

7-25-2013

Development and Validation of a Measure of Perceived Life Significance

Rachel Hibberd

University of Missouri-St. Louis, hibberd.r@gmail.com

Follow this and additional works at: <https://irl.umsl.edu/dissertation>



Part of the [Psychology Commons](#)

Recommended Citation

Hibberd, Rachel, "Development and Validation of a Measure of Perceived Life Significance" (2013). *Dissertations*. 304.
<https://irl.umsl.edu/dissertation/304>

This Dissertation is brought to you for free and open access by the UMSL Graduate Works at IRL @ UMSL. It has been accepted for inclusion in Dissertations by an authorized administrator of IRL @ UMSL. For more information, please contact marvinh@umsl.edu.

Running head: PERCEIVED LIFE SIGNIFICANCE SCALE

Development and Validation of a Measure of Perceived Life Significance

March, 2013

Rachel Hibberd

M.A. Clinical Psychology, University of Missouri-St. Louis 2009

B.S. Psychology, University of Florida 2007

This Dissertation is submitted in partial fulfillment of the requirements for the Ph.D.
degree in Clinical Psychology.

Committee Members:

Brian Vandenberg, Ph.D. (Major Advisor)

Ann Steffen, Ph.D. (Committee Member)

Thomas Meuser, Ph.D. (Committee Member)

Zoë Peterson, Ph.D. (Committee Member)

Acknowledgements

I offer my sincere gratitude for the tireless encouragement, humor, advice, and endless edits and revisions provided by my advisor, Brian Vandenberg. Brian's mentoring has shaped me profoundly as a scholar, clinician, and person. I hope to carry a spark of his talent for nurturing developing minds and ideas, as well as bravely and honestly demanding excellence, with me for the remainder of my professional life.

I thank the members of my committee for helping me navigate the swampy, seemingly endless proposal process to arrive at this surprisingly satisfying project, and for their invaluable support and suggestions along the way.

Finally, I would like to acknowledge the support of Kaylin Jones as a pilot study participant, colleague, and dear friend. Many of the ideas contained within this document are rooted in her life experiences and in her uncommon ability to remain connected to what matters, under even the most painful of circumstances.

Dedication

To my dad, who taught me that "to be free from pain" is never enough reason for living.

Abstract

Theoretical and empirical approaches to the study of meaning in bereavement suggest a distinction between meaning as *sense-making*, or the integration of the loss into a coherent and positive set of beliefs about world and self, and meaning as *life significance*, or the perception that some aspect of one's life experience “matters” in the wake of loss. Although several authors have pointed to the importance of life significance in grief recovery, currently no psychometrically valid measure exists. The present study examined the reliability and validity of a new measure: the Perceived Life Significance Scale (PLSS). The PLSS total score, as well as subscale scores, demonstrated acceptable inter-item reliability across samples. Exploratory factor analysis in a sample of community bereaved adults (N=353) suggested a three-factor structure, with subscales representing the active pursuit of valued goals (Active Life Significance), the experience of emptiness or insignificance (Negative Life Significance), and a passive receptivity to beauty or meaning in everyday life (Receptive Life Significance). This factor structure was confirmed in a sample of bereaved undergraduates (N=483). The PLSS demonstrated good convergent and discriminant validity in both samples, with stronger associations with other meaning measures than with measures of negative affect, depression, and grief intensity. A confirmatory joint factor analysis found support for the discriminant validity of the PLSS with respect to the World Assumptions Scale, a measure of meaning as sense-making. These results suggest the utility of the PLSS as a measure specific to meaning but discrepant from meaning as sense-making.

Development and Validation of the Perceived Life Significance Scale

The processes and outcomes of individuals' efforts to reconstruct meaning in bereavement have garnered increasing empirical and theoretical attention over the last several decades. This process has been described and measured in a number of ways: searching for meaning (Bonanno, Wortman, & Nesse, 2004), finding meaning (Attig, 2001), positive reappraisal (Folkman, 2001), rebuilding shattered assumptive worldviews (Janoff-Bulman, 1992), and sense-making and benefit finding (Davis, Nolen-Hoeksema, & Larson, 1998) are just a few. This cornucopia of constructs has resulted in confusion about what is meant by "meaning," and even what differentiates meaning-related processes from other myriad biopsychosocial processes of grief. A review of meaning in major grief theories, as well as the specific ways in which meaning has been conceptualized and operationalized by grief research, suggests that our theory and particularly our measurement of grief has not captured this construct completely. Existing theory and research focuses largely on the question of whether one's life *makes sense* (e.g., whether our narratives, beliefs, and appraisals are coherent and positive) and overlooks the question of whether anything in life "matters," or is *significant*. While several measures of sense-making have been developed, no psychometrically valid measure of life significance currently exists. The present study aims to develop and validate a theoretically-driven measure of life significance, termed the Perceived Life Significance Scale.

Issues in Conceptualizing Meaning

Theories of grief and other stressful life events vary in the extent to which meaning is explicitly discussed, what constitutes meaning within the model, and whether meaning is viewed primarily as a predictor or as an outcome. Despite increasing awareness of the need to separately attend to meaning reconstruction as a process (e.g., “searching for meaning,” Bonanno et al., 2004; “meaning-making,” (Park, 2010) and as a product (e.g., “meanings made”) of stressful life events, meaning is often regarded primarily as a predictor rather than as an outcome of importance in itself. In such models, the dependent variable (in quantitative studies) or the end point (in theoretical models) has often been the number and severity of grief symptoms (e.g., Currier, Holland, & Neimeyer, 2009, Boelen, van den Hout, van den Bout, 2006).

Further, theories of meaning differ in terms of whether specific meaning “content” is identified and measured, or whether the variable of interest is the construction of any meaning, as compared to total emptiness or confusion. More than one “meaning” may be achieved in response to any given event. For example, some parents bereaved by suicide may view themselves as failures in parenting; others may interpret the death as a warning, a reminder to enjoy life in the moment (Wheeler, 2001). Still others may flounder between one explanation and another, searching desperately and without relief for an answer. Thus, two questions are possible: 1. Which meanings are most likely to occur for which individuals under which circumstances? (*meaning content* as outcome), and 2. Which individuals under which circumstances are most likely to come to *any*

meaning after a loss (*meaningfulness* as an outcome)? To the extent that bereavement research has examined meaning as an outcome, it has been operationalized both as meaning content (e.g., Schwartzberg & Janoff-Bulman, 1991) and as meaningfulness (e.g., Currier et al., 2006), but this distinction has not often been articulated.

Finally, an important question in conceptualizing meaning is: the meaning of what? In the example of bereaved parents, researchers might choose to define meaning in terms of parents' answer to the question of why the child died--i.e., the meaning of the death itself (Davis et al., 1998). Alternatively, researchers might examine the effect of the death on parents' view of the world, hypothesizing that many parents will have come to view the world as an evil, unjust place (world meaning; Janoff-Bulman, 1992). Some parents might emerge from their loss with fundamentally changed identities, or self-meanings (Gillies & Neimeyer, 2006). Others might, in the context of the family system, develop and modify "meanings" as internal representations of the dead child (Klass, 2001). Finally, such a loss might prompt parents to re-examine global priorities and values, asking themselves questions about the meaning of being alive at all (Tedeschi & Calhoun, 1996; Baumeister, 1991).

Conceptualizations of Meaning in Grief Theory

Cognitive models. Park (2010) identifies basic underlying assumptions common to a number of cognitive models of meaning-making (e.g., Taylor, 1983; Thompson & Janigan, 1988; Park & Folkman, 1997; Janoff-Bulman, 1992), including models of coping with bereavement (e.g., Bonanno and Kaltman, 1999; Boelen et al., 2006). Each of

these models includes two meaning components: “global meanings,” or beliefs about the world and the self, and “situational meanings,” or appraisals and interpretations specific to the event itself (Park, 2010). Thus, the question of “The meaning of what?” is taken seriously, and the meaning of the stressor is treated as a separate element from the meaning of the world or of the self. Distress results from a perceived discrepancy between global beliefs and event-specific appraisals, setting in motion a process of coping by which global or situational beliefs are modified until they become concordant with one another. Despite assertions by some cognitive theorists that changed global meanings are themselves outcomes of interest (e.g., Park and Folkman, 1997; Janoff-Bulman, 1992), research stemming from these models has largely examined global meanings as a potential moderator of the effects of life events on other outcomes (e.g., Bonanno et al., 2004; Folkman, 1997; Park, Edmondson, Fenster, & Blank, 2008).

Meaning within the cognitive model is generally conceptualized in terms of explicit beliefs, appraisals, and attributions. Stress and coping theorists within the cognitive tradition (e.g., Park and Folkman, 1997; Folkman, 2001) have recognized the necessity of including goals and values in a holistic conceptualization of global meaning, but few researchers have included these elements in actual studies of coping—likely due to a lack of adequate measurement tools (Park, 2010). Nevertheless, even within a stress and coping perspective, the processes by which situational and global meanings are reconciled are still described as largely cognitive: attributions, appraisals, assimilation, and accommodation all describe individuals’ attempts to fit knowledge of the event with

preexisting belief structures (Park and Folkman, 1997; Lazarus & Folkman, 1984). The specific mechanisms by which life events may change individuals' goals and values, or their engagement in valued activities, remain unaddressed.

Janoff-Bulman (1992) refers to global beliefs about the self and the world as *assumptive worldviews*, and a number of studies have operationalized these beliefs using the World Assumptions Scale (Janoff-Bulman, 1989). These cognitive schemas are generally stable and positive (i.e., consisting of a view of the self as worthy, and in control and the world as benevolent, predictable, and just), but are thought to be challenged by the "powerful evidence" of an unjust, uncontrollable world represented by a traumatic life event. Consistent with Park and Folkman (1997), individuals struggle to resolve the discrepancy between appraisals of the event and assumptive worldviews (Janoff-Bulman, 1992). Thus, meaning is central to Janoff-Bulman's (1992) model, but is explicitly limited insofar as it is defined and measured as a series of specific beliefs (i.e., predetermined meaning *content* is measured as a proxy for the presence of *meaningfulness*). Individuals who possess alternative assumptive worldviews may be viewed as possessing less meaning than those whose beliefs conform to a traditionally Western view of the world as controllable and just (Lerner, 1980; Rotter, 1954). Further, even more so than in other cognitive models, *meaning* is described in purely cognitive terms and the effects of stressful life events on individuals' goals, values, and life priorities is not considered.

Social constructionist models. Meaning is at the heart of a social constructionist understanding of human experience; in this view, grief itself is not merely an experience in which meaning plays an important role, but rather is in itself “an active process of meaning reconstruction in the wake of loss” (Gillies & Neimeyer, 2006, p. 32). Individuals’ ability to construct meaning after loss may thus be seen as both a process and an important outcome (Neimeyer, 2001). Like the cognitive models reviewed above, constructionist and constructivist models emphasize the importance of an individual's *interpretation* of an event, and how those interpretations may or may not “make sense” in light of previously-held beliefs (Burr, 1995; Neimeyer & Raskin, 2000). Thus, individuals and families’ attempts to develop a coherent and positive narrative which integrates the loss with existing beliefs about the world, the self, and the relationship with the deceased person is viewed as a key meaning variable within these models (e.g., Klass, 2001; Nadeau, 1998; Walter, 1996).

As in the cognitive models reviewed above, Neimeyer and Gillies’ (2006) model of meaning reconstruction specifies that distress and meaning-making are driven by a discrepancy between global meanings and event-specific meanings, resulting in changed understandings of the loss and/or of the world. However, in contrast to cognitive models, Neimeyer and Gillies (2006) describe meaning as a complex, multidimensional phenomenon existing at multiple levels of an individual mourner’s awareness, from explicit, consciously held beliefs to more tacit “deep structures” used to organize perception of the world and the self. Specifically, mourners are thought to engage in three

different processes of meaning reconstruction: *sense making*, *benefit finding*, and *identity change* (Neimeyer and Gillies, 2006). These distinctions are based on a recent line of empirical work which seeks to more carefully define and measure the components of meaning (e.g., Davis et al., 2000; Holland, Currier, & Neimeyer, 2006; Currier et al., 2006), beginning with a seminal study differentiating between sense-making and benefit-finding (Davis et al., 1998).

Research Findings on Meaning in Bereavement

Davis and colleagues (1998) reviewed the literature on meaning and identified two commonly-studied subdimensions: *sense-making* and *benefit finding*. Since this seminal article was published, many empirical studies of grief have explicitly operationalized meaning as sense-making (e.g., Davis et al., 2000, Currier, Holland, & Neimeyer, 2006) or as sense-making and benefit finding (Michael & Snyder, 2005). Other researchers, following Gillies & Neimeyer (2006), have integrated a conceptualization of meaning as sense-making, benefit finding, and *identity change* (e.g., Neimeyer et al., 2006). A relatively separate literature has examined the predictors and consequences of *purpose in life* among bereaved individuals (e.g., Edmonds & Hooker, 1992; Hershberger & Walsh, 1990). A brief review of the empirical literature surrounding each of these specific conceptualizations will be helpful in identifying how they relate to one another, as well as how each might relate to life significance.

Sense-making. The need to “make sense” of a loss by explaining *why* it happened in terms consistent with existing worldviews, or by changing worldviews to

accommodate the fact of the loss, is perhaps the most well-studied aspect of meaning reconstruction after loss. Each of the cognitive theories of grief outlined above utilizes some variation on this theme, highlighting mourners' need for a coherent set of schemas, assumptions, and appraisals to explain the world and the self (Janoff-Bulman, 1992; Park and Folkman, 1997; Bonanno & Kaltman, 1999; Stroebe & Schut, 2001). Similarly, constructivist theories of grief have heavily emphasized meaning reconstruction as the development of a coherent life narrative within which losses make sense (e.g., Gillies & Neimeyer, 2006; Nadeau, 1998). Problematic responses to loss may include making sense in a way that is distressing (negative meaning content) or failing to make any sense at all (meaninglessness). Mourners may need to direct coping efforts towards understanding the loss itself, or towards making sense of their lives, selves, and world now that the loss has occurred (Park, 2010).

Studies of sense-making based on the cognitive model have typically examined meaning-content, often using the World Assumptions Scale developed by Janoff-Bulman (1989). This scale lists a series of beliefs about the self (e.g., "I am luckier than most people"), the world and its people ("People are basically kind and helpful"), and the justice of tragic events ("Generally, people deserve what they get in this world") that are considered most likely to be negatively impacted by traumatic events such as bereavement. In such studies, individuals bereaved by violent, unexpected, or untimely means are most likely to view the world as evil, unpredictable, and uncontrollable (Matthews & Marwit, 2003-2004; Wickie & Marwit, 2000). Negative worldviews, in

turn, are associated with a greater level of post-bereavement distress (Matthews & Marwit, 2003-2004; Schwartzberg & Janoff-Bulman, 1991; Wickie & Marwit, 2000). One study found an association between negative assumptive worldviews and distress among bereaved participants, but not among nonbereaved controls, suggesting that negative meaning content take on a particularly damaging tone when driven by the loss of a loved one (Currier et al., 2009).

Other studies, following Davis and colleagues (1998), have examined sense-making in terms of meaningfulness, most often with the use of a single item asking participants whether they have “made sense of” or “found meaning in” the loss (e.g., Bonanno et al., 2004; Davis, Wortman, Lehman, & Silver, 2000; Neimeyer et al., 2006). Notably, while the World Assumptions Scale taps the “meaning of” the world and the self in a global way, the single-item measures of sense-making in current use tap the “meaning of” the loss itself. Mourners’ inability to make sense of the loss has been demonstrated to mediate the well-established relationship between violent cause of death (e.g., homicide, suicide, or accident, as compared to illness) and negative adjustment outcomes (Currier et al., 2006; Keesee, Currier, & Neimeyer, 2008).

Benefit finding. Other studies have examined a more specific dimension of mourners’ cognitive responses to loss: the ability to identify benefits or “silver linings” to having lost a loved one, typically using a single-item yes-or-no question (Davis et al., 1998; Neimeyer, Baldwin, & Gillies, 2006). Mourners who report benefits have been found in some studies to experience shorter, less intense grief (Davis et al., 1998;

Neimeyer et al., 2006). Davis and Nolen-Hoeksema (2001) and others (Gillies & Neimeyer, 2006) have distinguished benefit finding from sense-making based on research suggesting that, when measured using single-item questions, the two constructs predict adjustment differently and are not correlated with one another (Davis et al., 1998; Davis et al., 2000). Nevertheless, conceptual overlap exists between sense-making and benefit finding. Davis and Nolen-Hoeksema (2001) acknowledge that for some individuals benefit finding may contribute to mourners' ability to make sense of loss. Mourners' appraisals of a loss as having conferred some benefit transforms the meaning of the loss, thus allowing them to assimilate this tragic event into global sense-making structures and retain coherent and positive worldviews (Janoff-Bulman, 1992; Park & Folkman, 1997). The view of benefit-finding as one particular aspect of sense-making is supported by some studies in which sense-making showed a more universally positive association with post-loss adjustment, particularly among mourners coping with violent loss or complicated grief symptomatology (Keesee et al., 2008; Holland et al., 2006).

Identity change. Gillies and Neimeyer's (2006) model explicitly considered identity change as a form of meaning reconstruction in grief. The intense suffering associated with difficult losses may result in a new view of the self as "sadder but wiser," simultaneously strengthened and softened by the experience of grief (Janoff-Bulman, 1992; Tedeschi & Calhoun, 1996). Identity change, in this conceptualization, is the "meaning of" the self as a new individual, as compared to other measures of the "meaning of" the loss or the world. Although a limited number of studies have

investigated issues surrounding identity in bereavement specifically (Nerken, 1993; Pals & McAdams, 2004), only recently has an appreciation of the importance of the self as a dimension of *meaning* in grief been recognized (Neimeyer, 2001a). The only study to date which has investigated identity change as a meaning-making process (as theorized by Gillies and Neimeyer) relied on a single-item measure similar to those used to assess sense-making and benefit finding, finding that “positive” identity change is associated with fewer symptoms of complicated grief (Neimeyer et al., 2006). Social cognition research suggests that identity change may differ significantly in structure, function, and implication from other meaning processes, by virtue of its relationship with the complex processes of self and identity (Strauman & Higgins, 1993). Nevertheless, the concept as described by Gillies and Neimeyer (2006) is similar to sense-making and benefit-finding in that identity change involves a cognitive process of maintaining or reconstructing a coherent narrative or cluster of beliefs which integrates the fact of the loss (Neimeyer, 2001).

