LONGITUDINAL ANALYSIS OF THE RELATIONSHIP OF EXISTENTIAL MEANING WITH DEPRESSION AND HOPE

A Dissertation

by

NATHAN MASCARO

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2006

Major Subject: Psychology

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Approved by:

Co-Chairs of Committee,	David H. Rosen
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ABSTRACT

Longitudinal Analysis of the Relationship of Existential Meaning

with Depression and Hope. (August 2006)

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Although researchers are now able to assess reliably the variable of existential meaning, quality longitudinal investigations of meaning's relationship with specific clinical variables are scarce. The author conceptualizes existential meaning as a composite of personal, spiritual, and implicit meaning. These latter three variables are, respectively, the experience of one's particular life as having purpose and coherence, experiencing a transcendent or spiritual presence from which one derives a sense of unique purpose, and manifesting attitudes and behavior that are normatively valued. Utilizing a sample of 395 male and female undergraduates and employing the framework subscale of the Life Regard Index-Revised (LRI-R-framework), the Spiritual Meaning Scale (SMS), and the Personal Meaning Profile (PMP) to measure personal, spiritual, and implicit meaning, respectively, the author explored existential meaning's relationship over time with depressive symptoms (as measured with the Beck Depression Inventory-II, depression scale of the Depression Anxiety Stress Scales, and depression scale of the Personality Assessment Inventory) and hope (as measured with the Herth Hope Scale, the Adult State Hope Scale, and the Beck Hopelessness Scale). A latent cross-lagged panel analysis of the relationship between meaning and depression over 2 one-month time periods indicated that meaning exerted unidirectional influence on depression, with decreases in meaning leading to increases in depressive symptoms. Additionally, hierarchical regression analysis showed that individuals

with low levels of existential meaning were more likely than those with higher meaning levels to experience increased symptoms of depression in response to increased stress levels. Because the newly developed SMS (appended to this paper) was the only meaning measure exhibiting sufficient discriminant validity with regard to hope, only the SMS was entered in cross-lagged panel analysis measuring its relationship to hope over the 2 one-month periods of time, with results indicating that spiritual meaning and hope reciprocally influence one another. Existential meaning seems appropriately conceptualized as a construct consisting of personal, spiritual, and implicit components. Because this construct can be assessed reliably and may play a role in the etiology and alleviation of depressive symptoms, the author calls for increased research within clinical settings on methods for optimizing individuals' levels of existential meaning.

DEDICATION

My work is dedicated to my wife, Jenny, and my parents, David and Kathy. I am thankful for their presence in my life more than anything else. What secure and sublime happiness comes from knowing that my life's purpose is to love them and the virtue they embody.

ACKNOWLEDGMENTS

I have both enjoyed and accomplished far more during this process than I had anticipated due to David Rosen's kindness, motivation, and friendship, and due to the wisdom and patience of Les Morey, who has taught me to measure things with thoughtfulness as well as statistics. I must also acknowledge Antonio Cepeda-Benito and Michael Duffy for the support and suggestions they offered during this project. Each of my committee members has made a valuable contribution to this dissertation, and to each I am ever grateful. In addition, I am thankful for the many undergraduates on Dr. Rosen's research team, who put in hours of work administering questionnaires and entering data. Finally, without Chris Hopwood's ancient copy of AMOS, I would not have been able to run panel analyses on my home computer late into the night.

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INTRODUCTION

Brief History of the Scientific Study of Existential Meaning

The Existential Position. The notion that perceived meaning in life, or existential meaning, is an important factor in promoting well-being has been with us at least implicitly since the beginning of human thought. As evinced by the ubiquity of religion and metaphysical as well as ethical philosophy across diverse cultures throughout history (Smith, 1991), humans have ever sought to make sense of their existence, putting it into a broader framework that provides reasons for our being here, reasons for our continuing to perpetuate life and delay death, and reasons for conducting ourselves in one manner rather than another. It is perhaps a necessary component of being human to ask "why" questions about our individual lives, about life itself, and about existence in general, with the "answers" to such questions emerging out of our relationships with one another, our relationship with the world, our relationship with whatever transcends this world, and our relationship with our deepest self-consciousness. Humanity's pervasive will towards finding meaning in existence implies that the pursuit of, and some degree of resolution about existential meaning is valuable, healthy, and adaptive.

During the years immediately preceding and following one of the more absurd chapters in human history, WWII and the holocaust, anticipation of modern humanity's particular vulnerability to the sufferings of existential neurosis and meaninglessness were bubbling into the collective consciousness of intellects of the time, including some prominent students of Freud. For instance, Carl Jung (1933) claimed that the cause of neurosis in the modern patient was "having no love, but only sexuality; no faith, because he is afraid to grope in the dark; no hope, because he is disillusioned by the world and by life; and no understanding, because he has failed

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This dissertation follows the style and format of *Journal of Consulting and Clinical Psychology*.

to read the meaning of his own existence" (p 260). Putting it more simply he said, "a psycho-neurosis must be understood as the suffering of a human being who has not discovered what life means for him" (p 260). However, though Jung was unambiguous in citing meaningless as the fundamental clinical concern for modern humans, current clinical research on existential meaning descends more directly from another of Freud's students. It was Viktor Frankl who brought the study of existential meaning solidly under the scrutiny of clinical psychologists and psychiatrists in 1946, with his *From Death Camp to Existentialism*, in which he described the human quest for meaning and outlined an existential psychology (Frankl, 1992*)*. In this original German version of the more famous and later published *Man's Search for Meaning*, Frankl described the three primary components of his clinically oriented, existential psychology. These components are freedom of the will, the will to meaning, and the meaning of life (Frankl, 1966; Frankl, 1988; Frankl, 1992; Wong, 1998a; Barnes, 2000). According to Frankl's theory, freedom of the will refers to the importance of affirming one's freedom to choose one's behavior and attitudes throughout life, despite limiting conditions and inevitable hardships such as suffering, guilt, and death. The second concept, the will to meaning, involves the vital and uniquely human motivation towards a self-transcendent purpose, or a thing greater than oneself in which one might participate and thereby contribute to humanity, existence, life, etc. According to Frankl, to ignore the will to meaning and rather make pleasure or avoidance of suffering one's primary aim is to turn one's proper end on its head and engage in pursuits that will inevitably be self-destructive. The third part of Frankl's theory, the meaning of life, involves an understanding that life has a unique purpose for each of us that is present even through seeming absurdity. Frankl described reaching this understanding as uncovering not ". . . what we expected from life, but rather what life expected from us" (Frankl, 1992, p 85). For Frankl, acknowledgement and embodiment of these three principles within one's life was vital, for otherwise, an existential

neurosis could occur that might lead to addiction, depression, or death (often by suicide).

