al., 2011), is nearly redundant with Horowitz et al.'s (1979) Intrusive Thoughts subscale. Alternatives to assess these automatic efforts may include rumination scales that can be tailored to a specific situation rather than general tendencies to ruminate (e.g. Treynor, Gonzalez, & Nolen-Hoeksema, 2003).

Measurement of deliberate meaning making has received relatively greater research attention. Many studies have assessed meaning making by simply asking participants if they have been searching for meaning or trying to make sense of the stressful situation (e.g. Holland, Currier, & Neimeyer, 2006). As noted in

Table 2, these measures are problematic in that they lack established validity beyond face validity, and research suggests that people interpret these items in extremely different ways (e.g. Wright, Crawford, & Sebastian, 2007). More sophisticated deliberate meaning-making measures are available, but the lack of scientific consensus regarding the specifics of this construct means that investigators have an array of options from which to select those measures that tap the specific types of deliberate meaning making on which they want to focus (see Table 2). Many studies of deliberate meaning making have selected subscales from widely used coping instruments that tap efforts to make meaning through acceptance, religious coping, positive reinterpretation, and emotional processing (see Park, 2010, for a review).

### *Meaning made*

Similar to meaning making, many researchers have adopted a fairly simple approach to determining whether meaning has been made, essentially asking the respondent whether he or she has 'made meaning' from the event. This question, like its meaning-making counterpart described above, appears to lack any validity beyond simple face validity. Researchers have not demonstrated that it taps into respondents' sense of reintegration or harmony between situational and global meaning, and studies that have qualitatively explored respondents' understanding of this question have demonstrated a wide variety of referents (e.g. Davis et al., 1998). Table 2 lists two recently introduced multi-subscale indicators of meanings made, the CPOTS and the ISLES, both of which contain promising subscales but which also require much additional use before the constructs that they tap are truly understood. For example, as noted in Table 2, it is not clear what the ISLES 'Footing in the World' scale assesses. It contains items such as 'Since this event, the world seems like a confusing and scary place' that may tap distress or even meaning violation rather than meaning made. Recent research has shown it to be highly related to PTSD symptoms and distress (Currier, Holland, Chisty, & Allen, 2011).

One other popular approach to assessing meaning made is to ask respondents to report the extent to which they have grown or benefitted from the stressful experience. This type of assessment is usually made using one of the perceived growth measures listed in Table 2. These measures ask respondents the extent to which they have experienced positive changes on a number of life domains such as appreciation of life, interpersonal relationships, spirituality, self-knowledge, and coping abilities. Although these measures are listed in Table 2 under the category of 'Changed Global Meaning', these constructs may also reflect changed situational meaning in that the event may be reappraised as less aversive

given the appraised favorable outcomes. However, the scale does not explicitly assess those reappraisals and thus seems better considered a perceived change in global meaning.

A more methodologically sound approach to assessing meaning made is to employ repeated measures of discrepancy or violation, situational meaning, and global meaning, and then examine the extent to which change has occurred over time. Although this approach has seldom been employed as a way of examining shifts in these important aspects of meaning over time, results of studies that have employed this approach suggest that it is a very fruitful way to study meanings made over time (e.g. Park et al., 2008). For example, one study of diabetes, heart failure, and asthma patients found that reductions over time in the extent to which their illness was appraised as hindering their goals predicted later improved quality of life (Kuijer & De Ridder, 2003). These authors later presented a card-sort method for examining dimensions of goal importance, attainability, and discrepancy that can be used over time to examine shifts in meaning made (De Ridder & Kuijer, 2007). As we discuss below, we believe that meaning-making research will advance more quickly as researchers begin to employ longitudinal designs that include multiple assessments of these constructs that capture changes in global and situational meaning over time and identify the processes that are related to these changes.

### Suggestions for future research

Although a vast array of studies has examined meaning and meaning making to date, the literature is far from a comprehensive and thorough understanding of this topic. Methodological and conceptual issues have significantly contributed to this problem by limiting the utility of existing studies. We offer specific suggestions aimed at addressing these shortcomings.

#### **Use of a common model and standard terms for constructs**

The lack of a common model and the use of inconsistent terminology have resulted in muddled concepts (Davis et al., 2000) and disjointed findings (White, 2004). The meaning-making literature is replete with examples of the same construct being defined in different ways, and distinct constructs being used interchangeably (see Park, 2010 for a review). This has resulted in confusion and mischaracterizations of findings. A common model with standard terms can help integrate findings across studies. The meaning-making framework used here can serve this purpose, although others may serve this function as well. In order to facilitate the integration of findings, it is crucial that future studies be explicit and accurate

regarding the aspects of their framework that they are assessing.