Purpose in life. Though conspicuously absent from the meaning reconstruction model, as well as other recent examinations of meaning in bereavement (Davis et al., 1998; Folkman, 2001; Gillies and Neimeyer, 2006; Stroebe & Schut, 2001), purpose in life has been an influential definition of meaning in the general literature (Hutzell, 1988). Purpose in life was initially described by Viennese psychiatrist Victor Frankl (1959/1984), who observed that inmates in a concentration camp who were able to articulate a specific task or purpose awaiting their escape from the camps fared better

than those who had no such purpose. Most studies of purpose in life utilize the Purpose in Life Test (PIL), developed in consultation with Frankl to measure “the ontological life significance of life from the point of view of the experiencing individual” (Crumbaugh & Mahonick, 1964, p. 201). The PIL has demonstrated excellent internal consistency and reliability and demonstrates convergent validity with other measures of well-being (Edmonds & Hooker, 1992; Hershberger & Walsh, 1990). Among bereaved individuals, PIL scores are positively associated with other measures of life meaning (Edmonds and Hooker, 1992; Florian, 1989-1990) and adjustment (Hershberger & Walsh, 1990) and negatively associated with grief intensity (Edmonds & Hooker, 1992; Ulmer, Range, & Smith, 1991).

Interestingly, only five of the PIL’s 20 items refer specifically to goals, purpose, or reason for living, with other items tapping a range of experiences consistent with a logotherapeutic conceptualization of existential well-being (e.g., “With regard to death, I am... unprepared and frightened;” Crumbaugh & Mahonick, 1964). The scale has been subjected to a number of factor-analyses, with the most common solution involving two related factors: purpose in life (constituting items directly assessing purpose or goals) and excitement in life (constituting items assessing the value of one’s life as well as pleasure or novelty; Morgan & Farsides, 2007; Schulenberg & Melton, 2010). Thus, while the initial conceptualization of purpose in life focused on the presence of a sense-making structure which facilitated motivation to complete a goal or series of goals, the measure most commonly used to assess this construct is composed of some combination of beliefs

about one's purpose, subjective experiences of vitality, interest, and pleasure, and miscellaneous attitudes about death and life (Hutzell, 1988).

Life Significance

Despite careful theoretical and empirical distinctions among sense-making, benefit finding, and identity change, each of these three components emphasizes the social-cognitive “structures” of understanding which underlie mourners' interactions with the world, the self, and the loss event. Indeed, each of these constructs may be said to represent mourners' efforts to “make sense” of some aspect of their lives, whether it is the intersection between the loss and global beliefs (i.e., sense-making), the loss itself (benefit-finding), or themselves (identity change). None of these constructs have adequately captured what is here referred to as *life significance*. Life significance is the perception of value associated with a goal, relationship, or aspect of life experience that exists or is pursued in the present and future. In the absence of life significance, life may be perfectly coherent and understandable but will feel empty, devoid of interest or motivation. This is the sense in which people are using meaning when they refer to something that “means a lot” to them: it *matters* in a fundamental, inherent way, apart from its implications for the coherence and logic of the world. Antonovsky (1987) describes life significance as the “motivational element” of well-being: “the extent to which one feels that at least some of the problems and demands posed by living are worth investing energy in, are worthy of commitment and engagement, are challenges that are ‘welcome’ rather than burdens that one would rather do without” (p. 18). Life

significance also corresponds with Baumeister's (1991) concept of *value*, which he lists as part of the "existential shopping list" for a meaningful life. As Baumeister describes it, life significance is a "sake" in the sense in which people do something "for its own sake;" for example, one may do something for the sake of honor, or for the sake of love.

Armour (2003), in a qualitative study of homicide survivors, described life significance as the "performative" dimension of meaning. In this study, over half of the survivors indicated that the "pursuit of what matters" served as a critical source of meaning. The actions in which participants located life significance varied, from speaking out against injustice and hypocrisy to helping others navigate the pain of loss. Several of the parents reported that by living deliberately and in accordance with important beliefs and values, they were able to salvage a sense of meaning and importance: "I went to every hearing they had for everything... It did matter and my thought was that I have always have wanted to be there for my kids and so this was my last time for Nate. He would expect it and so it's something that I would do." (Armour, p. 534). Other bereaved individuals may view passive experiences of beauty or interpersonal connection as important sources of life significance, apart from any deliberate actions on their part. In another qualitative study, one participant reported finding value in a renewed awareness of "people, their love and support when I was so open by the hurt." (Wheeler, 2001, p. 59).

Sense-making and life significance. Sense-making, benefit finding, and life significance are conceptually separable. Whereas sense-making asks "why?" and "why

me?” and benefit finding asks “what have I gained?” life significance asks “what now?” and “what matters?” In the context of bereavement, sense-making and benefit finding represent individuals’ attempts to discern the meaning of the *loss*, whereas life significance pertains to the meaning of *life* in the wake of loss. A mourner may have been able to explain the loss in a larger framework or worldview (sense-making), and even been able to acknowledge having gained something from the loss (benefit finding), but still see nothing worth living for now that the loved one is gone (life significance). In this case, a consideration only of sense-making and benefit finding yields an incomplete picture of existential well-being. Nor is life significance inseparable from life happiness; humans engage in many activities that do not provoke pleasure per se, but that seem to “matter” in the context of larger or more abstract life meanings (Baumeister, 1991). Even those individuals who endorse an explicitly hedonistic view (e.g., “life is short, I just want to have as much fun as possible”) are in effect describing “having fun” as the most important criterion for a life of significance.

Life significance as a construct includes important affective and motivational components, unlike sense-making and benefit finding’s primarily cognitive definition by various theorists (Janoff-Bulman, 1992; Gillies & Neimeyer, 2006). By its very nature, significance cannot be assigned or defended rationally and does not depend entirely on coherent belief systems—it must be “felt.” One cannot explain why one pursues what is valued; to say that it is valued *is to say* that one is motivated to pursue it. Nevertheless, life significance is also difficult to define in terms of discrete cognitive, affective, and

behavioral elements. Like other experiences that occur on an existential level (Schneider, 2008), life significance transcends the mechanisms of everyday life -- to say that an experience is significant is to say that it “matters” beyond its functional impact on other, more quotidian goals.

Although they comprise separate constructs, sense-making, benefit finding and life significance are intertwined and are likely to reciprocally influence one another. First, individuals may derive life significance *from* a narrative of their experience with loss. For example, McAdams and colleagues’ (2001) study of “life stories” of redemption and contamination suggest that individuals may fit stressful life events into an overall sense-making framework that in itself implies valued goals and outcomes. Religious narratives may also function in this way; to some extent, ideals such as salvation, sacrifice, and repentance hold life significance *because* of the sense-making structure in which they are embedded (Park, 2005). Individuals’ need to make sense of loss may lead to spiritual growth or a re-ordering of priorities, such that religious and spiritual experiences attain a life significance they lacked before the loss (Tedeschi & Calhoun, 2006; Richards, Acree, & Folkman, 1999).

Second, the very search for life significance may comprise an important narrative or benefit of the loss, as when mourners declare that the loss has served as a wakeup call to the value of living (e.g., Wheeler, 2001). Enhanced awareness of the significance of previously neglected life experiences, such as relationships with others, is one of the most commonly-reported benefits of bereavement (Tedeschi and Calhoun, 1996). Finally, an

important definition of meaning combines sense-making and life significance: purpose in life, or the recognition of important life goals that organize and motivate one's activities (Frankl, 1959/1984).

Purpose and life significance. Purpose in life as described by Frankl (1959/1984) entails both the assignment of life significance to particular life outcomes, *and* a sense-making framework which indicates which specific actions needed to bring about those outcomes. Individuals derive a felt sense of value from the pursuit of goals; whether one's purpose is caring for a child or writing a book, it *feels* important and necessary. Additionally, to have purpose individuals must experience the world and their lives as sufficiently coherent and controllable that one's choices can have some effect on valued outcomes. Thus, purpose in life could be said to represent a framework within which life significance is pursued, or a narrative from which life significance is derived. Nevertheless, it is likely possible to experience life significance even in the absence of purpose, as described by individuals who experience the very fabric of everyday life as suffused with beauty and richness (Tedeschi & Calhoun, 1996; Wheeler, 2001). This conjecture is supported by factor analyses of the Purpose in Life Test, which suggest that individuals' response to "exciting life" items (e.g., "If I should die today, I'd feel that my life has been...very worthwhile") do not necessarily correspond with items tapping purpose per se (Morgan & Farsides, 2007; Schulenberg & Melton, 2010).

Life Significance and Bereavement

Bereaved individuals in particular may find it challenging to maintain or reconstruct life significance after loss for a number of reasons. First, lost loved ones may themselves have constituted an important source of life significance. Each of the small actions and experiences that make up an important relationship are freighted with meaning, and the sudden loss of these moments can leave a vast emptiness (Lewis, 1976). Second, family members and close friends provide life significance in the form of cherished roles; in the absence of a spouse or child, mourners may feel bereft not only of the deceased individual but also the life significance of being a husband, wife, parent, or caregiver (Boerner, Schulz, & Horowitz, 2004). This is particularly the case when other role involvements (e.g., friend, employee) are few (Hershberger & Walsh, 1990). In the case of bereaved parents, life significance is destroyed not only in the loss of the child and the role of “mother” or “father,” but also in the loss of a cherished set of hopes and expectations for the child’s future (Murphy, 2008).

In addition to serving as a source of life significance in themselves, lost loved ones may have been important in defining and reflecting other sources of life significance in the lives of mourners. Who has not had the experience of witnessing something interesting or beautiful while alone, and wishing for a close other to share the experience? Life significance is constructed at the juncture of self and others; when the other disappears, it may seem as though everything worthwhile died with them. Not only present moments, but memories of the past may become insignificant. In interviews with elderly widows, Kastenbaum (2008) noted a common theme of the emptiness associated

with being the only keeper of childhood memories: “‘What’s the worst of it?’ I asked Amelia. ‘That it’s all gone. No—that it’s all gone and nobody knows it once was.’”(p.78).”

This view of life significance may explain, in part, the apparent benefits for some mourners of a felt sense of ongoing bond with the deceased (Klass et al., 2006); life significance continues to be reflected in this relationship, even after death. In one qualitative study of bereaved parents, more than 10% cited activities such as “keeping the memory of the child alive, memories of the child, and spending time with the child’s friends” when asked what gave their life meaning after the loss (Wheeler, 2001).

Alternatively, a number of possible routes exist to *enhanced* life significance following a loss. Janoff-Bulman and McPherson (1997) propose that individuals whose view of the world as orderly and predictable is shattered may embrace the value of everyday life as compensation for lost coherence and safety. Violent losses, in particular, often render survivors particularly unable to “make sense” or “find benefit” in what happened; in such cases, life significance may supplant sense-making as a way of reconstructing meaning after the loss (Armour, 2003; Currier et al., 2006). However, even relatively distant losses may prompt existential crises (Baumeister, 1991). An encounter with death increases individuals’ awareness of their own mortality, raising existential questions such as “If I am just going to die, what is the point of all these things I do?” (Yalom, 1980). Although terror management theory and research indicates that mortality salience can result in a tendency to “circle the wagons” and reject novel experiences, cultures, or thoughts (see Solomon, Greenberg, & Pyszczynski, 2004 for a review), other

research suggests that confrontation with death can serve as a wakeup call to a passionate, value-driven life (Lykins, Segerstrom, Averill, Evans, & Kemeny, 2007; Martin, Campbell, & Henry, 2004). Yalom (1980) argues that a full appreciation of life is the only effective antidote to death anxiety, because only individuals who have lived fully can face the prospect of death with relative equanimity.

Frankl (1955) acknowledges that individuals may derive life significance from the direct experience of life itself, from “that shiver of emotion which we experience in the presence of the purest beauty (p. 43).” Such an experience may occur even in the absence of the larger sense-making structures inherent in “purpose in life” or in the noble sacrifice of purposive suffering. One can surrender to the beauty of a sunset without understanding anything about why the sunset is there, and without acting in any way other than by remaining receptive to the experience. In qualitative studies, some participants do report a renewed appreciation of life after bereavement: “Seeing how life can be taken away at any age makes me feel that we should make the most of our time here on earth... in understanding life’s spiritual meaning, everything has become more beautiful and precious (Wheeler, 2001, p. 60).” As discussed below, appreciation of life is a commonly-reported benefit of bereavement in studies of posttraumatic growth (Tedeschi & Calhoun, 1996). Thus, while the death of a loved one eliminates important sources of life significance and may leave some mourners bereft and empty, others may emerge from their grief with an enhanced appreciation for the value of each day remaining in their own lives.

Constructs and Measures Related to Life Significance

Though the literature reviewed above provides tantalizing hints as to the processes at work in mourners' efforts to maintain or reconstruct significance in the wake of loss, clearly more work is needed. This work must begin with a reliable method for investigating significance in a bereaved population. Unfortunately, as the following review demonstrates, no currently existing measure is conceptually similar and psychometrically valid enough to serve as an adequate operationalization of life significance. Nevertheless, a review of these constructs may help elucidate the conceptual boundaries of life significance—that is to say, how is this construct similar and different from those tapped by other measures? Further, to the extent that existing measures do tap constructs related to life significance, the item content of these measures will serve as a useful source of inspiration for items comprising a potential scale of life significance.

One area of research which has been closely linked with research surrounding meaning-making is posttraumatic or stress-related growth—"catch-all" terms for a wide range of positive changes resulting from stressful life events (Park, Cohen, & Murch; Tedeschi & Calhoun, 1996). According to Calhoun and Tedeschi's (2004) model, posttraumatic growth results from individuals' efforts to make sense of events that shatter the assumptive world (Janoff-Bulman, 1992). In the course of re-assessing long-held beliefs about self and the world, individuals may also renegotiate their own identities, relationships with other survivors, and priorities and values (Calhoun & Tedeschi, 2004). In some cases, this may include an enhanced belief in the value of everyday life and a

recognition of the need to live fully in the present moment (Tedeschi & Calhoun, 1996). As one participant in stated, “You never know what’s around the corner... and that’s why it’s important to live life now, to go for what you want. That’s the positive. (Davis et al., 2007, p. 708).” This shift in priorities is consistent with increased life significance.

The “Appreciation of Life” subscale of Tedeschi and Calhoun’s (1996) Posttraumatic Growth Inventory (PTGI) describe this change, with items such as “I better appreciate each day” and “I have a greater appreciation for the value of my own life.” When endorsed by bereaved individuals, these items reflect a positive change in life significance resulting from the loss, consistent with qualitative (Wheeler, 2001) and quantitative (King, Hicks, & Abdelkhalik, 2009; Lykins et al., 2007) evidence that confrontation with death can enhance awareness of the value of life. Overall, the PTGI demonstrates excellent reliability and validity as a measure of reported positive change following stressful life events (Calhoun & Tedeschi, 2004). Unfortunately, few studies have examined the individual predictors and correlates of the “Appreciation of Life” subscale within a bereaved population. Of the handful of bereavement studies that have reported correlates of individual subscales, several have found appreciation of life to be unrelated to variables associated with total PTGI scores and other subscale scores, including grief intensity among bereaved parents (Engelkemeyer & Marwit 2008), support seeking and threat appraisal of the loss (Wolchick et al., 2009), and explanatory style (Ho, Chu, & Yui, 2008). These findings suggest that to the extent that loss results in

an enhanced awareness of the value of everyday life, this change is separable from other facets of posttraumatic growth and carries its own set of predictors and consequences.

Unfortunately, several features of the Appreciation of Life subscale of the PTGI limit its usefulness as a measure of life significance in itself. The subscale contains only three items, and as a result demonstrates an unacceptably low internal consistency coefficient (Tedeschi & Calhoun, 1996). Additionally, due to the nature of the PTGI as a measure of changes since the life event occurred, each of the items is worded in terms of an increase in life appreciation since the event (e.g., “I can better appreciate each day”). This introduces psychometric complications and may limit the ability of these items to measure appreciation of life as a dynamic variable, as well as changes in appreciation over time (Kelly and McGrath, 1988). Finally, all three items are positively worded, implying an increase rather than a decrease in appreciation of life; thus, the subscale may not be sensitive to negative changes caused by the loss of cherished roles, relationships, and goals associated with the deceased.

Gratitude is another construct related to the appreciation of significant moments in life. State gratitude is typically defined as the emotion experienced by people who “affirm that something good has happened to them and recognize that someone else is largely responsible for this benefit” (Watkins, Gelder, & Frias, 2009, p. 438; see also Emmons, 2004). Gratitude is typically conceptualized primarily in terms of benefits conferred by a specific person (e.g., Bono, Emmons, & McCullough, 2004), and in this case the conceptual overlap with life significance is minimal. However, gratitude may

also be experienced in a general way, as when the “good thing” being appreciated is an aesthetic experience such as a sunset, and no human benefactor is immediately obvious (Watkins et al, 2005). Like the Appreciation of Life component of the PTGI, and like life significance, general gratitude represents a positive appraisal of life and/or the world, rather than a specific person or event.