The existential psychology that emerged from Frankl's work, and its relevance to mainstream clinical psychology, has been summarized many times, with particularly clear expositions by Maddi (1967), Yalom (1980), Reker (2000), and Wong (1997 & 1998a). Most relevant to clinical psychology is the diathesis-stress model of existential neurosis. Maddi (1967) describes existential neurosis as manifesting through cognitive symptoms of perceived meaninglessness and a lack of value for one's activities, affective symptoms of boredom, a conspicuous lack of emotion, and depressive mood, and behavioral symptoms of disengagement from activity. The diathesis or premorbid attitude involved in existential neurosis is often called an existential vacuum, and it is presumed to involve a reductionist, or "nothing but . . ." (Yalom, 1980), view of oneself and humanity. Someone experiencing an existential vacuum conceptualizes ideals and values as illusory, as nothing more than epiphenomena resulting from biological drives and environmental pressures (Maddi, 1967), and as a result will feel "powerless against social pressures from without, and powerless in the face of biological pressures from within" (p 315). In contrast, what Maddi (1967) calls the *ideal* attitude involves viewing the self as purposive, as determining itself by making decisions, and as engaging conscientiously in "imagination, judgment, and symbolization" (p 319). The influence of biological and social drives on thought, behavior, and affect ought to be acknowledged, but the healthy individual presumably sees herself as determined mostly by her commitments to certain values and her decisions to fulfill particular intentions based on those values. When faced with stressors such as environmental change or biological malfunction, the individual with the ideal or meaning-filled view is able to transcend her current distressing conditions because she views herself as able to determine her attitude with respect to suffering (freedom of the will), she is invested in pursuits that are beyond her own self-interest (will to meaning), and she is adept at finding meaning even

through absurdity (meaning of life). On the other hand, individuals with the premorbid or reductionist view will decompensate due to an inability to transcend and derive meaning from the immediate, unpleasurable circumstances that they might face.

Existential neurosis could be considered the disorder of our age: Consider the demise of activities that Fabry (1998) has noted engage humans in vertical or transcendent cogitation, such as metaphysical philosophy and religion, as well as the concurrent rise of reductionism and hedonism. Such a situation promotes a belief that ideals and values are illusory and that the phenomena we would perceive as meaningful (e.g., love, altruism, and spirit) are reducible to *less* meaningful phenomena (e.g., dyadic interactions among microscopic, material particles). Contrast this nihilistic attitude with a more inspiring and spiritual one, which suggests that underlying the various phenomena we consider meaningful is something incomprehensibly *more* meaningful. Due to the particular relevance of existential neurosis for current society, the antidote to this disorder (i.e. existential meaning) is an important topic of study.

Despite the obvious importance of studying existential meaning, empirical investigation of the psychosocial causes and consequences of the perception of meaning in life has crept at a snail's pace. The main reason for this seems to be that those interested in the study of meaning have shied away from thorough quantification and measurement (Harris & Standard, 2001). One manifestation of this problem is that the Purpose In Life Test (PIL, Crumbaugh & Maholick, 1964; Crumbaugh, 1968) has for too long been the most popular existentially oriented standardized assessment instrument. The PIL is based on a vague conceptualization of existential meaning (Yalom, 1980), it has a complex and inconsistent factor structure that does not parallel theory underlying the measure's development (Reker & Cousins, 1979; Dufton & Pearlman, 1986, as cited in Pargament, 1999; Chamberlain & Zika, 1988a; Reker, 2000), and there is little support for its convergent and discriminant validity, that is, little evidence that it measures

perceived meaning in life versus life satisfaction (Yalom, 1980), social desirability (Braun & Dolmino, 1978), or depression (Dyck, 1987). Yalom (1980) criticized the PIL's content validity and conceptual clarity, noting that it confuses existential meaning per se with variables that, while perhaps related to or influenced by meaning, are not definitive of the construct. One illustration of this problem is a study (Lester & Badro, 1992) in which it was demonstrated, using the PIL as a measure of meaning, that existential meaning could predict variance in suicidality beyond the variance predicted by the Beck Depression Inventory. When conducting their analyses, the researchers deleted the suicide question contained in the Beck Depression Inventory because it was obviously confounded with the dependent variable, suicidality. They did not mention that the PIL itself has a suicide question, and they did not mention whether or not they deleted that question before conducting their analyses, an act of omission that could make the study's results misleading.

Current Theory and Research

Personal Meaning. One lesson learned from the lack of conceptual clarity underlying the PIL's development and its consequent psychometric and content related inadequacies is that it is important to have a straightforward definition of existential meaning which can underlie our assessment instruments. Yalom (1980) noted that when discussing meaning, we usually are referring to a sense of coherence or understanding of our existence as well as a sense of purpose, direction, or function towards which we can aim. The twin concepts of coherence and purpose are indeed the primary focuses in other theorists' thinking about existential meaning. For example, Reker (2000) defines the construct as "the cognizance of order, coherence, and purpose in one's existence, the pursuit and attainment of worthwhile goals, and an accompanying sense of fulfillment." Battista and Almond (1973) define meaning as having a positively valued life framework or philosophy that one sees oneself as fulfilling. Klinger's (1998) etymological

analysis suggests that meaning's essence involves "intentionality and purpose", and Frankl's (1992) definition of meaning as perceiving oneself as having a unique purpose or function to fulfill has been discussed already. An integrative definition of existential meaning based on these definitions is, *perceiving oneself as having a coherent framework for viewing life that provides a sense of purpose or direction, which, if lived with in accord, can lead to a sense of fulfillment*.

The earliest conceptualization of meaning consistent with the integrative definition just provided and from which was developed a measurement instrument with adequate psychometric properties was that of Positive Life Regard, developed by Battista and Almond (1973). Battista and Almond defined positive life regard as an individual's having a general framework or philosophy for viewing her life and having a sense of fulfillment related to living in accord with that framework. They constructed the life regard index (LRI) to assess this construct. The LRI has two sub-scales, one measuring an individual's having arrived at a framework or philosophy of life (i.e. LRI-framework), and the other measuring the individual's perceiving herself as living in accord with that framework or philosophy (LRI-fulfillment). The two sub-scales can be summed to form an overall life regard or existential meaning score.