#### **Improved study designs**

The majority of existing studies on meaning making have used cross-sectional designs. Cross-sectional designs are limited as they do not capture changes in meaning over time and provide little information regarding the interplay among stressors and components of the meaning making framework. Prospective, longitudinal research designs are crucial in this regard as they capture the dynamic processes underlying meaning making. Although longitudinal and prospective studies can be challenging, they are feasible (e.g. studying high risk populations; Bonanno, Wortman, & Nesse, 2004). Alternative study designs such as experimental procedures can also complement our understanding of meaning making. Researchers have used role-playing, analogs, and simulations to provoke and examine individuals' meaning-making processes (e.g. Heine et al., 2006; Holmes & Bourne, 2008). More sophisticated study designs are necessary to illuminate our understanding of crucial issues pertaining to meaning making such as timing, mechanisms of change, group trajectories, and individual differences.

#### **Better operational definitions and selection of measures**

Operational definitions of meaning and meaning making do not adequately tap the depth and breadth of these concepts (Davis et al., 2000). Often, meaning making is operationalized via questions that ask participants if they have been searching for meaning (e.g. Updegraff, Silver, & Holman, 2008), asking 'why' or 'why me' (e.g. Schwartzberg & Janoff-Bulman, 1991) or with a combination of these two types of questions (Uren & Wastell, 2002). These questions are problematic for several reasons: One, individuals may not be aware of or able to accurately report on their meaning-making efforts as they may involve automatic and unconscious processes (Creamer, Burgess, & Pattison, 1992; Horowitz, 1986). Even if such efforts are deliberately carried out, individuals may not think of them as meaning-making attempts and, therefore, may have limited ability to report on them. Second, as noted above, although such questions appear to have face validity, they have been found to mean different things to different people (Davis et al., 1998). The wording of such items may make a large difference. For example, in one study, responses of mothers with children undergoing bone marrow transplantation to items such as 'searching for meaning' and 'searching for positive meaning' were not correlated (Wu et al., 2008). Therefore, researchers need to carefully choose measures that have demonstrated validity and ensure that the

measures adequately tap the constructs that they are intended to assess.

### **Comprehensive assessment of meaning making**

Meaning making in the context of stressors is a complex and dynamic process with multiple components that interact with one another. In order to fully understand this process, it is necessary to comprehensively examine all components of the model. Unfortunately, this is pragmatically very difficult to carry out. Most existing studies have focused on small parts of the meaning-making model, precluding a full test (see Park, 2010, for a review). These approaches render the drawing of conclusions difficult. For example, researchers looking to study the relationship between meaning making and adjustment often assess meaning-making efforts without assessing meanings made (e.g. DuHamel et al., 2004). Without assessing meanings made, it is impossible to differentiate between successful meaning making and maladaptive ruminations, and the question of whether meaning making is related to positive adjustment remains unanswered. Similarly, some researchers assess current beliefs without assessing what beliefs were like pre-trauma (e.g. Foa et al., 1999). This approach provides little information regarding changes in beliefs, which is a crucial part of the meaning-making process. To the extent possible, future studies should aim to comprehensively examine all relevant components of the meaning-making framework, or at least as many as can be practically included. Researchers can usefully test smaller parts of the model, but should be mindful of the limitations of what they are leaving out and communicate those clearly when interpreting results.

### **Conclusion**

Although meaning and meaning making are widely considered to be crucial to individuals' adjustment to stressors (Davis et al., 2000; Gillies & Neimeyer, 2006; Janoff-Bulman, 1989, 1992), empirical research to date has not been able to confirm these theoretical propositions and provide a thorough understanding of meaning making (Park, 2010). Methodological limitations, inadequate measurement, and the lack of a standard model of meaning making are largely responsible for this lack of definitive research. In an effort to facilitate better research in the future, we have outlined an integrative framework for conceptualizing meaning and meaning making and evaluated various measurement approaches for these constructs. It is imperative that researchers remain mindful of the dynamic interplay of various components of the meaning-making model and strive for more accurate and comprehensive measurement of meaning-making constructs. Through better measurement

and study design, we can gain a better understanding of how individuals respond to and recover from stressors.

### **Note**

1. The role of intrusive thoughts in meaning-making processes is unclear. Although intrusive thoughts are a cardinal symptom of PTSD, they may, under certain circumstances, also be an important way through which people unintentionally gain exposure to cognitive material that is inconsistent with their larger frameworks of meaning (Horowitz, 1986, 1997). Such cognitive processing can lead to meanings made by allowing either reappraising the cognitive material or changing global meaning to accommodate it (for an excellent discussion of this issue, see Greenberg, 1995). However, the circumstances under which intrusive thoughts may aid in making meaning remain to be specified. Some evidence suggests that in the context of positive reappraisals of the event (e.g. perceiving growth from it), intrusive thoughts can facilitate psychological adjustment (e.g. Park et al., 2010). This issue of the conditions under which non-deliberate meaning making, such as intrusive thoughts, can be adaptive warrants further research.

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