Despite the intuitive conceptual differences between specific and generalized gratitude, factor analyses have failed to yield two distinct factors when items measuring each aspect of gratitude are administered together (McCullough, Emmons, & Tsang, 2002; Watkins, Woodward, Stone, & Kolts, 2003; Wood, Maltby, Stewart, & Joseph, 2008). Reflecting this finding, each of the three well-developed measures of the frequency with which individuals experience gratitude include items tapping both aspects of the construct with general and specific items spread across a number of subscales on the longer measures (Watkins et al., 2003; Adler & Fagley, 2005), or included together in a short unidimensional measure (McCullough et al., 2002). This limits the utility of current gratitude measures as a proxy for life significance. Further, even if measures of gratitude were psychometrically appropriate for measuring significance, the two constructs do not entirely overlap. Gratitude and significance both entail recognizing something as valuable in one’s life; however, gratitude only occurs when this valued thing is *not* attributed to one’s own efforts. Life significance, on the other hand, may be experienced in response to a self-generated occurrence, such as the accomplishment of an important life goal. Further, life significance includes an existential component that

gratitude lacks. That is, one may be *grateful* for the relief provided by a relatively meaningless escape from everyday stresses, such as an engaging television program; however, most individuals would not describe this experience as one which “matters” to them in the overall scope of their lives (Baumeister, 1991).

In contrast with gratitude and appreciation of life, which involve appraisals of one’s immediate experiences as valuable and significant, other constructs focus on the sense of significance which arises from active involvement in some long-term investment—be it a relationship, a cherished goal, or an activity at which one hopes to excel. One of these constructs, hardiness, originally emerged as a cluster of attitudes found to buffer against the effects of stressful events (Kobasa, 1979; Maddi & Kobasa, 1984). Hardiness consists of a) perceived control, b) “challenge,” or the appraisal of changes in life as opportunities for growth rather than as threats to one’s security, and c) “commitment,” or the tendency to remain motivated and involved in relationships and activities, rather than becoming alienated (Maddi, 1987; 1997). To the extent that individuals feel that the relationships, activities, and goals in their lives are meaningful and worthwhile, they are likely to feel motivated to remain engaged. By remaining engaged in such activities, people are then likely to experience the kind of satisfaction and fulfillment that makes up at least some types of life significance. Thus, the “commitment” facet of the hardiness construct demonstrates considerable overlap with life significance.

Beginning with a longitudinal study of stressed executives, a number of studies have supported the role of hardiness as a predictor of positive adjustment and physical health (Eschleman, Bowling, & Alarcon, 2010). Unfortunately, the study of hardiness has been plagued by measurement problems (Hull, Van Trueren, & Virnelli, 1987; Parkes & Rendall, 1988; Sinclair & Tetrick, 2000). A number of successive “versions” of the original hardiness measures (termed the Personal Views Survey, Maddi, 1997; and the Revised Hardiness Scale, Kobasa, Maddi, & Courington, 1981) have been used, but external validation of each of these measures has been limited by the authors’ unwillingness to share or publish copies of the measures. Indeed, the present reviewers were able to obtain a copy only of the “latest and best” measure of hardiness, and the scoring key indicating which items correspond to which subscales is not publicly available (S. R. Maddi, personal communication, January 28, 2011). Studies of hardiness not conducted by Maddi and his colleagues typically use one of dozens of spin-off measures, often tailored to a specific population or behavior (e.g., Bartone, Ursano, Wright, & Ingraham, 1989; Gebhardt & Paul, 2001; Lang, Goulet, & Amsel, 2003).

Maddi (2004) asserts that the three subdimensions of hardiness work in tandem with one another to promote well-being, and hardiness should thus be studied as a unitary variable—though this assertion has not been tested empirically. A number of factor-analyses of established hardiness measures point to solutions which do not conform to the three-factor model of hardiness (Benishek, 1996; Hull, et al., 1987; Funk & Houston, 1987; Sinclair & Tetrick, 2000). Hull and colleagues (1987) reviewed studies in which

individual correlations were reported between hardiness subdimensions and other measures of adjustment, and conclude that a) hardiness is not a unitary construct, and its facets should be examined separately, and b) commitment has displayed the most predictive and criterion validity. In some early hardiness studies (e.g., Kobasa, 1979, 1982) commitment was indeed operationalized using a scale specific to the construct--the Alienation Test (Maddi, Kobasa, & Hoover, 1979). Unfortunately, the specific item content of the Alienation Test has not been published, and a request for a copy of this measure was met with a suggestion to use one of the existing hardiness scales, or else to develop a novel measure (S. Oullette [formerly S. Kobasa], personal communication). Thus, while the concepts of commitment and hardiness are relevant to life significance, measures of these constructs are not suitable as measures of life significance in themselves.

Sense of coherence is conceptually similar to hardiness, and was also developed as part of larger theory as to why some individuals are more resilient to stressful life events than others (Antonovsky, 1987). The Life Orientation Questionnaire (typically abbreviated SOC-29), developed to measure this construct, consists of three subscales: Coherence, Controllability, and Meaningfulness. Coherence and Controllability both approximate sense-making, in the context of the present review: Coherence represents the extent to which individuals are able to organize the events of their lives into a coherent narrative, while Controllability measures specific beliefs about personal control over events. The Meaningfulness subscale, in contrast, is conceptually more similar to the

“commitment” facet of hardiness and to life significance. This latter subscale measures the extent to which the demands posed by daily living are viewed as “challenges, worthy of investment and engagement (Antonovsky, 1987; p. 19).” The SOC-29 as a whole has demonstrated internal consistency reliability, as well as convergent, predictive, and discriminatory validity with other measures of well-being and health in hundreds of studies (Eriksson & Lindstrom, 2005). It is useful, as discussed below, as a general measure of meaning. However, Antonovsky’s (1987) theory deliberately describes sense of coherence as a unidimensional construct, and consequently Antonovsky (1987; 1993) recommends that the means of individual subscales never be used.

Consistent with this conceptualization, a number of factor analyses have supported a unidimensional model of sense of coherence (Antonovsky, 1993; Bothmer & Fridlund, 2003; Frenz, Carey, & Jorgensen, 1993), and other studies have supported various multidimensional structures which do not correspond to Antonovsky’s subscales (Fiorentino, 1998; Larsson & Kallenberg, 1999; Sandell, Blomberg, & Lazar, 1998). Only one study has supported a three-factor structure corresponding to the Coherence, Manageability, and Meaningfulness subscale using the English version of the SOC-29, and this study is marked by a small sample size (N=105; Flannery, Perry, & Flannery, 1994). Thus, the Meaningfulness subscale of the SOC-29 lacks the psychometric properties necessary to be used independently as a measure of life significance. In order to study life significance quantitatively, a new measure will need to be developed.

Convergent Validity: Measures of Meaning

The purpose of the present study is the development and validation of a measure of life significance, which will be called the Perceived Life Significance Scale (PLSS). Among other requirements, any measure of life significance will need to demonstrate both convergent and discriminant validity before it can be considered a valid operationalization of this construct. Though no valid, currently existing measure exactly captures the construct of life significance, several measures of the larger-order construct of meaning may be useful in demonstrating convergent validity. Life significance and sense-making are both conceptualized here as subcomponents of meaning. Consequently, the PLSS should show stronger associations with measures of meaning than with other constructs unrelated to meaning (DeVellis, 2003).

As discussed above, the sense of coherence construct was intended to reflect a holistic conceptualization of meaning, despite theorized subdimensions (Antonovsky, 1987). Sense of coherence as measured by the Life Orientation Questionnaire (SOC-29) has demonstrated validity as unidimensional measure of meaningfulness that does not rely exclusively on sense-making (Eriksson & Lindström, 2005). Thus, a high correlation with this measure would support the convergent validity of the PLSS. An additional measure, the Meaning in Life Questionnaire, was recently developed with the specific goal of providing a brief, psychometrically valid measure of meaning (Steger, Frazier, Oishi, & Kaler, 2006). Like Antonovsky (1987), the authors of the Meaning in Life Questionnaire implicitly acknowledge the importance of both sense-making and life significance in a holistic view of meaning (Steger et al., 2006, p. 81). However, the item

content of the Meaning in Life Questionnaire is deliberately atheoretical. Participants are left to determine for themselves what is meant by “meaning” in answering items such as, “I have a good sense of what makes my life meaningful” and “I understand my life’s meaning.” The scale has demonstrated good psychometric properties and impressive convergent and discriminant validity, including convergent reports by informants (Steger et al., 2006), and has been used in a number of studies since its initial validation (e.g., Linley & Joseph, 2011; King & Hicks, 2009). Consequently, both of these measures of the higher-order construct of meaning should serve as useful indicators of the convergent validity of the PLSS.

Discriminant Validity: Positive and Negative Affect, Depression, and Grief

If the PLSS is valid, it should also demonstrate discriminant validity with constructs purportedly unrelated to meaning (DeVellis, 2003). Existential constructs in particular have been criticized on this ground, with some authors arguing that previous measures of meaning are merely indirect measures of negative emotionality (Dyck, 1987). Thus, testing the discriminant validity of the PLSS with respect to constructs related to affect will be an important aspect of the measure’s validation.

In factor-analytic studies of emotional experience, positive and negative affect are typically the highest-order constructs which emerge (Diener, & Emmons, 1984). An example of this is the Positive and Negative Affect Schedule (PANAS), on which the positive and negative affect subscales are typically uncorrelated with one another (Watson, Clark, & Tellegen, 1984). Both positive and negative affect are conceptually

separable from life significance. Though life significance is a “positive” experience with important affective components (as compared to sense-making, which is typically conceptualized in purely cognitive terms), life significance also involves cognitive, behavioral, motivational, and existential components. Many individual experiences may result in both feelings of positive affect and life significance—for example, joy upon greeting the newborn baby of a relative. However, life significance also involves the perception that one’s experiences “matter,” whether or not they are positive. Positive affect may result from experiences which are pleasant in the moment they are experienced, but are not attributed existential value by the individual (e.g., watching television). Additionally, life significance may be perceived in experiences that do not evoke positive emotions in the moment—for example, comforting a crying friend.

Similarly, existential writings suggest that life significance is not merely the absence of negative affect. One’s life may be comfortable, pleasant, free from distress—and yet empty, as described by Tolstoy (1886/1960) in *The Death of Ivan Ilych*, the story of a man who realizes on his deathbed that his pleasant, decorous, easy life of bridge games and dinner parties had been meaningless. Despite his profound physical and emotional pain, he experiences the last few moments of his life as the most valuable, as he at last chooses to act according to his values. Finally, emotional suffering may be regarded as a source of significance *in itself* in some circumstances, as described by Frankl (1959/1984) in his discussion of purposive suffering, as well as in qualitative research (Brabant, Forsyth, & McFarlain, 1997).

Depression is also conceptually separate from life significance. The most central characteristic of depression is the experience of negative mood, which is separable from life significance for reasons described above. Individuals may also be diagnosed with a Major Depressive Episode in the absence of negative mood if they are experiencing clinically significant anhedonia, or loss of interest and/or pleasure in activities (American Psychiatric Association, 2000). Indeed, an individual experiencing severe anhedonia might also be expected to report little in the way of life significance, as interest and motivation to engage in activities is inextricably tied with the perception that one's activities matter (Deci & Ryan, 1985). However, "depression" refers to a cluster of negative experiences which tend to occur along with negative affect and anhedonia. Other features integral to the experience of depression, such as changes in sleep, appetite, and psychomotor activity, as well as thoughts of guilt and worthlessness, are phenomenologically distinct from life significance. Nevertheless, as with positive and negative affect, depression could certainly interact with life significance—negative mood states may limit recall of recent experiences of significance (Gotlib & Neubauer, 2000), and the functional impairment associated with depressive symptoms may limit an individual's ability to participate in valued relationships and activities which result in life significance. Thus, scores on the PLSS are expected to show some correlation with the CESD, a brief measure of depression (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993); but again the association is expected to be less than that between the PLSS and measures of meaning.

Finally, a measure of life significance should show discriminant validity with a measure of grief symptomatology. Even the “healthiest” grief typically involves a range of experiences which are phenomenologically distinct from a mere decrease in life significance, including separation distress, preoccupation with the lost person, and feelings of shock or disbelief (Prigerson, Vanderwerker, & Maciejewski, 2008). These phenomena are already adequately measured by a variety of scales, and any measure of life significance which is, in effect, merely a measure of grief severity would be of little utility. As with depression, some negative association between grief and life significance is to be expected, as more “difficult” losses (e.g., that of a child) might result in both very intense separation distress and profound loss of life significance. Nevertheless, the association between the PLSS and the Present Grief subscale of the Texas Revised Inventory (TRIG) is expected to be lower than the associations between the PLSS and measures of meaning.

The TRIG was selected for the purpose of demonstrating discriminant validity because this measure has been conceptualized specifically as a measure of normal grief (Neimeyer et al, 2001). It is often contrasted with the Inventory of Complicated Grief, a measure developed specifically to measure phenomena associated with complicated or pathological grief experiences (Prigerson et al., 2008). Relationships between the PLSS and a measure of complicated grief would likely be more complex, as meaning generally has been theorized to play an important role in the severe distress and functional impairment characterizing pathological grief reactions (Gillies & Neimeyer, 2006;

Boelen et al., 2006). These relationships would comprise an interesting conceptual question surrounding life significance, but are not pertinent to the measurement validity of the PLSS.

Discriminant Validity: Measures of Sense-Making

If the PLSS demonstrates that it is more closely related to meaning than to unrelated constructs such as positive affect and depression, its status as a measure of a meaning-related construct will be supported. However, to provide additional evidence that the PLSS measures *life significance* specifically, it will also need to demonstrate discriminant validity with measures of sense-making. As discussed, life significance is conceptually distinct from other major conceptualizations of meaning, all of which center around individuals' ability to construct coherent, positive narratives of their lives and/or loss event, or "make sense" (Janoff-Bulman, 1992; Davis et. al, 1998; Frankl, 1959/1984; Neimeyer, 2001). Indeed, the distinctions identified between life significance and sense-making is a key aspect of the rationale for the development of this construct. However, simply examining the strength of the association between the PLSS and measures of sense-making may not be the best test of discriminant validity. As discussed earlier in this paper, life significance and sense-making are conceptually separate but are likely to be related to one another in complex, reciprocally causative ways. For example, individuals may derive significance *from* key narratives, such as religious faith (Parks, 2005), or the search for significance may in itself constitute an important narrative and provide coherence to an individual's understanding of his or her life (Wheeler, 2001). Thus,

factor-analytic methods aimed at determining whether PLSS items and items associated with measures of sense-making tap separate latent constructs may be the most effective test of discriminant validity (Wood et al., 2008; Dillen et al., 2008).

The most commonly used measure of sense-making is the World Assumptions Scale (Janoff-Bulman, 1989; 1992). As discussed, this scale was developed to measure a specific set of beliefs believed to result from either a successful or unsuccessful assimilation/accommodation of stressful life events into positive views of the world and the self (e.g., “People are naturally unfriendly and unkind.”). As such, the World Assumptions scale is a measure of meaning content rather than overall meaningfulness. The extent to which individuals are not sure what to believe, or hold inconsistent or incoherent beliefs as a result of stressful events, is not assessed.

Another recently developed, but promising, measure of the extent to which individuals have integrated a stressful experience into narratives about themselves and the world is the Integration of Stressful Life Experiences Scale (ISLES; Holland, Currier, Coleman, & Neimeyer, 2010). Unlike the World Assumptions Scale, the ISLES measures meaningfulness rather than meaning content, with items tapping *whether* individuals have made sense of the event, rather than the specific appraisals and explanations they may have made (e.g., “I am perplexed by this event”). By performing separate factor analyses using each of these scales, the discriminant validity of the PLSS from both a “meaning content” and a “meaningfulness” view of sense-making can be established.

Predictors of Life Significance and Sense-Making

Finally, a useful test of the criterion validity of the PLSS will be the extent to which it shows expected associations with various aspects of the grief experience, specifically relationship to deceased and role involvements. The type of relationship (e.g., parent, spouse) the mourner shared with the deceased is an important predictor of grief outcomes and moderates the perceived severity of a loss event (Hibberd, Elwood, & Galovski, 2010; Murphy et al., 1998). The loss of a child, in particular, is likely to significantly impact a parent's life goals and values and obliterates opportunities to engage in parenting tasks--for many parents, is the most important aspect of their lives and a powerful source of life significance. Thus, the loss of a child as compared to loss of a parent or spouse may be expected to negatively impact life significance, and bereaved parents should score lower on the PLSS than other mourners.

Another potential predictor of bereavement outcomes is the number of role involvements remaining after the loss. Social roles, such as employee, spouse, caregiver, or parent, can provide a sense of purpose in one's life and may be an important source of significance (Baumeister, 2001; Cadell & Marshall, 2007; Vanderwater, Ostrove, & Stewart, 1997). When few significant roles remain after a significant other dies, mourners report more intense grief and less purpose in life (Hershberger & Walsh, 1990). In line with this finding, the loss of an only child, as compared to loss of one of multiple children, has been associated with a more severe grief response as well as less purpose in life (Wheeler, 1993-1994). Thus, it may be expected that the participants with fewer role involvements, including parenting a living child, employment status, caregiving status,

and marital status, will score lower on the PLSS than participants with a greater number of role involvements.

Hypotheses

1. The PLSS is expected to demonstrate acceptable internal consistency reliability.
2. The PLSS is expected to show either a unidimensional factor structure or a two-factor structure, with the two factors corresponding to “receptive” sources of significance (e.g., appreciation of beauty) and “active” sources of significance (e.g., pursuit of important goals).
3. The PLSS is expected to replicate this factor structure in the student sample.
4. The PLSS is expected to show convergent and discriminant validity by demonstrating higher associations with general measures of meaning (the Presence Subscale of the Meaning in Life Questionnaire and the Life Orientation Questionnaire) than with measures of constructs unrelated to meaning (the Positive and Negative Affect Schedule, the Center for Epidemiological Studies Depression Scale, and the Texas Revised Inventory of Grief).
5. The PLSS is expected to show discriminant validity from measures of sense-making in a series of confirmatory factor analyses. Specifically:

5A. In a CFA of PLSS and World Assumptions Scale items, a two-factor model is expected to demonstrate better fit than a single-factor model.

5B. In a CFA of PLSS and Integration of Stressful Life Events items, a two-factor model is expected to demonstrate better fit than a single-factor model.

6. The PLSS is expected to show additional criterion validity in its relationships with certain predictor variables. Specifically,

6A. Bereaved parents are expected to score lower on the PLSS, as compared with individuals who report the loss of a parent, spouse, or other relationship.