Most analyses of the LRI's construct validity suggest that it is an adequate to good measure of existential meaning. Factor analyses conducted within various populations support the instrument's factorial validity (Chamberlain & Zika, 1988a; Debats, 1990; Debats, Van Der Lubbe, & Wezeman, 1993; Van Ranst & Marcoen, 1997), that is, the extent to which its items cluster together statistically in a way that parallels the theory underlying the measure's development. The two sub-scales have a correlation of $r = .54$ (Debats, 1990), and LRI scores, framework scores, and fulfillment scores have been found to have 5-week test-retest reliabilities of $r = .80$, .73, and .79, respectively (Debats et al., 1993). Regarding criterion validity, LRI scores are related to respondents answering affirmatively to the question, "Is there any

philosophy of life that has any significance to you at the moment?" (Debats, 1990), degree of self-reported commitment to meaningful activities (Debats, 1999), self-reported incidents of having found meaning through coping with crises, as well as the number of words used for describing moments of perceived meaning in life (Debats, Drost, & Hansen, 1995).

Harris and Standard (2001) investigated the LRI-Revised (LRI-R), which is a more recent version of the LRI developed by Debats (1998). This measure is a slight reworking of the original in that its items are in a different order and three items were slightly reworded. When Harris and Standard factor analyzed the scale within a heterogeneous population of US adults ranging in age from 20 to 80 years, two primary factors emerged. All but one of the framework items loaded most substantially on the factor defined primarily by framework items and all but 4 of the fulfillment items loaded most substantially on the factor defined primarily by fulfillment items. For further review and discussion of the LRI, see Debats (1998) and Reker (2000).

In terms of its factor structure, internal consistency, convergent validity, and criterion validity, the LRI passes most tests adequately, but there is a troubling issue on which the LRI warrants the same type of criticism that can be leveled at the PIL. The LRI's Fulfillment sub-scale to a large degree taps a sense of feeling good about one's life. (Consider these items*: Living is deeply fulfilling; I really feel good about my life; Other people seem to feel better about their lives than I do;, When I look at my life I feel the satisfaction of really having worked to accomplish something; I have real passion in my life; I feel that I'm really going to attain what I want in life; I get so excited by what I'm doing that I find new stores of energy I didn't know that I had; Nothing very outstanding ever seems to happen to me; I feel that I am living fully*). Such items tap directly the variables that the LRI is often used to predict (such as elation, emotional well-being, and depression). Thus, these outcome variables to an extent define the measure being used to predict them, and significant relationships between LRI-fulfillment and these variables

are virtually guaranteed. The LRI-fulfillment sub-scale should therefore not be used to predict emotional constructs that primarily involve feeling good or bad about one's life, because LRI-fulfillment is a direct measure of these constructs. But because the LRI is separated into fulfillment and framework sub-scales, the primarily cognitive aspect of having meaning (having a framework for viewing one's life) can be examined separately from the rather affective consequences of living up to one's meaning (feeling fulfilled by one's framework and one's living in accord with it.) If one is aiming at a conservative assessment of the relationship between meaning and psychological health (i.e., an approach which is least likely to *guarantee* the results one "is looking for"), then the author suggests that the LRI-framework most purely taps the concept of existential meaning, whereas the LRI-fulfillment sub-scale taps the self-efficacy required to live up to one's meaning and the affective quality resulting from the fulfillment of that meaning.

Spiritual Meaning. The concept of existential meaning as measured by the LRI-R-framework involves viewing one's individual life as having meaning, but it does not necessarily involve viewing life itself as having meaning. The LRI-R-framework assesses what Yalom (1980) calls “terrestrial meaning”, which is distinct from what he calls “cosmic meaning”. For Frankl (1988 & 1992), an individual's purpose in life was not something to be created based on that individual's preferences in life or expectations for life, but it was rather given to the individual by life itself, based on life's expectations for that individual. By using such language, Frankl moved beyond mere personal meaning into transpersonal, cosmic, or what the author terms spiritual meaning. Spiritual meaning is not conceptualized as a mere construct of the individual but as something that inheres in existence itself. It is a capital "M" Meaning around which one can form a small "m", personal meaning. As Yalom (1980) notes, spiritual, transpersonal, or cosmic meaning has often been derived from religion. And although religious

views differ on *how* existence comes to have meaning, they tend to share the idea that life somehow has or has been given its own intentional or purposive quality to which one can relate and with which one can harmonize. It is not the case necessarily, however, that perceiving life as having meaning need derive from religion. Through philosophical engagement, through relationships, and through various other experiences, people can discover "on their own" what they perceive as life's meaning, such that the author defines perceived cosmic, transpersonal, or spiritual meaning as *belief that life or some force of which life is a function has a purpose, will, or way in which individuals participate.* This definition captures the sense that spiritual people have that they are participants in something that transcends them. And inasmuch as spiritual people believe that we are all participants in, or parts of whatever is believed to be life's meaning, we each have particular purposes or functions to play in manifesting that meaning. This links the construct of spiritual meaning to one of “calling”, or of feeling called on by Life (or Tao, God, Self, Dharmakaya, Being, or whatever Force it is in which one believes oneself to be a participant) to proceed in a certain direction. This notion of calling, as well as the idea of participating in an overarching meaning that transcends oneself, makes the idea of spiritual meaning unique, potentially relevant to psychological well-being, and therefore worthy of further empirical investigation.

A measure of existential meaning is desirable that taps a perception of spiritual meaning that is not necessarily linked to a particular religion. Mascaro, Rosen, and Morey (2004) constructed such a measure, now called the Spiritual Meaning Scale (SMS), that is not geared towards a particular religion, but measures the extent to which a person believes that *life or some force of which life is a function has a purpose, will, or way in which individuals participate*. The SMS (Mascaro et al., 2004) is a single scale, 14-item self-report inventory that asks respondents to rate its items on a 5-point scale ranging from *I totally disagree* to *I totally agree*. Items were

chosen for the inventory that a group of professors of philosophy and psychology, as well as Ph.D. graduate students in clinical psychology, rated as fitting adequately with the Spiritual Meaning construct as defined by the author. When subjected to factor analysis within a population of undergraduates, the SMS's items loaded on one major factor, with items loading on that factor between .46 and .70 (Mascaro et al., 2004). The scale was correlated with conceptually related measures such as the LRI-R-framework and the later-to-be-discussed Personal Meaning Profile (Wong, 1998b). The SMS was not correlated with short form A (Reynolds, 1982) of the Marlowe-Crowne Social Desirability Scale, and it was positively correlated with need for cognition (r = .21), or the tendency to enjoy and engage in objective thought. The small but positive correlation with need for cognition is important, because a high spiritual meaning score should reflect an objective thinking style rather than an unreflective thinking style that might be more susceptible to uncritical acceptance of externally imposed dogma.