6B. Individuals with fewer role involvements (including living children, employment status, caregiving status, and marital or partner status) are expected to score lower on the PLSS as compared with individuals who report a greater number of role involvements.

Method

Item Development and Pilot Testing

Preliminary items were generated in two ways. First, an initial pool of items were constructed by the principal investigator based on the theoretical and conceptual considerations outlined in the above review, as well as additional theoretical and empirical perspectives that include Self Determination Theory (Deci & Ryan, 1985); materialism and life goals (Kasser, 2002); flow (Csikszentmihalyi, 1990); and vitality

(Ryan & Frederick, 1997), as well as qualitative work detailing mourners' experiences of finding significance (Armour, 2003; Wheeler, 2001). These items were then subjected to review by two researchers familiar with the bereavement literature and further refined.

Transcripts of four focus groups of bereaved adults comprised a second source of material for preliminary items. This procedure was selected to help ensure that the wording of items better resonates with the lived experience of everyday people, as well as to ensure a sufficient breadth of item content to adequately represent the construct of life significance (Neimeyer, Hogan & Laurie, 2008). Focus group participants were recruited by mailing recruitment fliers to older adults who have participated in past research at the University of Missouri Saint Louis, as well as by word of mouth and through acquaintances of the investigators. Two groups were comprised of primarily older adults with mixed types of loss; one group was comprised of survivors of suicide; and one group was comprised of bereaved parents. In each group, approximately ten participants discussed their bereavement experiences, the role of meaning in their recovery, and the types of experiences, activities, relationships, goals, beliefs, and values perceived as "meaningful" in their lives. Focus group participants were compensated with a \$20 Target gift card. The focus group discussions were semistructured; a "script" with introductory statement by the researcher and sample questions is provided in Appendix A. In addition to informing item generation, the qualitative data provided by these focus groups informed hypotheses concerning the factor structure of the PLSS. To this end, special attention was paid to the extent to which participants experienced different sources of

significance (e.g., goals and purposes, appreciation of beauty, close relationships) as phenomenologically separable. To the extent that “receptive” life significance, such as appreciation of beauty and other in-the-moment experiences, is phenomenologically distinct from “active” life significance, or significance derived from activities connected with long-term goals and life purposes, life significance may be best described as a multidimensional construct.

Following the analysis of the focus group transcripts and the addition of focus group-generated items, the entire pool of preliminary items was pilot tested on a convenience sample of ten bereaved individuals. Each pilot participant was asked to respond to each of the preliminary items using the Likert scale. Following completion of the items, participants were individually interviewed by the investigator concerning 1) his or her grief experience and the impact of the loss on his or her perceived life significance, 2) sources of life significance, 3) whether the items seem to adequately tap the participant’s perceived life significance, and 4) specific interpretations of each item and suggestions for changes in wording. This information was reviewed by the investigator and items most commonly misinterpreted by participants were discarded or modified. Finally, all preliminary items were again reviewed by two researchers familiar with bereavement research, and any further suggestions were incorporated. The resulting initial pool of PLSS items is given in Appendix B.

Participants

Participants were recruited from two sources: advertisements posted to community support websites for bereaved individuals (N=353), and the undergraduate research participant pool at the University of Missouri-St. Louis (N=483). Participants were eligible for the study if they were eighteen years or older and had experienced the death of loved one within the past ten years. The community sample data were screened for possible invalid responding by "bots," or participants providing implausible or incomplete data merely for the opportunity to enter the raffle. No such participants were identified.

Three hundred and twenty-two participants (91%) in the community sample identified as Caucasian, 6 (2%) identified as African-American, 8 (3%) identified as Latino/a, 8 (2%) identified as Asian, and 12 (4%) identified as another ethnicity. Twelve participants (3%) endorsed multiple ethnicities. The community sample was composed of 330 (96%) women, with a mean age of 45 (SD=12.3). However, the community sample was quite diverse in terms of type of loss, with 214 participants (62%) reporting loss following a prolonged or sudden illness, 82 (24%) reporting losses due to accident, 31 (9%) reporting loss due to suicide, and 14 (4%) reporting loss due to homicide. This sample was also mixed in terms of relationship to deceased: 115 (33%) participants lost a child, 85 (24%) lost a parent, and 76 (22%) lost a spouse or partner, and the remaining participants reported other types of losses (e.g., grandparent, friend, sibling).

In contrast, the student sample demonstrated relative ethnic and gender diversity and was more homogenous in terms of type of loss. Three hundred and sixty-six (66%) identified as Caucasian, 134 (28%) identified as African-American, 14 (3%) identified as Latino/a, 17 (3%) identified as Asian, and 11 (3%) as another ethnicity. Twenty-one participants (4%) endorsed multiple ethnicities. The community sample was composed of 359 (75%) women, with a mean age of 23 (SD=7.6). In terms of type of loss, 347 (72%) reported loss following a prolonged or sudden illness, 56 (12%) reported loss due to accident, 29 (6%) reported loss due to suicide, and 29 (6%) reported loss due to homicide. Two hundred and fourteen student participants (44%) lost a grandparent, 78 (15) lost a close friend, 70 (15%) lost an aunt or uncle, 48 (10%) lost a parent, and the remaining participants reported other types of losses (e.g., godparent, sibling, teacher; see Tables 1 and 2).

Measures

Demographic Questionnaire. Each participant completed a brief demographic questionnaire including information concerning his or her age, gender, ethnic background, religiousness, religious affiliation, marital status, employment status, whether the participant provides daily care for a family member, the number of months and years since the death, cause of death (e.g. illness, suicide), number of living children, and the participant's relationship to the deceased (e.g., parent, spouse, sibling).

Participants were instructed, if they had experienced more than one loss in the past ten

years, to select the most distressing loss and answer all study questions with respect to this loss.

Perceived Life Significance Scale. An initial pool of 48 potential items for inclusion in the Perceived Life Significance Scale were administered to each participant. The items were worded to reflect a broad range of potential “sources” of life significance, including appreciation of beauty, goals and purpose, emotional experiences, numbness or emptiness, and feelings of engagement or vitality. Each item was answered according to a 7-point Likert scale, with endpoints of 1 (Never/Disagree) and 7 (Very Often/Agree) (See Appendix B).

Life Orientation Questionnaire. The higher-order construct of meaning was measured using the 29-item version of the Life Orientation Questionnaire (SOC-29). This scale consists of three subscales, termed Coherence, Control, and Meaningfulness, though factor analyses have failed to support these subscales as distinct dimensions and the scale is typically used as a unidimensional measure (Antonovsky, 1993). Items are answered according to a seven-point scale with different endpoints for each item (e.g., “Doing the things you do every day is...” with endpoints “A source of deep pleasure and satisfaction” and “A source of pain and boredom”). The original 29-item version of the Life Orientation Questionnaire (SOC-29) has demonstrated good criterion, predictive, concurrent and discriminant validity, and internal consistency has ranged from .70 to .95 across a number of studies (Eriksson & Lindstrom, 2007).

Meaning in Life Questionnaire. Meaning as a higher-order construct was also measured using the Presence subscale of the Meaning in Life Questionnaire (MLQ-P) (Steger et al., 2006). The MLQ has demonstrated convergent and discriminant validity with other measures of meaning and with measures of well-being, respectively (Steger et al., 2006). The Presence subscale assesses “the sense made of, and significance felt regarding, the nature of one’s being and existence (p. 81),” while the Search subscale assesses the extent to which individuals are seeking a source of meaning. Participants rate items according to a seven-point scale, with endpoints 1 (Absolutely Untrue) and 7 (Absolutely True). Despite containing only five items, the Presence subscale has demonstrated acceptable reliability ($\alpha=.86$).

Positive and Negative Affect Schedule. Positive and negative affect were measured using the Positive and Negative Affect Schedule (PANAS). The PANAS consists of two 10-item subscales designed to measure positive (e.g., “interested,” “inspired,” and “proud”) and negative (“scared,” “upset,” and “irritable”) affective states (Watson et al, 1988). The scale is designed to be temporally flexible and researchers have used a variety of time instructions, asking participants to rate how much they feel each emotion listed “right now,” “during the past week/month/year,” or “generally, on average.” In order to provide the greatest possible degree of consistency with the temporal stability theorized to characterize life significance and meaning generally (Antonovsky, 1987; Baumeister, 1991), participants were instructed to complete PANAS items with respect to how they feel “generally, on average.” Within that framework, they

will rate each item on a one to four-point scale ranging from 1 (Very Slightly or Not At All) to 4(Extremely). The PANAS demonstrates good internal consistency reliability ($\alpha=0.81$ for positive affect and $\alpha=.88$ for negative affect; Watson et al, 1988) and its two-factor structure and criterion validity have been supported in a number of studies (e.g., Molloy, Pallant, & Kantas, 2001; Crawford & Henry, 2004).

Center for Epidemiological Studies Depression Scale. Symptoms of depression was assessed using the 10-item version of the Center for Epidemiological Studies Depression Scale (CESD-10; Kohout et al., 1993). The original 20-item CESD is one of the most widely used measures of depressive symptomatology and has well-established validity and reliability (Radloff, 1997; Sheehan, Fitfield, Reisine, & Tennen, 1995). The CESD-10 has demonstrated reliability and validity comparable to its longer counterpart, with overall $\alpha=.92$ (Kohout et al., 1993; Irwin, Haydari, & Oxman, 1999). Items correspond to specific symptoms of depression (e.g., “I could not get going”). Participants indicate “yes” or “no” as to whether each symptom has occurred “much of the time during the past week” (Kohout et al., 1993).

Texas Revised Inventory of Grief. Grief was measured using the Texas Revised Inventory of Grief (TRIG). The TRIG is one of the most commonly used measures of grief, and has typically been conceptualized as a measure of “normal” grief (Neimeyer et al., 2001). Indeed, the TRIG has demonstrated discriminant validity from the leading measure of complicated or pathological grief, the Inventory of Complicated Grief (Dillen, Fontaine, & Verhofstadt-Denève, 2008). The TRIG is composed of separate subscales for

examining past grief experiences (termed Past Behavior) and recent level of grief symptomatology (Present Feelings). Items are answered according to a 5-point scale, with endpoints 1 (Completely True) to 5 (Completely False). Both of these subscales have demonstrated acceptable internal consistency reliability, with internal consistency reliabilities of $\alpha=.87$ and $\alpha=.89$, respectively (Faschingbauer, 1981). For temporal consistency with other measures, only the 13-item Present Feelings subscale of the TRIG was used.

World Assumptions Scale. Sense-making as meaning content, or the specific beliefs participants held about the self and the world, was assessed using the World Assumptions Scale (WAS). The WAS is composed of eight four-item subscales, which are organized according to their association with the three primary schemas theorized by Janoff-Bulman (1992) to be most affected by stressful life events: benevolence, world meaning, and self-worth. These eight subscales assess the perceived benevolence of the people and the world; beliefs about the justice, controllability, and randomness of negative events; and beliefs about self-worth, personal control, and personal luck (Janoff-Bulman, 1989). The items are rated on a six-point scale with endpoints of 1 (Strongly disagree) and 6 (Strongly Agree). The WAS has demonstrated acceptable internal consistency reliability, with alpha coefficients for the eight subscales ranging from .68 to .86 (Janoff-Bulman, 1989). The construct validity of the WAS has been supported by a number of studies in which survivors of stressful life events have been shown to score

lower on the WAS than matched controls (e.g., Schwartzberg & Janoff-Bulman, 1991; Elklit et al, 2007; Matthews & Marwit, 2004).

Integration of Stressful Life Experiences Scale. The overall coherence of individuals' beliefs about the world and the self (i.e., meaningfulness) was assessed using the Integration of Stressful Life Experiences Scale (ISLES). The ISLES was recently developed to measure "the degree to which a stressful life experience has been adaptively incorporated into a broader life story that may promote a sense of internal coherence and foster a secure and hopeful view of the future" (Holland et al., 2010, p.5). In contrast with the WAS, individual ISLES items are geared towards measuring the degree of coherence or narrative integration achieved by the individual rather than the specific content of his or her beliefs about the world, the self, or the future. The scale consists of two empirically-derived subscales, termed Footing in the World (e.g., "Since this event, the world seems like a confusing and scary place") and Coherence (e.g., "I don't understand myself anymore since this event"). Participants rate each item according to a 5-point scale, with responses ranging from 1 (Strongly Agree) to 5 (Strongly Disagree). Consistent with the present conceptualization of the WAS as a measure of meaning content and the ISLES as a measure of meaningfulness, participants in the initial validation study showed only modest correlations with WAS subscales corresponding to Benevolence and Self-worth, and no significant association with the World Meaning subscales of the WAS (Holland et al., 2010). However, the ISLES did demonstrate preliminary criterion validity in its pattern of relationships with other measures of health,

well-being, and meaning (Holland et. al, 2010). The scale also demonstrated acceptable internal consistency reliability in a bereaved sample, with $\alpha=.94$ reported for the entire scale, and $\alpha=.94$ and $\alpha=.85$ reported for the Footing in the World and Comprehensibility subscales, respectively (Holland et al., 2010).

Procedure

Following the informed consent, all participants completed a series of demographics questions, the initial item pool for the PLSS (Appendix B), the World Assumptions Scale (WAS), the Integration of Stressful Life Experiences Scale (ISLES), the Presence subscale of the Meaning in Life Questionnaire (MLPQ-S), the Center for Epidemiological Studies Depression Scale (CESD-10), the Positive and Negative Affect Schedule (PANAS), the Texas Revised Inventory of Grief (TRIG), and the Life Orientation Questionnaire (SOC-29). Student participants were offered extra credit, while participants in the community sample were offered the option of entering their email addresses to participate in a raffle for one of two \$50 gift certificates to Amazon.

Results

Quantitative analyses were conducted using the Statistical Packages for the Social Sciences (SPSS) and its companion program for structural equation modeling, AMOS.

Preliminary analyses. Data in both samples were inspected for the presence of univariate outliers, and when the criterion $z = |3.29|$ ($p < .001$, two-tailed test) was violated, the data for that scale for that participant were deleted. Univariate outliers for individual PLSS items were not deleted for either sample, as this would have resulted in a

restriction of the range of responses ("outliers" existed whenever comparatively few participants selected 1 or 7 for a given item). The Mahalanobis distance was generated for the combination of all study measures with the exception of PLSS items, and one individual was deleted from the community sample due to a violation of the the criterion Mahalanobis distance= $|26.13|$ ($p < .001$ with eight degrees of freedom, chi-square distribution). Mahalanobis distance was generated for the final PLSS item pool for the student sample and no outliers were detected.

Inspection of skew and kurtosis statistics for all study measures indicated several skewed and kurtotic variables. Transformations were not performed, however, because none of the study analyses using measure totals (e.g. correlational analyses) were sensitive to univariate abnormality. A number of PLSS items demonstrated significant skew and even more extreme kurtosis; however, transformation of these variables would have rendered factor analyses uninterpretable. Additionally, the Mardia test of multivariate abnormality indicates significant multivariate kurtosis for the group of PLSS items in the student sample (Mardia= 245.82 , with a criterion of 95.62). The PLSS and WAS items together also display significant multivariate kurtosis in the student sample (Mardia= 556.72 , with a criterion of 83.21), as do the PLSS and ISLES items (Mardia= 470.19 , criterion of 101.52). Thus, exploratory and confirmatory factor analyses utilized methods of estimation which are robust to violations of normality.

Sample Strategy. The use of two independent samples (community bereaved adults and bereaved students) allowed for a more valid hypothesis testing process and

stronger confirmation of the factor structure and validity of the PLSS. The community sample was used for initial analyses used to inform PLSS item selection decisions, including exploratory factor analysis and individual item statistics. The community sample was selected for this purpose because these data were collected first and the size and availability of the student sample could not be predicted until community sample data collection was well underway. The student sample was used for confirmatory analyses of the final PLSS item pool, including a confirmatory factor analysis of the factor structure identified in the initial sample and joint factor analyses assessing the discriminant validity of the PLSS from measures of sense-making. Correlations between the PLSS and other measures (to further assess convergent and discriminant validity), as well as inter-item reliability, were found to be highly similar across the two samples. For the sake of conciseness, correlations and reliability coefficients for the combined community and student samples (N=836) are reported here.

Missing Data Strategy. Due to the online data collection strategy, many participants exited the survey before completing all of the survey items. Participants in both the community sample (n=67) and student sample (n=43) who did not complete at least the demographics and loss characteristics questions and the first survey measure (the 45-item initial PLSS item pool) were removed from the study. In both samples, a conservative missing data strategy was employed when calculating total scores for each measure (community and student samples). Total scores were calculated only for participants who completed at least 95% of that measure.

For the exploratory factor analysis (community sample), a pairwise missing data strategy was adopted. However, the factor solution for the final item pool was cross-checked against a solution generated using listwise deletion of missing cases and similar factor loadings were found. Pairwise deletion of missing data was not possible for the confirmatory factor analyses because pairwise deletion is not compatible with Brown's asymptotically-free distribution estimation method within AMOS. Therefore, additional missing data analysis was conducted in the student sample to determine whether listwise deletion or missing value imputation (generating values for missing data points) was more appropriate. Little's MCAR test was conducted to determine whether missing datapoints were missing completely at random. This test indicated patterns in the missing PLSS data, $\chi^2=492.10$, $df=400$, $p=.001$, as well as the missing WAS data $\chi^2=1239.17$, $df=1085$, $p=.001$. Consequently, listwise deletion of participants who exhibit missing data points would likely bias the sample (Howell, 2007). Missing PLSS, WAS, and ISLES values were estimated using the Expectation-Maximization algorithm, a type of maximum likelihood estimation which does not require multivariate normality. All confirmatory factor analyses (student sample) were conducted using these imputed values.

PLSS Item Selection. All analyses pertaining to item selection decisions were completed using the community sample. Of the initial 48-item pool of potential PLSS items, 15 items were discarded based on item-total correlations, item skew and kurtosis, and redundancy of content across items. A Pearson correlation matrix was generated for

the remaining items, and an additional 3 items were discarded due to item correlations in excess of $r = .80$, to reduce the impact of multicollinearity on the factor solution (Pett, Lackey, & Sullivan, 2003).

Exploratory factor analysis was used to determine the factor structure underlying the remaining pool of 30 items as well as to further inform item retention decisions. The principal axis factoring method of extraction was used due to robustness to violations of normality (Pett et al., 2003). Oblique (promax) rotation was used and three factors were retained. Although the scree plot demonstrated an elbow at the first factor, the relatively low eigenvalues of the second and third factors were interpreted cautiously in light of the high level of variance shared between factors in measures of well-being (Floyd and Widaman, 1995). All retained factors exhibited eigenvalues greater than 1.

Following this initial three-factor solution, items which loaded greater than .5 on any factor while not loading greater than .3 on any other factors were retained in a second item pool. The second exploratory solution demonstrated a similar factor structure. However, because the third factor contained only three items, additional items were added which were conceptually consistent with the third factor, to create a third item pool. A third exploratory analysis indicated a similar factor structure, with an improved item count and factor loadings for the third factor. Items which did not load greater than .3 on any factor were removed.

Finally, an exploratory analysis was performed to evaluate the factor structure and loadings of the 19 items retained in the final PLSS pool, using the same extraction

method, rotation, and missing data strategy described above. The determinant for this analysis was a value greater than zero, indicating that the level of multicollinearity is acceptable. Bartlett's test of sphericity, which tests the null hypothesis that the items have no relationship to one another, was significant ($\chi^2=5567.8$, $df=210$, $p<.000$). The Kaiser-Meyer-Olkin test, a measure of sampling adequacy, yielded the value $KMO=.97$ which Kaiser (1974) describes as "marvelous." Thus, individual estimates of sampling adequacy for each item were not generated. The rotated solution of this final factor analysis demonstrated the same three factors as the initial solution. The first factor included positively-worded items representing "active" life significance or significance derived from activities, goals, and engagement with life; the second factor contained all reverse-scored items representing the perceived absence of significance; the third factor represented "receptive" life significance, or significance derived from an appreciation of the value of daily life. All 19 items demonstrated acceptable factor loadings with Promax rotation (see Table 3). These three factors comprise the Active, Negative, and Receptive subscales of the PLSS.

Hypothesis 1: Reliability of the PLSS. It was expected that the final pool of items included in the PLSS would demonstrate a Chronbach's alpha coefficient of .70 or higher, thus indicating acceptable internal consistency reliability for basic research (Nunnally, 1978). Alpha coefficients were calculated using a combined sample of community and student participants ($N=836$). The total PLSS score demonstrated excellent reliability ($\alpha=.95$). Of the three PLSS subscale scores (corresponding to the

three factors described above), Active Significance ($\alpha=.95$) and Negative Significance ($\alpha=.93$) both demonstrated excellent reliability, while Receptive Significance ($\alpha=.70$) demonstrated weaker, but still adequate, reliability.

Hypothesis 2: Factor Structure of the PLSS. Based on the qualitative work described above, it was hypothesized that the PLSS would demonstrate either a unidimensional factor structure or would consist of two factors: one representing “active” life significance, or significance derived from activities connected with long-term goals and life purposes, and another representing “receptive” life significance, characterized by enhanced valuation of life, appreciation of beauty and other in-the-moment experiences. Exploratory factor analysis did indicate the presence of subscales representing these two conceptual subdimensions of life significance. However, an additional factor was identified--“negative” life significance, consisting of all reverse-scored items pertaining to emptiness, meaninglessness, or absent life significance.

Hypothesis 3: Stability of PLSS Factor Structure

It was hypothesized that the PLSS factor structure identified using exploratory factor analysis in the community sample would demonstrate good fit when tested using a confirmatory factor analysis in the student sample (Hypothesis 3). Preliminary analyses found no significant differences in PLSS total score across gender, $t(182)=1.02, p>.05$ or ethnicity, $F(425)=2.14, p>.05$. Thus, multilevel analyses across these variables were deemed unnecessary and the three-factor model identified during item selection (see above) was fitted to PLSS data from the student pool. Factors were allowed to co-vary.

Factor coefficients and loadings of error terms were set to one, and factor loadings, factor covariances, as well as error variances, were left unconstrained. Brown's asymptotically-free distribution method of estimation was used due to this method's robustness to violations of multivariate normality. Standardized parameter estimates were all within an acceptable range (see Figure 1). A number of fit estimates were examined in addition to chi-square, including a measure of absolute fit (RMSEA) and a parsimony-corrected fit index (RMSEA), as recommended by Brown (2006). Comparative fit indices, which compare the fit of the specified model to the fit of a null model, were not evaluated due to a low RMSEA for the null model (.09 in this sample) indicating relatively low correlations among items (Kenny & McCoach, 2003).

The chi-square measure of model fit is notoriously sensitive to sample size, with a tendency to reach statistical significance (and thus indicate poor model fit) in sample sizes greater than 400 (Brown, 2006). Indeed, in the present analysis ($N=483$), this measure was statistically significant, $\chi^2=323.58$, $df=149$, $p<.001$. However, the standardized root mean square residual (SRMR) demonstrated good fit. The SRMR represents the average discrepancy between observed and predicted correlations between items and is robust to both sample size and to violations of multivariate normality (Guo et al., 1998). This measure ranges from 0 to 1, with values of less than .08 indicating good fit; the SRMR in the present analysis was .06.

Parsimony-corrected measures such as the root mean square error of approximation (RMSEA) afford a slight advantage to simpler models (Brown, 2006). The

RMSEA is thus a relatively conservative measure of fit for this three-factor model, and is robust to violations of multivariate normality (Guo et al., 1998). Brown and Cudeck (1993) suggest a criterion of $RMSEA \leq .05$ as an indicator of good fit. Additionally, AMOS' PCLOSE function tests the null hypothesis that the RMSEA is no greater than .05. In the present sample, good fit was demonstrated by an RMSEA of .05, with PCLOSE=.55. Overall, this model is judged to demonstrate good fit, supporting Hypothesis III and the factor stability of the PLSS across community and student samples.

Hypothesis 4: Convergent and Discriminant Validity

The PLSS is expected to show higher associations with measures of meaning (the Life Orientation Questionnaire and the Presence Subscale of the Meaning in Life Questionnaire) than with measures of constructs unrelated to meaning (the Positive and Negative Affect Schedule, the Center for Epidemiological Studies Depression Scale, and the Texas Revised Inventory of Grief). These associations were measured by computing a series of Pearson correlations in the combined pool of student and community samples (N=836). Correlations and two-tailed significance tests are given in Table 4. The PLSS performed well in terms of convergent validity, evidencing strong associations with the SOC-29 ($r = .78$) and the MLQ-P ($r = .79$). In support of the divergent validity, the PLSS demonstrated lower associations with the Center for Epidemiological Studies Depression Scale ($r = -.63$), Texas Revised Inventory of Grief ($r = .43$), and Negative Affect subscale

of the Positive and Negative Affect Schedule ($r = -.61$). However, the PLSS was highly associated with the Positive Affect subscale of the PANAS ($r = .82$).

Hypothesis 5: Differentiating Significance from Sense-Making

Because the conceptual distinction between life significance and sense-making is central to the conceptualization of life significance, special attention was paid to discriminant validity between the PLSS and the World Assumptions Scale (WAS; Hypothesis 5a) and Integration of Stressful Life Experiences (ISLES; Hypothesis 5b). In testing Hypothesis 5a, joint confirmatory factor analysis was used to assess the latent structure of PLSS and WAS items in the student sample. Multiple measures of fit were examined for two competing models: a one-factor model in which all PLSS and WAS items load onto a single latent factor, and a two-factor model in which PLSS and WAS items load separately onto two correlated latent factors. Factor coefficients and loadings of error terms were set to one, and factor loadings, factor covariances, and error variances were left unconstrained. Due to an insufficient sample size for asymptotic distribution estimation, maximum likelihood method of estimation was used with bootstrapping to limit the impact of multivariate abnormality. As in the confirmatory analyses used to test Hypothesis III, both absolute (SRMR) and parsimony-corrected (RMSEA) measures of fit were examined in addition to the Bollen-Stine bootstrap test. These fit measures are robust to multivariate abnormality and which are stable across different estimation methods (Sugawara & McCallum, 1993). Comparative fit indices were not evaluated due to a low RMSEA for the null model (Kenny & McCoach, 2003).

For the single-factor model, in which PLSS items and WAS items load onto a single latent factor, the Bollen-Stine bootstrap measure was statistically significant, $p < .001$. However, like a chi-square measure, the Bollen-Stine bootstrap measure is sensitive to sample size and tends to reach statistical significance (and thus indicate poor model fit) in sample sizes greater than 400 (Bollen & Stine, 1992). More meaningfully, the SRMR, which is robust to both sample size and violations of multivariate normality, also demonstrated poor fit (SRMR=.25). The RMSEA was .10, with PCLOSE<.001 indicating that this measure is significantly larger than the suggested cutoff of .05 (Brown, 2006). Both of these measures suggest that the single-factor model is not a good fit for the data.

For the two-factor model, in which PLSS items and WAS items load onto two separate but related latent variables, the Bollen-Stine bootstrap measure was statistically significant, $p < .001$. The SRMR also demonstrated poor fit (SRMR=.19), though it demonstrates slightly better fit than the single-factor model. The RMSEA was .09, with PCLOSE<.001 indicating that this measure is significantly larger than the suggested cutoff of .05 (Brown, 2006). However, the two-factor model demonstrates better fit than the one-factor model according to the Bayesian Information Criterion. This criterion exacts a penalty for models with a greater number of parameters (Burhnam & Anderson, 1998), making it a relatively conservative test for the superiority of the two-factor model. According to Raftery (1995), a difference greater than 10 indicates very strong evidence that the model with the lower BIC fits better. Even accounting for the large sample size

(and hence, larger values of BIC), comparison of the BIC for the single-factor model (BIC=7228), and the BIC for the two-factor model (BIC=6475) indicates substantially better fit for the two-factor model. Hypothesis 5a, which predicted that a two-factor model would better explain the latent structure of PLSS and WAS items, was supported by this measure.

A similar procedure was used to test discriminant validity between the PLSS and a second measure of sense-making, the Integration of Stressful Life Experiences Scale (ISLES; Hypothesis 5b). The method of estimation, parameter settings, and fit indices examined were the same as those described above. For the single-factor model, in which PLSS items and ISLES items load onto a single latent factor, the Bollen-Stine bootstrap measure was statistically significant, $p < .001$. The SRMR, which is robust to both sample size and violations of multivariate normality, also demonstrated poor fit (SRMR=.11). The RMSEA was .11, with PCLOSE<.001 indicating that this measure is significantly larger than the suggested cutoff of .05 and also suggests poor fit (Brown, 2006).

For the two-factor model, in which PLSS items and ISLES items load onto two separate but related latent variables, the Bollen-Stine bootstrap measure was statistically significant, $p < .001$. The SRMR also demonstrated poor fit (SRMR=.11), as did the RMSEA (RMSEA=.09), with PCLOSE<.001 indicating that this measure is significantly larger than the suggested cutoff of .05. Comparison of the Bayesian Information Criterion for the one-factor model (BIC'=3973) and two-factor model (BIC'=6475) indicates significantly better fit for the single-factor model. Hypothesis 5bB, which predicted that a

two-factor model would better explain the latent structure of PLSS and ISLES items, was not supported.

Hypothesis 6: PLSS Criterion Validity

The PLSS was expected to show additional criterion validity in its relationships with predictor variables. Bereaved parents were expected to score lower on the PLSS as compared with individuals who report the loss of a parent, spouse, or other relationship (Hypothesis 6a). Individuals with fewer role involvements (including living children, employment status, caregiving status, and marital or partner status) were expected to score lower on the PLSS as compared with individuals who reported a greater number of role involvements (Hypothesis 6b). These hypotheses were tested using the community sample due to a low number of bereaved parents and relative homogeneity of role involvements in the student sample. Contrary to expectations, t-tests did not support significant differences between bereaved parents and other types of loss on PLSS total, $t(277)=.85, p=.45$, PLSS Active subscale, $t(295)=1.40, p=.16$, PLSS Negative subscale, $t(295)=.48, p=.63$, or PLSS Receptive subscale, $t(296)=-1.31, p=.19$. Hypothesis 6a was not supported.

Additionally, PLSS scores were expected to be higher among individuals who are involved in a number of life roles. The number of role involvements was calculated by summing across the following variables: committed relationship (including married, live with partner, or committed relationship but do not live together), parent to a living adult child, parent to a living minor child, full or part-time work, full or part-time volunteer

position, full or part-time student status, and providing care for a disabled loved one. Pearson bivariate correlations demonstrate significant associations between number of role involvements and PLSS total, $r = .17$, $p = .001$; PLSS Active subscale, $r = .13$, $p = .012$; PLSS Negative subscale, $r = .19$, $p < .001$; and PLSS Receptive subscale, $r = .13$, $p = .012$. Hypothesis 6b was supported.

Discussion

This study examines the reliability and the construct, convergent, divergent, and criterion validity of a new measure of life significance, the Perceived Life Significance Scale (PLSS). Qualitative data derived from four focus groups of bereaved adults suggests that individuals regard "meaning" not only in terms of coherent, stable, and positive worldviews (meaning as "sense-making"), but also in terms of *significance*- the perception of value associated with a goal, relationship, or aspect of life experience that exists or is pursued in the present and future. Life significance, therefore, constitutes the dimension of meaning that corresponds with "the pursuit of what matters" (Armour, 2003). Although numerous theories of meaning and bereavement have alluded to such a dimension, no psychometrically valid measure of life significance had previously been developed. The present study provides evidence for the reliability and validity of a new measure of life significance, the Perceived Life Significance Scale (PLSS).

Factor Structure

A review of the relevant literature, as well as qualitative data, suggested two possible sub-dimensions of life significance: active and receptive. Active life significance

reflects individuals' intentional, purposive pursuit of and engagement with activities and goals deemed meaningful. The PLSS item "I am involved in activities that feel rewarding" exemplifies this. In contrast, receptive life significance involves a more passive appreciation of beautiful or otherwise valuable life experiences, as in the PLSS item "Sometimes something so special or meaningful happens that I get choked up." Exploratory factor analysis of PLSS items in the community sample supported the presence of these hypothesized subdimensions. However, an additional factor emerged which consisted of reverse-scored items suggesting an empty, meaningless, or insignificant appraisal of life activities.

There are at least two possible explanations for the presence of this "negative" life significance factor. First, the presence of all reverse items on this subscale raises the possibility that the factor simply reflects shared method variance across reverse-scored items. Alternatively, or more likely in addition to the shared method variance among these items, "negative" life significance may in fact constitute a phenomenologically distinct experience. Several of the items are worded to reflect not merely an absence of life significance, but the presence of a sense of emptiness or futility- for example, "My life feels pointless at times." As is the case in studies of positive and negative affect, in which negative affect scales contribute unique variance over and above the absence of positive affect (Watson et. al., 1984; Watson et. al., 1988), "negative" life significance may represent more than simply the absence of life significance. Regardless of the meaning of the Negative Life Significance factor, high correlations between this subscale

and Active and Receptive Life Significance subscales, as well as equal criterion and convergent validity across subscales, suggests that the reverse-scored items contribute important additional variance to the overall measure.

Confirmatory factor analysis in the student sample found a good fit for the three-factor structure described above (Hypothesis 3), supporting the overall construct validity of the PLSS. Estimated parameters for the three-factor model are given in Figure 1. In accordance with Hypothesis 1, the PLSS total score demonstrated excellent inter-item reliability ($\alpha=.95$) in the combined sample of community and student participants, with subscale reliabilities acceptable for basic research (Nunnally, 1978). The Receptive Life Significance subscale demonstrated weaker, though still acceptable, reliability ($\alpha=.70$) and exploratory factor loadings (ranging from .42- .72). Future study may determine whether the PLSS subscales offer unique predictive validity; for example, if negative life significance constitutes a painful awareness of emptiness, it may represent a unique risk factor for suicidal behavior (Klonsky, 2008). However, given the early stage of development of this construct and pending further validation of the subscale scores, the PLSS total scale score is likely to provide the most useful measure for examining the role of life significance in grief recovery.

Convergent and Discriminant Validity

Correlations between the PLSS and other study measures demonstrated good convergent and discriminant validity overall. As hypothesized, the PLSS was more strongly correlated with general measures of meaning (MLQ-PS and SOC-29) than with

measures of depression (CESD-10), grief intensity (TRIG), and negative affect (PANAS-Negative Subscale). These findings are important because they support the proposed conceptualization of life significance as a measure of meaning, specifically, rather than merely a proxy for adjustment. Correlations between all study measures in the combined student and community sample are listed in Table 4.

Contrary to expectations, the PLSS demonstrated a very strong positive correlation ($r=.82$ in the combined sample) with positive affect as measured by the PANAS, comparable with correlations between the PLSS and general measures of meaning. Due to the conceptualization of life significance as a specifically existential construct entailing the assignment of fundamental or *inherent* value to life experiences, it was hypothesized that the PLSS would demonstrate only a moderate correlation with positive affect. Several possible explanations exist for this finding. First, a bidirectional causal relationship has been demonstrated between positive affect and perceived meaning in a number of studies using the MLQ-PS, a general measure of meaning. Positive affect serves as one of several sources of information used to make judgments about meaning (Hicks & King, 2009; King et al, 2006). During periods of positive mood, recent experiences of life significance may be more easily accessible, resulting in greater endorsement of PLSS items. Second, as discussed, life significance is a specifically "affective" dimension of meaning; value is a felt attribute of significant life experiences. Thus, the experience of life significance *is* both a positive and an affective experience, though it is not consistent with a hedonic model of pleasure for its own sake (Ryff &

Singer, 1998; Ryan & Deci, 2001). In summary, the presence of positive affect among individuals reporting strong life significance does not necessarily contradict the present conceptualization of life significance as “more than” simply the experience of pleasant feelings.