Implicit/Informal Meaning. A newly explicated, meaning-related construct that the author feels is worthy of increased attention is that of implicit or informal meaning. Existential meaning is a universal concept that belongs to people in general, not just to researchers. Respecting this fact, Wong (1998b) thought it important to analyze the notions of lay people about factors that comprise a meaningful life. Using qualitative and then factor analytic techniques, Wong isolated seven factors that are normatively viewed as characteristic of someone whose life has meaning. These factors are achievement (i.e. pursuit and attainment of significant life goals), relationship (i.e. general social adeptness), religion (i.e. having affirmative beliefs about and a relationship with the divine), self-transcendence (i.e. engagement in selfless pursuits that have beneficial effects on those besides the individual), self-acceptance (i.e. a humble acceptance of one's limitations), intimacy (i.e. having emotionally close and loving

relationships), and fair treatment (i.e. perceiving a degree of justice in one's life). Wong constructed the Personal Meaning Profile (PMP) as a measure of the extent to which individuals report exemplifying these seven factors in their own lives. He constructed the measure based on factor analyses and the extent to which subjects rated each item as "characteristic of an ideally meaningful life."

The latest version of the PMP is a 57-item, Likert format self-report inventory that measures the extent to which an individual reports valuing and successfully pursuing those areas that are normatively viewed as comprising a meaningful life. The measure consists of seven sub-scales corresponding to the seven categories listed above. The sub-scales can be analyzed separately or they can be summed to form a PMP-total score. Wong found the PMP and its seven sub-scales converged with criterion items such as *My life as a whole has meaning; I led a meaningful life in the past; At present, I find my life very meaningful; I look forward to a meaningful life in the future;* and *I derive a great deal of personal meaning from my future expectations*. In other analyses of its construct validity, the PMP has been found to converge with the conceptually related LRI-framework and SMS (Mascaro et al., 2004; Mascaro & Rosen, 2005). However, the PMP has also been found to have a substantial correlation with short form A of the Marlowe-Crowne Social Desirability Scale, indicating that social desirability should be controlled in analyses using the PMP (Mascaro & Rosen, 2005).

Existential Meaning and Mental Health. Most of the quality research on existential meaning's relationship with mental health involves the LRI-framework. Within various populations, LRI-framework has been found to be related (in the appropriately healthy directions) to positive affect, negative affect, and life satisfaction (Chamberlain & Zika, 1988b; Zika & Chamberlain, 1992); anxiety and depression (Zika & Chamberlain, 1992; Debats, 1990; Debats et al., 1993); happiness (Debats, 1990; Debats et al., 1993; Debats, 1996; Scanell et al.,

2002); emotional dyscontrol and psychological well-being (Zika & Chamberlain, 1992); elation (Dabats, 1990); spiritual well-being (Harris & Standard, 2001; Scannell et al., 2002); hopelessness (Harris & Standard, 2001); and agoraphobia, somatization, dependency, sleep disturbance, and general psychological distress (Debats et al., 1993). With respect to more conservative and thorough analyses, Mascaro et al. (2004) found the LRI-R-framework to predict variance in depression and hope beyond the variance predicted by the Big Five personality factors and social desirability. In a rare longitudinal study of LRI-framework, Debats (1996) analyzed pre- and post-treatment levels of psychiatric symptoms, happiness, and self-esteem in 105 patients with various, non-psychotic disorders as determined by DSM-III criteria. Participants' LRI-framework levels at pre-treatment predicted post-treatment happiness and symptom levels, controlling for initial happiness and symptom levels. In another longitudinal study with a non-clinical, undergraduate population, LRI-R-framework scores at baseline predicted levels of depression and hope two months later, controlling for baseline levels of hope, depression, social desirability, and the Big Five (Mascaro & Rosen, 2005).

The newly developed PMP and SMS, measures of implicit meaning and spiritual meaning, respectively, are also related to mental health. Both instruments are predictably correlated with measures of depression, anxiety, hope, and antisocial characteristics, and both are related to all these variables except for anxiety when variance is removed that is attributable to the Big Five personality factors and social desirability (Mascaro et al., 2004). Moreover, in a longitudinal investigation, the PMP at baseline predicted levels of depression and hope two months later, controlling for initial levels of depression, hope, social desirability, and the Big Five (Mascaro & Rosen, 2005).

Evidence supporting the clinical importance of meaning comes not just from the three self-report measures noted above. In Jung's (1933) classic work, *Modern Man in Search of a*

Soul, he maintained that a substantial percentage of his patients suffered from meaninglessness secondary to a loss of spiritual orientation. Related to this, he stated: "Among all my patients in the second half of life—that is to say, over thirty-five—there has not been one whose problem in the last resort was not that of finding a religious outlook on life . . . and none of them has been really healed who did not regain his religious outlook. This of course has nothing whatever to do with a particular creed or membership of a church" (p 264). Sticking closer to quantitative evidence, Yalom (1980) describes a study of 40 outpatients in which 12 to 22 percent of them (depending on whether the assessment was that of the patients or a group of clinicians) had problems centering around existential meaning. These numbers may increase in different populations. Consider that 40% of cancer patients report needing help "finding meaning in my life now" and 28% specifically report needing to talk with someone "about the meaning of life" (Moadel et al., 1999). In addition, undergraduates who reported having experienced times when they felt their lives were meaningless were more likely to have required psychological counseling (Debats et al., 1995). Finally, Addis, Truax, and Jacobson (1995) cited *existential concerns* as one of 8 major reasons people report for becoming depressed. It thus appears that perceptions of existential meaning or lack thereof have important ramifications for the mental health professions.

There is considerable evidence suggesting that existential meaning is related to psychological health in general. However, there is a dearth of *longitudinal* research that could speak more directly to existential meaning's etiological significance with respect to specific clinical phenomena. It is for this reason that the author conducted the present two-month long study of the influence of existential meaning, as assessed by the three measurement instruments herein reviewed (i.e. the PMP, SMS, and LRI-R-framework), on depression as well as on the positive variable of hope, which has been demonstrated to have profound effects on mental

health (Beck, Weissman, Lester, & Trexler, 1974; Beck et al., 1990; Arnau, Rosen, Finch, & Rhudy, 2002; Snyder, 2002). With meaninglessness being such a unique issue for contemporary society, it is important to study its consequences, so as to expose a potentially powerful driving force behind a large proportion of the hopelessness and depression that we currently face. In the current study, longitudinal design, powerful statistical procedures, and quality measurement devices were utilized in order to assess in a scientifically thorough manner the role played by existential meaning in the promotion of hope and alleviation of depressive symptoms.

PROPOSED STUDY AND HYPOTHESES

The primary aim of the present study was to investigate the relationship of existential meaning as measured by total scores from the Personal Meaning Profile (PMP), the framework sub-scale of the Life Regard Index-Revised (LRI-R-framework), and the Spiritual Meaning Scale (SMS), with the variables of depression and hope over two one-month time periods. The author's first hypothesis was that the common factor of existential meaning tapped by the SMS, LRI-R-framework, and PMP influences and is also influenced by hope and depression. The PMP, LRI-R-framework, and SMS were chosen to measure existential meaning primarily for three reasons: 1, because they each approach the concept of existential meaning from a slightly different angle while maintaining moderate to high correlations with one another and tapping the core concepts of coherence and purpose; 2, because they have good psychometric characteristics and are not confounded by the variables in relationship to which they would be assessed; and 3, because the point where the three constructs converge seems special—that is, the point where an individual perceives meaningfulness in life itself, is able to generate a specific purpose for herself as an individual, and manifests those qualities that would cause others to judge her life as meaningful. Of final note with regard to the assessment of meaning is that the SMS and LRI-R-framework measure an explicit sense of meaning (i.e. an individual's overt awareness of meaning in life), whereas the PMP measures an implicit sense of meaning (i.e. an individual's reported engagement in meaningful behavior and thought without necessarily reporting an explicit sense of meaning in life). Mascaro and Rosen (2005) found that measuring meaning at both explicit and implicit levels results in a more thorough and clinically relevant form of assessment.

It was decided to study meaning in relationship to hope and depression because Frankl's initial contention was that having meaning in life allows for hope even in virtually hopeless

situations (Frankl, 1992). Also, the existential neurosis (Frankl, 1988, 1992; Maddi, 1967) that can presumably result from a lack of existential meaning involves symptoms that would clearly qualify it as being a form of depression. Moreover, the construct of existential meaning is future looking and involves engagement, motivation, and direction. If you consider the person who is not future-looking, who is disengaged, not motivated, and without direction, such a person is essentially depressed and hopeless. It was supposed, therefore, that gains in levels of existential meaning would lead to decreases in depressive symptoms and increases in hope, while losses of existential meaning would lead to increased depression and hopelessness. However, because depression and hopelessness are powerful, perseverating conditions that broadly affect cognition, affect, and behavior, the author also postulated that increases in these variables would lead to slight decreases in levels of existential meaning.

The author’s second main hypothesis was that existential meaning acts as a resiliency/vulnerability factor in the face of stress caused by negative life events. Therefore, it was predicted that the influence of existential meaning on depression and hope would be more powerful in interaction with negative life events than under low stress conditions (or correspondingly that the unhealthy relationship of stress with hopelessness and depression would be ameliorated for individuals with a solid sense of existential meaning). This is in accord with Frankl's (1992) and Maddi's (1967) contention that existential neurosis results from an interaction between negative life events and low levels of existential meaning.

A final issue the author wished to explore involves the idea that different forms of meaning (particularly spiritual versus personal meaning) might be more likely than others to mediate mental health outcomes in different types of people. Specifically, the author hypothesized tentatively that higher levels of internal locus of control are linked to an *increased* relationship between *personal* meaning and depression/hope, while they are linked to a

decreased relationship between *spiritual* meaning and depression/hope.

METHODS

Participants

The author recruited 574 undergraduates participating in the Texas A&M Psychology Department's subject pool. Students participating in the Introductory Psychology at Texas A&M are required to participate in 5 credits worth of research. On an internet-based form where students volunteered for participation, the nature of the study was described briefly, and it was indicated that by completing the baseline testing session, a student would receive 1 credit, and that completing each testing session after that would give her/him 1 credit per session.

Over the course of three testing sessions (each separated by one month), 214 (37%) of the original 574 volunteers either dropped out of the study or failed to properly complete the survey. However, 35 of those who did not complete the entire survey were missing only a few items, so these people were included in the study after each of their missing items was replaced with the mean score for that item. This resulted in an attrition rate of 179 (31%) and a final sample of 395. Relative to those who did not complete the study, the 395 completers did not score differently (to a degree that was statistically significant) on any measure expect for the Adult State Hope Scale ($p < .05$). Therefore, there is minimal to no evidence that attrition significantly affected the study, and all analyses reported in the remainder of this paper were conducted on the final sample of 395.

The sample of 395 completers was homogeneous in terms of age, ethnicity, and spiritual orientation. The mean age was 19.01 ($SD = 2.08$), and 95% of participants were between the ages of 18 and 21. Fourteen individuals (3.5% of the sample) described themselves as Asian, 7 (1.8%) as Black, 321 (81.3%) as Caucasian, 39 (9.9%) as Hispanic, 1 (0.3%) as Native American, and 13 (3.3%) as some other unidentified ethnicity. Regarding spiritual orientation, 8 individuals (2.0% of the sample) described themselves as Agnostic, 5 (1.3%) as Atheist, 2

(0.5%) as Buddhist, 359 (90.9%) as Christian, 1 (0.3%) as Deist, 1 (0.3%) as Hindu, 1 (0.3%) as Islamic, 2 (0.5%) as Jewish, 1 (0.3%) as Polytheistic, and 15 (3.8%) as some other unidentified spiritual orientation. Two hundred seventy two individuals (68.9% of the sample) reported that they were female, 122 (30.9%) that they were male, and one individual (0.3%) did not report gender.

Procedure

Once participants arrived at the initial testing session, the nature of the study was described to them and they indicated their consent by signing a written informed consent form outlining the nature of participation. At this point, they were administered all the measures included in the study. When they were done completing all the measures, they were given their one point of research credit. Next, arrangements were made for meeting to complete similar measures on a date one month after the initial session, then one month after that time point. Each student who agreed to return for the subsequent time points was reminded via email within 4 days of her/his scheduled session. In each wave of the study after the first, students received one credit point, thus giving participants a maximum of 3 credits towards the 5 required by their introductory psychology course.

Materials

Meaning. Three measures were used to assess the variable of existential meaning: the most recent version of the Spiritual Meaning Scale (SMS, Mascaro & Rosen, 2006), which is different from the original (Mascaro et al., 2004) only in that an additional item was added (i.e., *There is something purposeful at the heart of this world*), the Personal Meaning Profile (PMP, Wong, 1998b), and the framework sub-scale from the Life Regard Index-Revised (LRI-R-framework, Debats, 1998). The SMS (with its newly added item) is a 15-item, Likert format self-report inventory assessing the extent to which individuals believe that life has inherent meaning

in which they and other individuals participate. It includes such positively worded items as *Life is inherently meaningful* and *There are certain jobs, activities, or services to which I feel called*, and such negatively worded items as *There is no reason or meaning underlying human existence* and *There is no particular reason why I exist*. Participants indicate their degree of agreement with each statement on a 5-point scale. In the present study, the SMS had coefficient alphas of .90, .92, and .93 at times 1, 2, and 3, respectively. Its one-month test-retest reliability from time 1 to 2 and from time 2 to 3 was .82, and its two-month test-retest reliability was .78.