It is important to note that positive affect as measured by the PANAS is not synonymous with adjustment or even with purely hedonic pleasure. Ten specific emotion words constitute the positive affect subscale of the PANAS: interested, excited, strong, enthusiastic, proud, inspired, determined, attentive, and active (Watson et al., 1988). The majority of these words correspond thematically to the theorized subdimension of Active Life Significance. Individuals who actively pursue and engage with valued goals and activities should, conceptually, be more likely to describe themselves as "inspired," "determined," and "enthusiastic." In comparison, individuals who endorse a more passive appreciation of life's beauty may be less likely to endorse these emotion words. Consistent with this expectation, the positive affect subscale of the PANAS correlated most highly with the Active Life Significance subscale of the PLSS ($r = .85$), and least highly with the Receptive Life Significance subscale ($r = .46$). Future studies may examine the relationship between life significance and a more hedonic measure of positive affect (e.g., Bradburn, 1969). Alternatively, the criterion validity of the PLSS could be examined within a population which may be expected to demonstrate high positive affect but low perceived life significance--for example, individuals who have

recently attained success as measured by extrinsic, rather than intrinsic, life goals (Kasser, 2002).

Establishing the discriminant validity of the PLSS with respect to measures of meaning as sense-making was another important goal of this study. The construct of life significance is viewed as conceptually separable, yet likely causally intertwined with sense-making. Thus, it was important to test the discriminant validity of the PLSS from measures of sense-making in a more nuanced way, rather than by simply examining correlations. The World Assumptions Scale (WAS) represents the most widely-used measure of sense-making; it assesses specific beliefs about the world, the self, and the controllability, justice, and randomness of negative events (Currier et al., 2009; Janoff-Bulman, 1989; Matthews & Marwit, 2003-2004; Schwartzberg & Janoff-Bulman, 1991). It is distinct from the PLSS not only as a measure of sense-making, but as a measure of specific meaning content rather than meaningfulness. If, as hypothesized, the PLSS measures a construct distinct from meaning as sense-making, joint confirmatory factor analysis should show a poor fit for a single-factor model of PLSS and WAS items and a better fit for a two-factor model. In the present study, several measures of fit revealed quite poor fit for the single-factor model.

The poor fit of the single-factor model supports the discriminant validity of the PLSS. Concepts which are conceptually indistinguishable (e.g., gratitude and appreciation) tend to demonstrate acceptable fit when tested using a single-factor model (e.g. Wood et. al., 2008). In the present study, comparison of the Bayesian Information

Criterion demonstrates better fit for the two-factor model, further supporting the separability of these two constructs. Both models demonstrated poor fit overall, likely the result of unstable factor structure of the World Assumptions Scale. Exploratory factor analyses of the WAS have found numerous factor structures across different samples (Harris & Valentiner, 2002; Janoff-Bulman, 1989; Littleton & Bretkopf, 2006; Rini et al., 2004), and confirmatory analyses have failed to consistently support the eight-factor model (Elklit et. al., 2007; Kaler et. al., 2008). Correlations between PLSS items and WAS subscales varied widely ($r = .27$ to $r = .70$), suggesting that the wide range of beliefs tapped by the WAS may not easily fit a one or two factor model.

The discriminant validity of the PLSS was also examined with respect to the ISLES, another measure of sense-making. Joint confirmatory factor analysis did not find a superior fit for a single-factor model of PLSS and ISLES items as was hypothesized. In fact, the single-factor model demonstrated slightly better fit. However, the correlation between the PLSS and the ISLES was moderate ($r = .67$), and lower than the correlations between the PLSS and general measures of meaning. The lack of a clear factor-analytic distinction between these two measures is likely attributable to greater conceptual overlap than exists between the PLSS and WAS. Both the PLSS and the ISLES tap meaningfulness, rather than meaning content; that is, both measures assess *whether* meaning is present, rather than *which* specific meanings or beliefs are endorsed. Further, the ISLES is based on a social constructionist account of sense-making, which is considerably more contextual than the cognitive theory underlying the WAS (Holland et

al., 2010). According to this view of sense-making, we understand ourselves and the world in terms of integrative narratives, which are organized according to broad themes and which include both explicit beliefs and intuitively “felt” organizational structures (Gillies & Neimeyer, 2006). The ISLES taps the extent to which these organizational structures are sufficiently coherent and integrated to provide a sense of comprehensibility and footing in the world (Holland et al., 2010). Put another way, the ISLES is a somewhat more “affective” measure of sense-making than the WAS (as exemplified by the item “Since this event, the world feels like a confusing and scary place.”) Its factorial overlap with the PLSS, which also measures a more affective dimension of meaning, is therefore less surprising. Future studies which aim to examine the differential causes and consequences of life significance and sense-making should utilize measures of sense-making which are as divergent from life significance as possible, such as the WAS or similarly cognitive measures.

Criterion Validity

The criterion validity of the PLSS was examined by calculating its association with two demographic variables which were expected to correlate with life significance: number of role involvements and relationship to deceased. Consistent with qualitative and quantitative research examining the relationship between role involvements and purpose in life (Hershberger & Walsh, 1990; Cadell & Marshall, 2007; Vanderwater, Ostrove, & Stewart, 1997), individuals who reported a greater number of role involvements (e.g., parent, employee, volunteer, caregiver) also tended to report higher

levels of life significance. Interestingly, role involvements were most strongly associated with the Negative Life Significance subscale ($r = .19$), suggesting that important relationships and responsibilities may provide an effective buffer against the perception of insignificance, emptiness, or pointlessness.

The presumed significance of caretaking relationships, particularly parenting (Armour, 2003; Wheeler, 2001) suggests that life significance may vary depending on the type of relationship between the bereaved and the deceased. In the present study, bereaved parents were expected to report lower levels of perceived significance as compared to individuals who had lost another family member or friend. Parental bereavement has been associated with uniquely poor outcomes across a number of areas, including sense-making (Hibberd, Vandenberg, & Wamser, 2011; Murphy, 2008). However, the present study found no differences across relationship to deceased on PLSS total or subscale scores. This was not due to the confound between relationship and cause of death (bereaved parents were more likely to report a loss due to suicide), as PLSS scores did not differ across cause of death. More sophisticated analyses of loss variables such as cause of death and relationship to deceased, including examination of mediators and moderators such as gender, age, other role involvements, and opportunities for meaning-focused coping, will likely be needed to tease apart any causal effects on life significance.

Limitations

The present study establishes the PLSS as a measure of excellent inter-item reliability, stable factor structure, and acceptable convergent, discriminant and criterion validity. Unfortunately, due to limitations in the study design, the test-retest reliability of this measure remains unknown. Life significance is conceptualized here as a moderately stable construct, although arguments could be made that both a state (i.e., momentary feelings of significance connected with specific life experiences) and trait (i.e., temperamental qualities or stable life circumstances likely to lead to frequent feelings of significance) version of the construct exist. Establishing the test-retest reliability of the PLSS will be helpful in safeguarding the internal validity of studies which use this measure as a longitudinal variable, either to assess causal relationships or to better understand normative changes in life meaning over the course of a lifespan or period of bereavement.

All of the measures used in the present study were recall-based self-report measures. Comparing variance attributable to the specific construct at hand with variance attributable to the response format (e.g., in a multi-trait/multi-method matrix; Campbell & Fiske, 1959) provides the strongest possible evidence for the construct validity of a measure. Future research could incorporate reports by others of the apparent life significance of individuals; however, due the inherently subjective and intrapersonal nature of a construct such as life significance, large discrepancies might exist between self-reported PLSS scores and observations by others. Even more telling might be studies which seek to validate the PLSS by examining its association with observable behavioral

indicators of existential well-being, such as prosocial behavior (Weinstein & Ryan, 2010), pursuit of intrinsic goals (Schmuck, Kasser, & Ryan, 2000), willingness to tolerate distress in service of valued ends (McCracken & Velleman, 2010), and attention to valued stimuli in the present moment (Hayes et. al., 2006).

The stability of factor structure and nomological net across the community and student samples supports the generalizability of the PLSS. However, the scale was developed using qualitative data drawn from a bereaved population, and was tested on bereaved individuals only. The validity and usefulness of the PLSS, or the life significance construct itself, outside a grief recovery context remains unclear. Certainly individuals struggle with meaning after and during a variety of stressful life events (Bartone et. al., 1989; Holland et. al., 2010; Janoff-Bulman, 1989). However, it is possible that bereavement, insofar as it requires mourners to contend with the reality of death, raises the issue of life significance in a way that other stressors do not. The PLSS was designed to be applicable, in terms of the specific language used, whether or not the respondent is bereaved; thus, it will be interesting to examine how this measure performs in other populations in future research.

Finally, the present study was cross-sectional in nature. As such, no conclusions can be drawn about causal directions of the relationships discussed here. The primary aim of the study was to assess the reliability and validity of the PLSS, not to provide information concerning the predictors and consequences of the latent construct of life significance. However, because the theory underlying life significance remains untested

and is not yet well-elaborated, the results of the present study cannot help but further inform the development of the construct of life significance (DeVellis, 2012). Now that a valid and reliable measure of life significance exists, future study can expand upon these preliminary findings concerning the role of life significance in grief recovery.

Future Study

In contemporary cognitive and constructionist theories, distress serves as feedback mechanism, prompting sense-making as a means to restore meaning (Gillies & Neimeyer, 2006; Park and Folkman, 1997). Studies of sense-making find that individuals who seek, and are unable to find, explanations for the loss experience grief more intensely (Bonanno et al., 2004; Tolstikova, Fleming, & Chartier, 2005). In contrast, the present study found a moderate positive association between life significance and grief distress, suggesting a different relationship may exist between distress and this aspect of meaning. Grief distress may in itself be viewed by mourners as a source of life significance, as described by Frankl (1959/1984), and as reflected in the PLSS item "The pain and suffering I've experienced connects me to other people who have also suffered." However, more evidence is needed to determine whether bereaved individuals value grief distress and what the effect of such a stance is on grief recovery. The present study did not examine the relationship of prolonged or complicated grief to life significance; individuals who develop a prolonged grief response may find that they are *less* able to experience life significance as they develop a pattern of avoidance of potentially-valued activities and interpersonal roles (Prigerson et al., 2008).

Similarly, the relationships among life significance and other aspects of meaning within a social constructivist model are likely to be complex and reciprocally determined. As discussed, sense-making frameworks may provide a source of significance in themselves via the completion of valued self-narratives (McAdams et al., 2001) or life purpose (Frankl, 1959/1984). One interesting aspect of this process is the extent to which certain frameworks (e.g., religious beliefs, specific assumptive worldviews) may facilitate or hinder significance in the context of type of loss, relationship to deceased, and the cultural and psychosocial context of the loss. In the present study, the PLSS showed low to moderate associations with the Benevolence and Meaning subscales of the World Assumptions scale, and a strong association with the Self subscale. Among PLSS subscales, the Active Life Significance subscale showed the strongest correlation with WAS-Self ($r = .70$), suggesting that beliefs about one's own ability to effect desired outcomes may provide a needed framework for behavioral and affective investment in valued goals and activities. The Receptive Life Significance subscale showed a weaker correlation with WAS-Self, consistent with mindfulness-based models in which appreciation of present-moment experiences occurs independently of self-related cognitive content (Hayes, 2006).

Relationships among significance and contextual variables should also be empirically examined. The association between PLSS scores and role involvements in the present study points to the importance of the psychosocial context in determining life significance following a loss. Future research may examine more specifically what types

of roles are most facilitative of life significance and whether the impact of role involvement depends on other variables such as role satisfaction and role burden (Nordenmark, 2004). Additionally, longitudinal research is needed to establish a causal direction for this relationship and assess for possible mediating variables such as perceived “neededness” or importance to others and participation in role-specific activities which engender feelings of significance. Positive continuing bonds with the deceased, which have been implicated as an important source of meaning, serve as an example of a relationship which may be perceived as intensely meaningful despite the absence of ongoing caregiving or “neededness.” Further study of continuing bonds and their association (or lack thereof) with life significance may shed light on the specific ways in which relationships provide a context for meaning-making.

Qualitative accounts of bereavement suggest that for many people, it is their confrontation with the fact of death that prompts a renewed awareness of the value of life and the need to engage fully in daily sources of life significance (Wheeler, 2001). Further research in this area should consider which types of loss (i.e., sudden losses, death of a similar other), facilitate an enhanced appreciation of life, and whether this effect is mediated by death awareness (Martin et al., 2004, Lykins et al., 2007). Another interesting question will be whether the *particular* goals, relationships, or experiences individuals imbue with life significance helps determine extent to which life significance facilitates adjustment. That is to say, are some sources of significance more beneficial than others? For example, many survivors of homicide are motivated to prevent the deaths of other

young adults (Armour, 2003). Others may pour their energy into more extrinsically motivated pursuits such as the accumulation of wealth. Research does suggest that some goals, particularly the pursuit of financial success and hedonic comfort, are associated with poor adjustment outcomes (Kasser & Ryan, 1993; Sheldon & Kasser, 1995). Exploration of the phenomenological distinctions, if any exist, between life significance derived from behavior consistent with intrinsic versus extrinsic motivations may shed light on these questions.

Conclusions

The present study provides preliminary support for the reliability and validity of the Perceived Life Significance Scale, which measures the perception of value associated with a goal, relationship, or aspect of life experience that exists or is pursued in the present and future. Consistent with the proposed construct of life significance, the PLSS demonstrates convergent validity with general measures of meaning and divergent validity with depression, negative affect, and grief intensity. Further, the measure demonstrates divergent validity with the World Assumptions Scale, the most widely used measure of meaning as sense-making--suggesting that the PLSS may be a valuable tool to enhance our understanding of the complex relationships between sense and significance as aspects of meaning. Future studies should investigate the role of life significance as both an outcome and as a predictor variable in bereavement, eventually integrating this important aspect of meaning into our models of grief and recovery.

References

- Adler, N. G., & Fagley, N. S. (2005). Appreciation: Individual differences in finding value and meaning as a unique predictor of subjective well-being. *Journal of Personality, 73*(1), 79-114.
- Antonovsky, A. (1987). *Unraveling the Mystery of Health: How People Manage Stress and Stay Well*. San Francisco: Jossey-Bass.
- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science in Medicine, 36*, 725-733.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders (4th ed., Text Revision)*. Washington, DC: Author.
- Armour, M. P. (2002). The journey of homicide families: A qualitative study of their post homicide experience. *American Journal of Orthopsychiatry, 72*, 372-382.
- Armour, M. (2003). Meaning-making in the aftermath of homicide. *Death Studies, 27*, 519-540.
- Attig, T. (2001). Relearning the world: Making and finding meanings. In Neimeyer, R. A. (Ed.), *Meaning Reconstruction and the Experience of Loss*. Washington, DC: American Psychological Association.
- Baumeister, R. F. (1991). *Meanings of Life*. New York: Guilford Press.
- Boelen, P. A., van den Hout, M. A., & van den Bout, J. (2006). A cognitive-behavioral conceptualization of complicated grief. *Clinical Psychology: Science and Practice, 13*, 109-128.

- Brabant, S., Forsyth, C. J., & McFarlain, G. (1996). The impact of the death of a child on meaning and purpose in life. *Journal of Personal and Interpersonal Loss, 2*, 255-266.
- Bartone, P.T., Ursano, R. J., Wright, K. M., & Ingraham, L. H. (1989). The impact of a military air disaster on the health of assistance workers: A prospective study. *Journal of Nervous and Mental Disease, 177*, 317-328.
- Benishek, L. A. (1996). Evaluation of the factor structure underlying two measures of hardiness. *Assessment, 3*, 423-435.
- Boerner, K., Schulz, R., & Horowitz, A. (2004). Positive aspects of caregiving and adaptation to bereavement. *Psychology and Aging, 19*, 668-675.
- Bono, G., Emmons, R. A., & McCullough, M. E. (2004). Gratitude in practice and the practice of gratitude. In P. A. Linley and S. Joseph (Eds.), *Positive Psychology in Practice*. Hoboken, NJ: John Wiley & Sons.
- Bonanno, G., & Kaltman, S. (1999). Toward an integrative perspective on bereavement. *Psychological Bulletin, 125*, 760-776.
- Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. *Psychology and Aging, 19*(2), 260-271.
- Bothmer v. M., & Fridlund, B. (2003). Self-rated health among university students in relation to sense of coherence and other personality traits. *Scandinavian Journal of Caring Science, 17*, 347-57.

- Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. *Psychology and Aging, 19*(2), 260-271.
- Bradburn, N. M. (1969). *The Structure of Psychological Well-being*. Chicago: Aldine.
- Brown, T. A. (2006). *Confirmatory Factor Analysis for Applied Research*. New York: Guilford.
- Burr, V. (1995). *An Introduction to Social Constructionism*. London: Routledge.
- Cadell, S., & Marshall, S. (2007). The (re)construction of self after the death of a partner to HIV/AIDS. *Death Studies, 31*, 537-548.
- Calhoun, L. G., & Tedeschi, R. G. (Eds.). (2004). *Handbook of Posttraumatic Growth*. Mahwah, NJ: Lawrence Erlbaum.
- Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105.
- Clark, L. A., & Watson, D. (2003). Constructing validity: Basic issues in objective scale development. In A. E. Kazdin (Ed.), *Methodological Issues and Strategies in Clinical Research*. Washington DC: American Psychological Association.
- Crawford, J. R., & Henry, J. D. (2004). The Positive and Negative Affect Schedule (PANAS): Construct validity, measurement properties and normative data in a large non-clinical sample. *British Journal of Social & Clinical Psychology, 43*, 245-265.

- Crumbaugh, J. C., & Mahonick, L. T. (1964). An experimental study in existentialism: The psychometric approach to Frankl's noogenic neurosis. *Journal of Clinical Psychology, 20*, 200-207.
- Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper and Row.
- Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2006). Sense-making, grief, and the experience of violent loss: Toward a meditational model. *Death Studies, 30*, 403-428.
- Currier, J. M., Holland, J. M., & Neimeyer, R. A. (2009). Assumptive worldviews and problematic reactions to bereavement. *Journal of Loss and Trauma, 14*, 1-15.
- Davis, C. G., & Nolen-Hoeksema, S. (2001). Loss and meaning: How do people make sense of loss? *American Behavioral Scientist, 44*, 726-741.
- Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: Two construals of meaning. *Journal of Personality and Social Psychology, 75*(2), 561-574.
- Davis, C. G., Wohl, M. J. A., & Verberg, N. (2007). Profiles of posttraumatic growth following an unjust loss. *Death Studies, 31*, 693-712.
- Davis, C. G., Wortman, C. B., Lehman, D. R., & Silver, R. C. (2000). Searching for meaning in loss: Are clinical assumptions correct? *Death Studies, 24*, 497-540.