The PMP is a 57-item, Likert format self-report inventory assessing the extent to which individuals exhibit the attitudes and behaviors that are normatively judged as comprising a meaningful life. Such attitudes and behaviors fall into the categories of achievement, relationships, religion, self-transcendence, self-acceptance, intimacy, and fair treatment, with each category represented by a sub-scale of the PMP. The PMP's sub-scales can be summed to form a total score, which was used in the present study. Representing the domains of achievement, relationship, religion, self-transcendence, self-acceptance, intimacy, and fair treatment, respectively, the PMP contains such items as *I strive to achieve my life goals; I care about other people; I am at peace with God; I strive to make this world a better place; I accept my limitations; I have someone to share intimate feelings with;* and *I have found that there is rough justice in the world*. Participants indicate their degree of agreement with each item on a 7-point scale. In the present study, the PMP had coefficient alphas of .96, .97, and .97 at times 1, 2, and 3, respectively. Its one-month test-retest reliability from time 1 to 2 and from time 2 to 3 was .83, and its two-month test-retest reliability was .78.

The LRI-R-framework is a 14-item, Likert format self-report scale assessing the extent to which an individual reports having a framework or philosophy for living. It includes such positively worded items as *I feel like I have found a really significant meaning for leading my*

life and *I have a philosophy of life that really gives my living significance*, and such negatively worded items as *I really don't have much of a purpose for living, even for myself* and *I really don't believe in anything about my life very deeply*. Participants indicate their degree of agreement with each statement on a 3-point scale. In the present study, the LRI-R-framework had coefficient alphas of .82, .85, and .86 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .75 from time 1 to 2, .79 from time 2 to 3, and its two-month test-retest reliability was .74.

Depression. Depression was measured using the depression scale from the Personality Assessment Inventory (PAI-dep; Morey, 1991), the depression scale from the Depression Anxiety Stress Scales (DASS-dep; Lovibond & Lovibond, 1995a), and the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The DASS is a 42-item, Likert format self-report inventory that divides into three scales that measure depression, generalized anxiety symptoms, and the more physiological symptoms of anxiety that often characterize panic attacks. The DASS has been shown to have excellent reliability and validity, and to compare favorably to the Beck Depression and Anxiety Inventories (Lovibond & Lovibond, 1995b; Brown, Chorpita, Korotitsch, & Barlow, 1997). The DASS-dep contains items such as *I couldn't seem to experience any positive feelings at all* and *I felt sad and depressed,* for which participants indicate the extent to which the statement has characterized them, on a 4 point scale, over the past week. Item number 38 of the DASS, *I felt that life was meaningless*, was eliminated from all analyses because it is confounded with the independent variable of existential meaning. With this item deleted, the DASS-dep had coefficient alphas of .92, .91, and .93 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .52 from time 1 to 2, .67 from time 2 to 3, and its two-month test-retest reliability was .46.

The BDI-II is a 21-item self-report inventory measuring depressive symptomatology.

For each item, the participant chooses one of four self-evaluative statements that range in severity from 0 to 3 and that might have characterized him or her over the past 2 weeks. There is strong support for the validity of the BDI-II and its incremental utility relative to the original BDI (Beck et al., 1996*;* Dozois, Dobson, & Ahnberg, 1998). It contains items ranging in severity from *I do not feel sad* to *I am so sad or unhappy that I can't stand it,* and from *I do not feel I am worthless* to *I feel utterly worthless.* In the present study, the BDI-II had coefficient alphas of .87, .92, and .92 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .67 from time 1 to 2, .72 from time 2 to 3, and its two-month test-retest reliability was .66.

The Personality Assessment Inventory (PAI) is a broad ranging, clinical assessment device created for measuring "constructs that are central in treatment planning, implementation, and evaluation" (Morey, 1999, p 1083). The 344-item, Likert format self-report inventory contains 11 clinical scales, one of which is the 24-item depression scale, that measure clinical dysfunctions. The reliability and construct, criterion, and face validity of the PAI have been analyzed extensively and supported (Morey, 1999). The PAI-depression scale (PAI-dep) contains such positively worded items as *Much of the time, I'm sad for no real reason* and *I hardly have any energy*, and such negatively worded items as *I have no trouble falling asleep* and *Lately I've been happy much of the time*. Participants rate these items on a 4-point scale. In the present study, the PAI-dep had coefficient alphas of .87, .89, and .91 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .70 from time 1 to 2, .78 from time 2 to 3, and its two-month test-retest reliability was .65.

Hope. The variable of hope was assessed using three measures: Snyder's Adult State Hope Scale (SHS; Snyder et al., 1996), the Herth Hope Scale (HHS; Herth, 1991), and the Beck Hopelessness Scale (BHS; Beck et al., 1974). The BHS is the most popular of the three measures, and there is substantial evidence for its reliability, validity, and clinical importance

(Beck et al., 1974; Beck et al., 1990). The BHS is a 20-item, true/false format, self-report inventory. It contains such negatively worded items as *I look forward to the future with hope and enthusiasm*, and such positively worded items as *All I can see ahead of me is unpleasantness rather than pleasantness*. In the present study, the BHS had coefficient alphas of .80, .81, and .85 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .72 from time 1 to 2, .77 from time 2 to 3, and its two-month test-retest reliability was .68.

More recently developed measures looking at hope as a positive variable are the SHS and HHS. The SHS has demonstrated good construct validity (Snyder et al., 1996; Lopez et al., 2000). It consists of two factors, one called agency, pertaining to an individual's perceived will to ends or goals, and another termed pathways, pertaining to the person's awareness of means or pathways to those ends or goals. The scale contains 6 items to which participants respond on an eight point, Likert scale. It includes such items as *If I should find myself in a jam, I could think of many ways out of it* and *At the present time, I am energetically pursuing my goals*. In the present study, the SHS had coefficient alphas of .84, .87, and .89 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .62 from time 1 to 2, .70 from time 2 to 3, and its two-month test-retest reliability was .58.

Herth's measure of hope, which has also exhibited good reliability and construct validity (Herth, 1991; Arnau et al., 2002), taps a broader construct than Snyder's or Beck's instruments, containing a hopelessness component containing such items as *I feel overwhelmed and trapped* and *I feel scared about my future*, a component similar to that of agency containing such items as *I have goals for the next 3-6 weeks* and *I am committed to finding my way*, and an additional component tapping optimism and perceived social support, containing such items as *I can seek and receive help* and *I believe that good is always possible*. The measure has 30 items, each rated on a four point, Likert format scale. For the proposed study, item number 24 on the Herth

Hope Scale (*I know my life has meaning and purpose*) was deleted from all analyses because it is confounded with the independent variable, existential meaning. With this item deleted, the HHS had coefficient alphas of .91, .93, and .95 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .78 from time 1 to 2, .84 from time 2 to 3, and its two-month test-retest reliability was .76.

Stress. The Undergraduate Stress Questionnaire (USQ; Crandall, Preisler, & Aussprung, 1992) was administered to assess the extent to which participants had undergone stressful life events in the week prior to testing. The USQ is an 83-item checklist that contains an array of negative life events, a substantial proportion of which are directly related to attending college. Some examples include *Death (of a family member or friend)*, *Got to class late*, and *Erratic schedule*. Exhibiting adequate psychometric characteristics and minimal contamination with negative, affective content, the USQ has been endorsed as a valid way of assessing degree of stressors experienced in college undergraduate populations (Crandall et al., 1992). Total USQ scores are obtained by summing the number of items endorsed by participants. Weighted and un-weighted versions of the USQ are highly correlated and do not differ significantly in terms of the variables they predict (Crandall et al., 1992). In the present study, the USQ had coefficient alphas of .86, .85, and .86 at times 1, 2, and 3, respectively. Its one-month test-retest reliability from time 1 to 2 and 2 to 3 was .70, and its two-month test-retest reliability was .61.

Social Desirability. In order to control for participants' tendencies towards repressive styles or "faking good", the author administered a shortened version of the Marlowe-Crowne Social Desirability scale (MCSD), which has exhibited good construct validity (Crowne & Marlowe, 1964). Called short form A of the MCSD, the scale developed by Reynolds (1982) has substantially better psychometric characteristics than the original MCSD (Loo & Thorpe, 2000). Short form A of the MCSD is an eleven item, true/false test containing such positively worded

items as *No matter who I'm talking to, I'm always a good listener* and *I have never felt that I was punished without cause*, and such negatively worded items as *It is sometimes hard for me to go on with my work if I am not encouraged,* and *I sometimes feel resentful when I don't get my way*. In the present study, the measure had coefficient alphas of .59, .67, and .69 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .72 from time 1 to 2, .71 from time 2 to 3, and its two-month test-retest reliability was .70.

Locus of Control. The extent to which individuals vary in the extent to which they attribute control over life events to themselves was measured with the Internal (I) scale of Levenson's (1974) revision and expansion of Rotter's (1966) Internal-External (I-E) scale. Besides finding that internal and external locus of control are orthogonal constructs, Levenson found data indicating that external locus of control itself can be divided into two orthogonal constructs: belief in powerful others who dominate one's life, and belief that one's life is dominated mostly by chance. Levenson's revised version of the I-E scale is an improvement over the older version in that its *I, P,* and *C* scales reflect the independence of the constructs of internal locus of control (I), locus of control in powerful others (P), and locus of control in chance (C). Levenson (1974) found substantial support for the reliability and validity of the *I, P,* and *C* scales. Although only the *I* scale was analyzed in the current study, the items from all three scales were administered together. The items are rated on a 6-point, Likert scale. In the present study, the *I* scale had coefficient alphas of .67, .72, and .78 at times 1, 2, and 3, respectively. Its one-month test-retest reliability was .63 from time 1 to 2, .64 from time 2 to 3, and its two-month test-retest reliability was .58.

Statistical Analyses

Latent Cross-Lagged Panel Analysis. Through structural equation modeling, a latent cross-lagged panel analysis was used to examine the first hypothesis regarding the reciprocally

causal relationship between depression/hope and existential meaning over the course of two months. As the proposed model indicates (see Figure 1), the analysis modeled, for two consecutive one month time periods, meaning's ability to predict hope/depression one month later (controlling for the stability of depression/hope over time). In Figure 1, one variable's

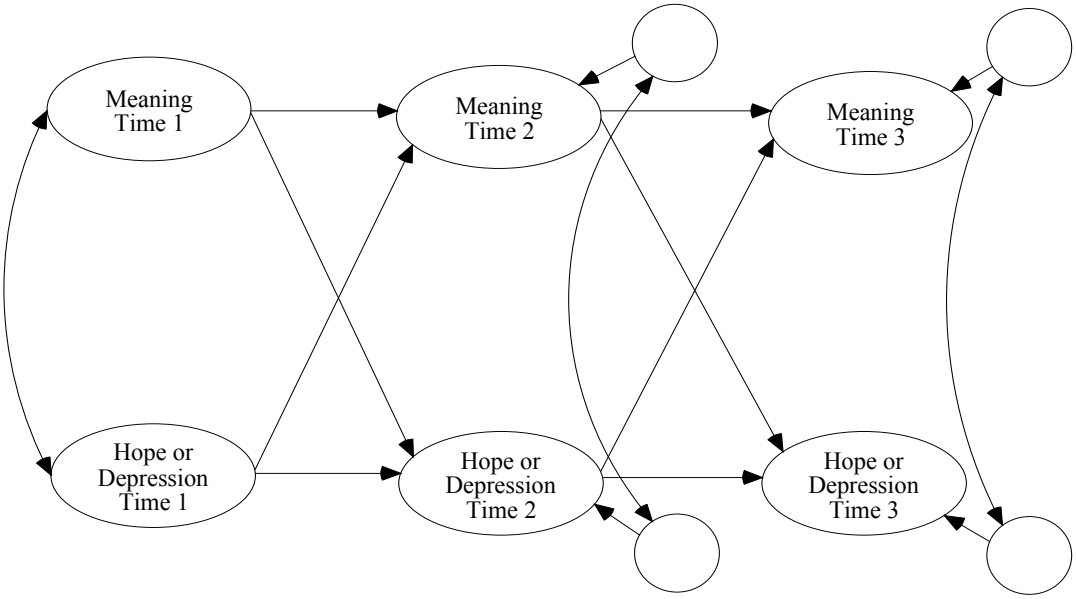

Figure 1. Latent Cross-Lagged Panel Model of the Relationship between Meaning and Hope/Depression over 2 Month's Time.

ability to prospectively predict another is represented by diagonal single-headed arrows, and the stability of a variable over time is represented by single headed arrows running from the respective variable at one time point to the same variable at the next time point. The double-headed arrows represent correlations between variables. Ellipses represent the latent hope, depression, and meaning variables, while the small circles (or disturbances) indicate the amount of variance of an endogenous variable that is unaccounted for by regression lines (single-headed arrows) to it. Disturbances in the current model therefore represent the portion of a variable that is unattributable to its stability over time or to its being predicted by another variable. So in Figure 1, the disturbances linked to Meaning at times 2 and 3 represents changes in meaning

over these 2 time points that are unattributable to depression or hope, while the small circles linked to hope/depression are the amount of change in these variables that is unattributable to meaning. Of course, separate panel analyses were used for observing the depression-meaning relationship and the hope-meaning relationship.