- Dillen, L., Fontaine, J. R. J., & Verhofstadt-Denève, L. (2008). Are normal and complicated grief different constructs? A confirmatory factor analytic test. *Clinical Psychology & Psychotherapy, 15*(6), 386-395.
- Deci, E.L., & Ryan, R. R. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.
- DeVellis, R. F. (2003). *Scale Development: Theory and Applications*. Thousand Oaks: Sage.
- Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*, 1105-1117.
- Edmonds, S., & Hooker, K. (1992). Perceived changes in life meaning following bereavement. *Omega, 25*, 307-318.
- Elklit, A., Shevlin, M., Solomon, Z., & Dekel, R. (2007). Factor structure and concurrent validity of the World Assumptions Scale. *Journal of Traumatic Stress, 20*, 291–301.
- Engelkemeyer, S. M., & Marwit, S. J. (2008). Posttraumatic growth in bereaved parents. *Journal of Traumatic Stress, 21*(3), 344–346.
- Eriksson, M., & Lindström, B. (2005). Validity of Antonovsky's Sense of Coherence Scale: A systematic review. *Journal of Epidemiology and Community Health, 59*, 460-466.
- Eschleman, K. J., Bowling, N. A., & Alarcon, G. M. (2010). A meta-analytic examination of hardiness. *International Journal of Stress Management, 17*, 277-307.

- Emmons, R. A., & McCullough, M. E. (2004). *The Psychology of Gratitude*. New York: Oxford University Press.
- Faschingbauer, T. (1981). *The Texas Inventory of Grief--Revised*. Houston, TX: Honeycomb Publishing.
- Feldt, T., & Rasku, A. (1998). The structure of Antonovsky's Orientation to Life Questionnaire. *Personality and Individual Differences, 25*, 505–516
- Fiorentino, L.M. (1989). Sense of coherence and the stress-illness relationship among employees: a prospective study. In H.I. McCubbin, T. E. Thompson, & A.I. Thompson, (Eds). *Stress, Coping, and Health in Families. Sense of Coherence and Resiliency*. Thousand Oaks: Sage.
- Flannery, R., Perry, C., & Penk, W. E. (1994). Validating Antonovsky's Sense of Coherence Scale. *Journal of Clinical Psychology, 50*, 575–577.
- Florian, V. (1989-1990). Meaning and purpose in life of bereaved parents whose son fell during active military service. *Omega, 20*, 91-102.
- Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*, 286-299.
- Frenz, A.W., Carey, M.P., & Jorgensen, R.S. (1993). Psychometric evaluation of Antonovsky's sense of coherence scale. *Psychological Assessment, 5*, 145–53.
- Funk, S. C., & Houston, B. K. (1987). A critical analysis of hardiness scales validity and utility. *Journal of Personality and Social Psychology, 53*, 572-578.

- Folkman, S. (1997). Introduction to the special section: Use of bereavement narratives to predict well-being in gay men whose partners died of AIDS—Four theoretical perspectives. *Journal of Personality and Social Psychology, 72*, 851-854.
- Folkman, S. (2001). Revised coping theory and the process of bereavement. In Stroebe, M. S., Hansson, R. O., Stroebe, W., & Schut, H. (Eds.), *Handbook of Bereavement Research and Practice: Consequences, Coping, and Care*. Washington, DC: American Psychological Association.
- Frankl, V. E. (1955). *The Doctor and the Soul*. Toronto, Canada: Alfred A. Knopf, Inc.
- Frankl, V. E. (1959/1984). *Man's Search for Meaning: An Introduction to Logotherapy*. New York, NY: Simon & Schuster.
- Gebhardt, W. A., & Paul, L. B. (2001). The Revised Health Hardiness Inventory (RHHI-24): Psychometric properties and relationship with self-reported health and health behavior in two Dutch samples. *Health Education Research, 16*, 579- 592.
- Gillies, J., & Neimeyer, R. (2006). Loss, grief, and the search for significance: Toward a model of meaning reconstruction in bereavement. *Journal of Constructivist Psychology, 19(1)*, 31-65.
- Gotlib, I. H., & Neubauer, D. L. (2000). Information-processing approaches to the study of cognitive bias in depression. In S. L. Johnson, A. M. Hayes, T. M. Field, N. Schneiderman, & P. M. McCabe (Eds.), *Stress, Coping, and Depression* (pp. 117-143). Mahwah, NJ: Lawrence Erlbaum.

- Guo, Q., Li, F., Chen, X., Wang, W., & Meng, Q. (2008). Performance of fit indices in different conditions and the selection of cut--off values. *Acta Psychologica Sinica*, *40*, 109-118.
- Harris, H. N., & Valentiner, D. P. (2002). World assumptions, sexual assault, depression, and fearful attitudes toward relationships. *Journal of Interpersonal Violence*, *17*, 286–305.
- Hershberger, P. J., & Walsh, W. B. (1990). Multiple role involvements and the adjustment to conjugal bereavement: An exploratory study. *Omega: Journal of Death and Dying*, *21*(2), 91-102.
- Hibberd, R., Elwood, L., & Galovski, T. (2010). Risk and protective factors in survivors of violent death. *Journal of Loss and Trauma*, *15*(5), 426-447.
- Hicks, J. A., & King, L. A. (2009). Positive mood and social relatedness as information about meaning in life. *The Journal of Positive Psychology*, *4*, 471-482.
- Hibberd, R., Vandenberg, B., & Wamser, R. (2011). Assumptive worldviews and religious coping with bereavement and type 2 diabetes. *International Journal for the Scientific Study of Religion*, *21*(3), 198-211.
- Holland, J. M., Currier, J. M., Coleman, R. A., & Neimeyer, R. A. (2010). The Integration of Stressful Life Experiences Scale (ISLES): Development and initial validation of a new measure. *International Journal of Stress Management*, *17*, 325-352.

- Hull, J. G., Van Treuren, R. R., & Virnelli, S. (1987). Hardiness and health: A critique and alternative approach. *Journal of Personality and Social Psychology*, *53*(3), 518-530.
- Hutzell, R. R. (1988). A review of the Purpose in Life Test. *International Forum for Logotherapy*, *11*, 89-101.
- Irwin, M., Artin, K.H., & Oxman, M.N. (1999). Screening for depression in the older adult: Criterion validity of the 10-item Center for Epidemiological Studies Depression Scale (CES-D). *Archives of Internal Medicine*, *159*, 1701-1794.
- Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition*, *7*, 113-136.
- Janoff-Bulman, R. (1992). *Shattered Assumptions: Towards a New Psychology of Trauma*. New York: Free Press.
- Janoff-Bulman, R., & McPherson, C. (1997). The impact of trauma on meaning: From meaningless world to meaningful life. In C. Brewin (Ed.), *The Transformation of Meaning in Psychological Therapies*. New York: Wiley.
- Kaiser, H. F. (1974). An index of factorial simplicity. *Psychometrika*, *39*, 32-36.
- Kaler, M. E., Frazier, P. A., Anders, S. L., Tashiro, T., Tomich, P., Tennen, H., & Park, C. (2008). Assessing the psychometric properties of the World Assumptions Scale. *Journal of Traumatic Stress*, *21*(3), 326-332.
- Kasser, T. (2002). *The High Price of Materialism*. Cambridge, MA: MIT Press.

- Kastenbaum, R. (2008). Grieving in contemporary society. In Stroebe, M. S., Hansson, R. O., Schut, H., & Stroebe, W. (Eds.), *Handbook of Bereavement Research and Practice: Advances in Theory and Intervention*. Washington, DC: American Psychological Association.
- Keesee, N. J., Currier, J. M., & Neimeyer, R. A. (2008). Predictors of grief following the death of one's child: The contribution of finding meaning. *Journal of Clinical Psychology, 64*, 1145-1163.
- Kelly, J. R., & McGrath, J. B. (1988). *On Time and Method*. Newbury Park, CA: Sage.
- Kenny, D. A., & McCoach, D. B. (2003). Effect of the number of variables on measures of fit in structural equation modeling. *Structural Equation Modeling, 10*, 333-351.
- King, L. A., Hicks, J. A., Krull, J. L., & Del Gaiso, A. K. (2006). Positive affect and the experience of meaning in life. *Journal of Personality and Social Psychology, 90*, 179-196.
- King, L. A., & Napa, C. K. (1998). What makes a life good? *Journal of Personality and Social Psychology, 75*, 156-165.
- Klass, D. (2001). The inner representation of the dead child in the psychic and social narratives of bereaved parents. In Neimeyer, R. A. (Ed., 2001). *Meaning Reconstruction and the Experience of Loss*. Washington, DC: American Psychological Association.
- Klonsky, D. E. (2008). What is emptiness? Clarifying the 7th criterion for borderline personality disorder. *Journal of Personality Disorders, 22(4)*, 418-426.

- Kobasa, S. C. (1979). Stressful life events, personality and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*, 1–11.
- Kobasa, S. C., Maddi, S. R., & Courington, S. (1981). Personality and constitution as mediators in the stress-illness relationship. *Journal of Health and Social Behavior, 22*, 368-378.
- Kohout, F.J., Berkman, L.F., Evans, D.A. & Cornoni-Huntley, J. (1993). Two shorter forms of the CES-D Depression Symptoms Index. *Journal of Aging and Health, 5*, 179-193.
- Krueger, R. A., & Casey, M. A. (2000). *Focus Groups: A Practical Guide for Applied Research* (3rd ed.). Thousand Oaks, CA: Sage.
- Lang, A., Goulet, C., & Amsel, R. (2003). Lang and Goulet Hardiness Scale: Development and testing on bereaved parents following the death of their fetus/infant. *Death Studies, 27*, 851-880.
- Larsson G, Kallenberg K. (1999). Dimensional analysis of sense of coherence using structural equation modeling. *European Journal of Personality, 13*, 51–61.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York, NY: Springer.
- Lerner, M. J. (1980). *The Belief in a Just World: A Fundamental Delusion*. New York, NY: Plenum Press.
- Lewis, C. S. (1976). *A Grief Observed*. New York: Bantam.

- Linley, A. P., & Joseph, S. (2011). Meaning in life and posttraumatic growth. *Journal of Loss and Trauma, 16*, 150-159.
- Littleton, H., & Breilkopf, C. R. (2006). Coping with the experience of rape. *Psychology of Women Quarterly, 30*, 106–116.
- Lykins, E. L., Segerstrom, S. C., Averill, A. J., Evans, D. R., & Kemeny, M. E. (2007). Goal shifts following reminders of mortality: Reconciling posttraumatic growth and terror management theory. *Personality and Social Psychology Bulletin, 33*, 1088–1099.
- Maddi, S. R. (1987). Hardiness training at Illinois Bell Telephone. In J. P. Opatz (Ed.), *Health Promotion Evaluation* (pp. 101–115). Stevens Point, WI: National Wellness Institute.
- Maddi, S. R. (1997). Personal Views Survey II: A measure of dispositional hardiness. In C. P. Zalaquett & R. J. Woods (Eds.), *Evaluating Stress: A Book of Resources* (pp. 293-310). New York: University Press.
- Maddi, S. R. (2002). The story of hardiness: Twenty years of theorizing, research, and practice. *Consulting Psychology Journal: Practice and Research, 54*, 175–185.
- Maddi, S. R., Kobasa, S. C., & Hoover, M. (1979). An alienation test. *Journal of Humanistic Psychology, 19*, 73-76.
- Maddi, S. R., & Kobasa, S. C. (1984). *The Hardy Executive: Health Under Stress*. Homewood, IL: Dow-Jones Irwin.

- Martin, L. L., Campbell, W. K., & Henry, C. D. (2004). The roar of awakening: Mortality acknowledgement as a call to authentic living. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of Experimental Existential Psychology*. New York: Guilford Press.
- Matthews, L. T., & Marwit, S. J. (2003-2004). Examining the assumptive world views of parents bereaved by accident, murder, and illness. *Omega*, 48, 115-136.
- McAdams, D. P., Reynolds, J., Lewis, M., Patten, A. H., & Bowman, P. J. (2001). When bad things turn good and good things turn bad: Sequences of redemption and contamination in life narrative and their relation to psychosocial adaptation in midlife adults and in students. *Personality and Social Psychology Bulletin*, 27, 474-485.
- McCracken, L. M. (2010). Psychological flexibility in adults with chronic pain: A study of acceptance, mindfulness, and values-based action in primary care. *Pain*, 148(1), 141-147.
- McCullough, M. E., Emmons, R. A., & Tsang, J. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, 82, 112-127.
- Molloy, G. N., Pallant, J. F., & Kantas, A. (2001). A psychometric comparison of the Positive and Negative Affect Schedule across age and sex. *Psychological Reports*, 88, 861-862.

- Morgan, J., & Farsides, T. (2007). Measuring meaning in life. *Journal of Happiness Studies, 10*, 197-214.
- Murphy, S. A. (2008). The loss of a child: Sudden death and extended illness perspectives. In Stroebe, M. S., Hansson, R. O., Schut, H., & Stroebe, W. (Eds.) *Handbook of Bereavement Research and Practice*. Washington, DC: American Psychological Association.
- Nadeau, J. W. (1998). *Families Making Sense of Death*. Thousand Oaks, CA: Sage.
- Neimeyer, R. A. (Ed., 2001). *Meaning Reconstruction and the Experience of Loss*. Washington, DC: American Psychological Association.
- Neimeyer, R. A. (2002). The relational co-construction of selves: A postmodern approach. *Journal of Contemporary Psychotherapy, 32*(1), 51-59.
- Neimeyer, R. A., Baldwin, S. A., & Gillies, J. (2006). Continuing bonds and reconstructing meaning: Mitigating complications in bereavement. *Death Studies, 30*, 715-738.
- Neimeyer, R. A., Hogan, N. S., & Laurie, A. (2008). The measurement of grief: Psychometric considerations in the assessment of reactions to bereavement. In Stroebe, M. S., Hansson, R. O., Schut, H., & Stroebe, W. (Eds.) *Handbook of Bereavement Research and Practice*. Washington, DC: American Psychological Association.
- Neimeyer, R. A., & Raskin, J. D. (Eds). (2000). *Constructions of Disorder*. Washington, DC: American Psychological Association.

- Nerken, I. R. (1993). Grief and the reflective self: Toward a clearer model of loss resolution and growth. *Death Studies, 17*, 1-26.
- Nordenmark, M. (2004). Multiple social roles and well-being: A longitudinal test of the role stress theory and role expansion theory. *Acta Sociologica, 47*, 115-126.
- Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). New York: McGraw-Hill.
- Park, C. L. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of Social Issues, 61*, 707—729.
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin, 136*(2), 257-301.
- Parkes, K. P., & Rendall, D. (1988). The hardy personality and its relationship to extraversion and neuroticism. *Personality and Individual Differences, 9*, 785–790.
- Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*, 71-105.
- Park, C. L., & Folkman, S. (1997). Meaning in the context of stress and coping. *Review of General Psychology, 2*, 115-144.
- Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making Sense of Factor Analysis: The Use of Factor Analysis for Instrument Development in Health Care Research..*
- Prigerson, H. G., Vanderwerker, L. C., & Maciejewski, P. K. (2008). A case for inclusion of prolonged grief disorder in DSM-V. In Stroebe, M. S., Hansson, R. O., Schut, H., & Stroebe, W. (Eds.) *Handbook of Bereavement Research and Practice:*

Advances in Theory and Intervention. Washington, DC: American Psychological Association.

- Radloff, L.S. (1977). The CES-D Scale: A self-reported depression scale for research in general population. *Applied Psychological Measurement, 1*, 385–401.
- Raftery, A. (1995). Bayesian model selection in social research. *Sociological Methodology, 25*, 111-163.
- Richards, T. A., Acree, M., & Folkman, S. (1999). Spiritual aspects of loss among partners of men with AIDS: Postbereavement follow-up. *Death Studies, 23*, 105-127.
- Rini, C., Manne, S., DuHamel, K. N., Austin, J., Ostroff, J., Boulad, F., et al. (2004). Changes in mothers' basic beliefs following a child's bone marrow transplantation: The role of prior trauma and negative life events. *Journal of Traumatic Stress, 17*, 325–333.
- Rotter, J.B. (1954). *Social Learning and Clinical Psychology*. New York, NY: Prentice-Hall.
- Rubin, S. S., Malkinson, R., & Witztum, E. (2003). Trauma and bereavement: Conceptual and clinical issues revolving around relationships. *Death Studies, 27*, 667–690.
- Ryan, R. R., & Frederick, C. (1995). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality, 65*, 529-565.
- Ryff, C. D., & Singer, B. (1998). The Contours of Positive Human Health. *Psychological Inquiry, 9(1)*, 1-28.

- Sandell, R., Blomberg, J., Lazar, A. (1998). The factor structure of Antonovsky's Sense of Coherence Scale in Swedish clinical and nonclinical samples. *Personality and Individual Differences, 24*, 701–11.
- Schneider, K. (2008). *Existential-Integrative Psychotherapy: Guideposts to the Core of Practice*. New York: Routledge.
- Schmuck, P., Kasser, T., & Ryan, R. M. (2000). Intrinsic and extrinsic goals: Their structure and relationship to well-being in German and U.S. college students. *Social Indicators Research, 50*(2), 225-241.
- Schulenberg, S. E., & Melton, A.M.A. (2010). A confirmatory factor-analytic evaluation of the Purpose in Life Test: Preliminary psychometric support for a replicable two-factor model. *Journal of Happiness Studies, 11*, 95-111.
- Schwartzberg, S. S., & Janoff-Bulman, R. (1991). Grief and the search for meaning: Exploring the assumptive worlds of bereaved college students. *Journal of Social and Clinical Psychology, 10*, 270-288.
- Sheehan, T., Fifield, J., Reisine, S., & Tennen, H. (1995). The measurement structure of the Center for Epidemiologic Studies Depression Scale. *Journal of Personality Assessment, 64*, 507–521.
- Sinclair, R. R., & Tetrick, L. E. (2000). Implications of item wording for hardiness structure, relation with neuroticism, and stress buffering. *Journal of Research in Personality 34*, 1–25.

- Solomon, S., Greenberg, J., & Pyszczynski, T. (2004). The cultural animal: Twenty years of terror management theory research. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of Experimental Existential Psychology*. New York: Guilford Press.
- Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology, 53*, 80–93.
- Strauman, T. J., & Higgins, E. T. (1993). The self construct in social cognition: Past, present, and future. In Z. V. Segal & S. J. Blatt (Eds.), *The Self in Emotional Distress: Cognitive and Psychodynamic Perspectives*. New York, NY: Guilford Press.
- Stroebe, M., & Schut, H. (2001). Models of coping with bereavement: A review. In M. S. Stroebe, R. O. Hansson, W. Stroebe, & H. Schut (Eds.), *Handbook of Bereavement Research: Consequences, Coping, and Care*. Washington, DC: American Psychological Association.
- Sugawara, H.M., & MacCallum, R. C. (1993). Effect of estimation method on incremental fit indexes for covariance structure models. *Applied Psychological Measurement, 17*, 365-377.
- Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist, 38*, 1161-1173.

- Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*, 455-471.
- Thompson, S. C., & Janigan, A. S. (1988). Life schemes: A framework for understanding the search for meaning. *Journal of Social and Clinical Psychology, 7*, 260-280.
- Tolstoy, L. (1886/1960). *The Death of Ivan Ilych*. New York: Signet.
- Ulmer, A., Range, L. M., & Smith, P. C. (1991). Purpose in life: A moderator of recovery from bereavement. *Omega, 23*, 279-289.
- Vanderwater, E. A., Ostrove, J. M., & Stewart, A. J. (1997). Predicting women's well-being in midlife: The importance of personality development and social role involvements. *Journal of Personality and Social Psychology, 72*, 1147-1160.
- Watkins, P. C., Gibler, A., Mathews, M., & Kolts, R. (2005, August). *Aesthetic experience enhances gratitude*. Paper presented to the annual convention of the American Psychological Association in Washington, DC.
- Watkins, P. C., Woodward, K., Stone, T., & Kolts, R. (2003). Gratitude and happiness: Development of a measure of gratitude, and relationships with subjective well-being. *Social Behavior and Personality, 31*(5), 431-452.
- Watkins, P. C., Van Gelder, M., & Frias, A. (2009). Furthering the science of gratitude. In C. R. Snyder & S. J. Lopez (Eds.), *Oxford Handbook of Positive Psychology*. New York: Oxford University Press.

- Watson, D., Clark, L. A., & Tellegen, A. (1984). Cross-cultural convergence in the structure of mood: A Japanese replication and a comparison with U.S. findings. *Journal of Personality and Social Psychology, 47*, 127-144.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of a brief measure of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070.
- Weinstein, N., & Ryan, R.M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology, 98*(2), 222-244.
- Wheeler, I. (1993-94). The role of meaning and purpose in life in bereaved parents associated with a self-help group: Compassionate friends. *Omega, 28*, 261-271.
- Wheeler, I. (2001). Parental bereavement: The crisis of meaning. *Death Studies, 25*, 51-66.
- Wortman, C. B., & Boerner, K. (2007). Beyond the myths of coping with loss: Prevailing assumptions versus scientific evidence. In H.S. Friedman & R.C. Silver (Eds.), *Foundations of Health Psychology* (285-324). New York, NY: Oxford University Press.
- Wickie, S. K., & Marwit, S. J. (2000). Assumptive world views and the grief reactions of parents of murdered children. *Omega, 42*, 101-113.

- Wood, A. M., Matlby, J., Stewart, N., & Joseph, S. (2008). Conceptualizing gratitude and appreciation as a unitary personality trait. *Personality and Individual Differences*, *44*, 621–632. doi:10.1016/j.paid.2007.09.028
- Yalom, I. D. (1980). *Existential Psychotherapy*. New York: Basic Books.

Table 1

Demographic Characteristics Of Community And Student Samples

Demographic Characteristic	Community Sample		Student Sample	
	<i>N</i>	%	<i>n</i>	%
Marital Status				
Married	151	43	57	2
Live with Partner	33	9	36	12
Widowed	74	21	0	0
Single	57	16	365	76
Divorced or Separated	37	11	17	3.5
Ethnicity ^a				
Caucasian	322	91	318	66
Hispanic or Latino/a	8	3	14	3
African/American	6	2	134	28
Asian	8	2	17	3
Other	14	4	11	3
Multiple Ethnicities Endorsed	12	3	21	4
Religious Affiliation ^a				
Protestant Christian	92	26	156	32
Catholic	90	26	110	23
Nondenominational Christian	73	21	85	18
Atheist	32	10	25	5
Agnostic	41	12	46	10
Jewish	10	3	5	1
Other	10	6	27	6
Multiple Religions Endorsed	13	4	7	1
Gender				
Male	15	4	121	25
Female	330	96	359	75

^a Total percentage is greater than 100 due to some participants endorsing multiple categories

Table 2

Loss Characteristics of Community and Student Samples

Loss Characteristic	Community Sample		Student Sample	
	<i>N</i>	%	<i>n</i>	%
Relationship to Deceased				
Aunt or uncle	5	1	70	15
Child, stepchild or foster child	115	33	1	<1
Close friend	12	3	78	16
Grandparent	11	3	214	44
Parent or caregiver	85	24	48	10
Sibling	26	7	12	3
Spouse or partner	76	22	0	0
Other relationship	22	6	60	12
Cause of Death				
Suicide	31	9	29	6
Homicide (incl. combat)	14	4	29	6
Accident	82	24	56	12
Prolonged illness ^a	136	40	250	52
Sudden illness	78	23	97	20
Age of Deceased				
Prenatal-10 years	27	8	5	1
10-20 years	43	12	53	11
20-40 years	96	28	74	15
40-60 years	136	38	185	39
60-80+ years	50	14	164	34
	Mean	Standard Deviation	Mean	Standard Deviation
Number of Losses in Past 10 Years	2.61	1.72	2.66	1.7
Religiousness ^b	4.33	1.8	4.04	1.87
Age (years)	45	12.3	25.3	7.63
Closeness to Deceased ^b	6.7	0.83	5.69	1.32
Distress at Time of Loss ^c	6.81	0.68	6.18	1.23
Time Since Loss (months)	38.57	34	46.62	36.72

^aProlonged illness was defined as a death resulting from an illness which began over two weeks before the individual's death.

^bCloseness to deceased was assessed using a seven-point Likert scale with endpoints "Not very close" and "Very close"

Table 3

Factor Loadings and Factor Correlations of Promax Rotation, Final PLSS Items

Item	Factor Loadings		
	Factor 1	Factor 2	Factor 3
16. I am energized by the things I want to do in my life.	0.88	0.01	0.02
5. I feel alive and full of vitality.	0.87	0.02	-0.05
17. I am deeply engaged in my life.	0.84	-0.05	0.09
6. I'm involved in activities that feel rewarding.	0.81	0.04	-0.04
1. I feel satisfied and fulfilled by the things I do.	0.78	0.14	-0.08
3. I try to live my life to the fullest.	0.78	0	0.09
8. I really care about the things I am doing with my life.	0.72	0.12	0.06
19. I am an active participant in my own life.	0.69	0.09	0.13
11. My life is empty.*	-0.02	0.92	-0.06
10. I feel I have nothing to live for.*	-0.12	0.86	0.17
18. I feel disconnected from the world.*	0.26	0.76	-0.2
2. There's nothing in my life that really matters.*	0.02	0.70	0.01
7. My life feels like a waste of time.*	0.07	0.68	0.17
14. My life feels pointless at times.*	0.18	0.68	-0.07
13. Life is too short to waste time on petty things.	-0.05	-0.09	0.72
12. The pain and suffering I've experienced connects me to other people who have also suffered.	0.02	-0.04	0.63
4. There are moments when I'm powerfully aware of how valuable life is.	0.12	0.16	0.5
9. Sometimes something so special or meaningful happens that I get choked up.	0.08	0.03	0.5
15. If you look closely, the world is a beautiful place.	0.21	0.16	0.42
Factor correlations			
Factor 1	--		
Factor 2	0.76	--	
Factor 3	0.7	0.65	--

^aItems marked with an asterisk are reverse-scored.

Table 4

Intercorrelations of Study Measures in Combined Community and Student Sample

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. PLSS	--													
2. PLSS-Active	.96	--												
3. PLSS-Negative	.90	.81	--											
4. PLSS-Receptive	.70	.59	.50	--										
5. MLQP	.79	.78	.72	.52	--									
6. SOC-29	.78	.77	.74	.47	.73	--								
7. TRIG	.43	.46	.41	.12	.37	.46	--							
8. PANAS-Positive	.82	.85	.71	.46	.71	.70	0.46	--						
9. PANAS-Negative	-.61	-.59	-.57	-.39	-.52	-.72	-.42	-.51	--					
10. CESD-10	-.63	-.64	-.63	-.35	-.57	-.73	-.45	-.61	.65	--				
11. WAS	.68	.69	.58	.49	.63	.68	.36	.60	-.51	-.52	--			
12. WAS-Benevolence	.47	.46	.38	.48	.41	.51	.14	.36	-.39	-.39	.70	--		
13. WAS-Self	.70	.70	.60	.50	.61	.65	.32	.62	-.53	-.50	.84	.48	--	
14. WAS-Meaning	.27	.30	.22	.08	.31	.27	.31	.29	-.16	-.24	.63	.10	.24	--
15. ISLES	.67	.69	.66	.29	.60	.70	.74	.65	-.57	-.61	.53	.28	.49	.36

Note. All correlations reported are statistically significant at $p < .05$.

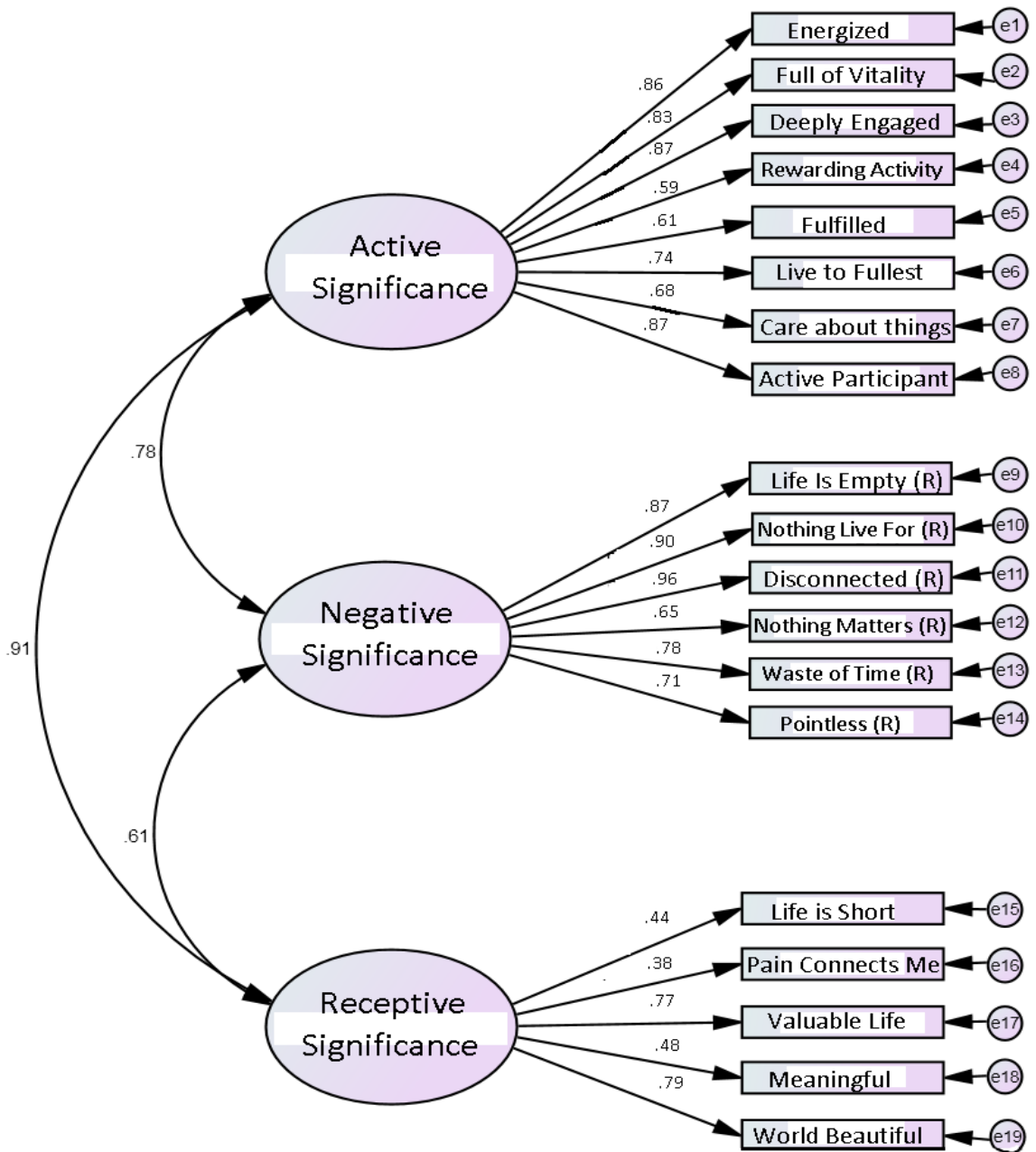


Figure 1. Standardized parameter estimates for confirmatory factor analysis of PLSS items. Latent constructs and error terms are shown in ellipses, and observed variables (PLSS items) are shown in rectangles.

Appendix A

Focus Group Script:

- 1) The investigator reviews the consent form and asks if any participants have questions. Participants hand in their signed consent forms.
- 2) The investigator welcomes all participants and asks each to share their name, where they live, and (briefly) the name of the person they lost, how long ago, and what relationship that person was to them.
- 3) The investigator reads the following introductory statement:

Thank you for taking the time to participate in our study. You were asked to participate because you all have something in common: the death of someone close to you. We're interested in finding out more about a specific aspect of your grief experience—the ways that people find meaning, value, and purpose in their lives after a loss. Many people cope with a significant loss by investing in new activities, placing new or greater emphasis on existing values and goals, or by appreciating aspects of their lives that they didn't pay as much attention to before the loss. I'm interested in whether or not these processes ring true for you, and how so. One reason it's so helpful to talk in a group is that we're just as interested in hearing about how people's experiences have differed as how they are the same, so don't be afraid to disagree with one another—just please be respectful of other participants.

You'll notice there's a tape recorder. That's because I'd like to be able to focus on what you're saying without having to write everything down. So please try to speak

clearly, one person at a time, to help us get a clear recording. Of course, when I transcribe the information from this tape for our research, I will remove any names and identifying information to ensure your confidentiality. I'd also like to ask everyone to please keep any information that you hear about other participants to yourselves for the same reason.

4) The investigator distributes the list of questions and says:

These are the questions I would like us to focus on today. I'll ask everyone to answer each question, though you may feel free not to answer if a question makes you uncomfortable. I may also ask some follow-up or clarification questions. Because we only have a limited time to talk, I may also need to interrupt at times to keep us on track.

Primary Questions:

- What are the elements of a meaningful, well-lived life?
- Are there specific events you've experienced in your life that have changed your personal views on meaning?
- Focusing specifically on bereavement, how has your most recent loss affected your view of life and what brings meaning?
- What mattered to you in life most before the loss? Since the loss?
- What aspects of your life brought you meaning before the loss? Since?
- What makes your life worthwhile today? Give specific examples.
- If you were confined to a bed due to illness, how would you make your life meaningful?

Appendix B

I feel satisfied and fulfilled by the things I do.

Each day is precious to me.

There's nothing in my life that really matters.

I could fill two lifetimes with all the exciting things I want to do.

I'm glad to be alive despite the pain and struggle I've felt.

Nothing I do or feel really means anything.

I try to live my life to the fullest.

I am in awe of the beauty and wonder of this life on Earth.

There are moments when I'm powerfully aware of how valuable life is.

I feel privileged by opportunities to make a difference in the world.

I am grateful for the chance to live each new day.

Everything feels gray and lifeless to me.

I have trouble finding beauty or meaning in anything.

If I could push a button and take away all the pain and struggle life brings, I would.

I do not feel really connected to anyone or anything in my life.

I notice everyday miracles like a sunny day or a spectacular view.

My life is worth living.

I have a clear sense of what really matters to me.

Nothing I do seems to matter much.

I feel alive and full of vitality.

The pain and suffering in my life seems to cancel out the positive things.

I'm involved in activities that feel rewarding.

I feel part of something bigger than myself.

I do things because I have to and not because I really want to.

My life feels like a waste of time.

I value my suffering because it's an important part of the human experience.

Some days I'm really just going through the motions, waiting for the day to be over.

I really care about the things I am doing with my life.

Sometimes something so special or meaningful happens that I get choked up.

I take great pleasure in the little things in life.

I feel part of something important and meaningful.

I feel I have nothing to live for.

My life is empty.

The pain and suffering I've experienced connects me to other people who have also suffered.

I have a clear sense of my own values and goals.

I do things mechanically, without really caring.

I feel a strong purpose in my life.

Life is too short to waste time on petty things.

I'm not sure what I have to contribute to the world.

I am looking forward to the rest of my life.

My life feels pointless at times.

If you look closely, the world is a beautiful place.

I am energized by the things I want to do in my life.

I feel so bitter that it's hard for me to connect with other people.

I have a clear understanding of my priorities in life.

I am deeply engaged in my life.

I feel disconnected from the world.

I am an active participant in my own life.