An important issue to understand regarding the current cross-lagged panel model is that the set of diagonal arrows in the second panel (i.e., running from time 2 to time 3) take into account the degree to which changes in meaning over the first month of the study predict subsequent changes in depression/hope and vice versa. However, values for the diagonal arrows in the first panel (running from time1 to time2) do not model changes in a variable predicting subsequent changes in another variable. They rather represent a *static* variable's ability to predict changes in another variable. The first set of cross-lags therefore reflect one variable's serving as a diathesis or vulnerability for changes in another, and the second set of cross-lags reflect the extent to which changes in one variable lead to subsequently proportional changes in another. Because the second set of cross-lags estimates a phenomenon more directly linked to the study's first hypothesis (i.e. that losses of meaning lead to increased depression/hopelessness and vice versa) than do the first set of cross-lags, the values for the second pair are of primary concern in the current study. Furthermore, because the two pairs of cross-lags reflect different forms of information, neither these nor the stability estimates were constrained to be equal across time points. Moreover, due to the youth of the current sample and the fact that the study begins at the beginning of a stressful college semester that is early in the academic careers of most of the participants, the system being evaluated is presumably not one that has reached equilibrium as conceptualized by Dwyer (1983), and the model of which, therefore, should not have the same constraints that Dwyer recommends for depicting a system that has reached equilibrium. However, because the disturbances for the variables at times 2 and 3 should both reflect changes

over the course of a month, correlations between the disturbances for meaning, hope, and depression were constrained to be equal at the two time points.

Some features of the models of the meaning-hope and meaning-depression relationship are not depicted in Figure 1. One group of features is related to the measurement models, which involve the loading of indicators or observed variables on their respective latent variables or common factors. Recall that the SMS, LRI-R-framework, and PMP were used to measure meaning, so the common variance among these measures at each time point formed the latent meaning variable at each time point (i.e. the ellipses labeled *Meaning* in Figure 1). Similarly, the common variance among the DASS-dep, BDI-II, and PAI-dep formed the latent depression variable, and the common variance among the BHS, HHS, and SHS formed the latent hope variable. Loadings of indicators on their latent variables were constrained to be equal across the different time points, and error variances for the indicators were allowed to covary across all time points. Also notable regarding measurement models is that in order to set a metric for a latent variable (which is unobserved and therefore does not supply itself with a metric), the loading of an arbitrary indicator for that variable must be pre-established (usually at 1), so loadings for the PMP, PAI-dep, and SHS were set to 1 for the meaning, depression, and hope variables, respectively.

Another key feature not depicted in Figure 1 relates to the structural model, which involves correlations and regression weights representing relationships among latent variables. A latent social desirability variable was formed by dividing short form A of the MCSD into two parts, one containing all the positively worded items and the other containing the reverse scored items. The latent social desirability variable formed from the common variance between these two parts of the MCSD was entered at each time point and allowed to predict variance in the latent depression, hope, and meaning variables at times 2 and 3, thus controlling for the effects

of social desirability (i.e. ensuring that meaning's ability to predict depression or hope was in no way a function of a tendency in individuals to fake good or be self-deceptive). Regression weights for social desirability predicting meaning, hope, and depression were constrained to be equal at times 2 and 3. The indicator comprised by the MCSD's positively worded items was set to 1, while the other indicator for the social desirability factor was constrained to be equal across time points.

Upon analysis of the two models, should the values for the cross-lags in the second panel be significantly greater than zero despite the wealth of controls and constraints included, then psychometrically sound evidence would suggest that experiencing a decrease in one's sense of existential meaning can lead to a decreased sense of hope and increased symptoms of depression, with such clinical dynamics in turn negatively influencing the experience of existential meaning.

Hierarchical Regression Analysis. To analyze the second hypothesis that meaning is a resiliency/vulnerability factor in the face of life stressors, the author employed hierarchical regression analysis. When conducting these analyses, depression was operationalized as a composite of standardized scores from the three depression measures, hope was operationalized as a composite of standardized scores from the three hope measures, and meaning was operationalized as a composite of standardized scores from the three meaning measures. The basic hypothesis was that for individuals with low degrees of existential meaning at baseline, there would be a positive relationship between the (residual) change in their reported levels of stress over the course of the study and the (residual) change in their levels of depression during the study (or a negative relationship between change in stress and hope), whereas this relationship would be less powerful or non-existent for individuals reporting high levels of existential meaning. Such results would indicate that having high levels of existential meaning protects people from the deleterious effects of stress. To assess this hypothesis, two regression

analyses were performed, one predicting hope at the end of the study's two-month time interval and the other predicting depression. In step one of each regression, baseline depression, baseline social desirability, baseline meaning, baseline stress, and residual changes in stress were entered. In step two, participants' baseline meaning multiplied by their residual stress-change scores were entered. It was hypothesized that entering the step two interaction between meaning and stress-change would allow for the prediction of variance in depression and hope beyond that predicted by the variables in step one. This additional predicted variance should reflect an interaction such that the significant positive relationship between stress-change and depression-change (and the significant negative relationship between stress and hope) is weakened as meaning levels at baseline increase.

An exploratory analysis of the extent to which internal locus of control moderates the relationships of spiritual and personal meaning with hope/depression was also tested using hierarchical regression analysis. Two regression analyses were conducted predicting two-month depression levels and two were conducted predicting two-month hope levels. In step one of each analysis, baseline levels of social desirability, depression/hope, locus of control, and either personal or spiritual meaning were entered, followed by the interaction of internal locus of control with either spiritual or personal meaning in step two. It was hypothesized tentatively that with increased levels of internal locus of control, the relationship between personal meaning and hope/depression would become more powerful, whereas the relationship between spiritual meaning and hope/depression would become less powerful. Confirmation of this hypothesis would indicate that different forms of meaning are differentially adaptive for different personality types.

RESULTS

Descriptive Statistics

As summarized in Table 1, students' levels of implicit meaning as measured by the Personal Meaning Profile increased over the course of the study to a statistically significant degree, as did their levels of hope on two of the three hope scales. In addition, their levels of depression on 2 of the 3 depression measures decreased significantly during the study. Table 1 also indicates that women had higher scores than men on the Personal Meaning Profile, the Spiritual Meaning Scale, the Herth Hope Scale, and the Undergraduate Stress Questionnaire, suggesting that relative to men, women may experience increased levels of spiritual and implicit meaning, increased levels of some aspects of hope, and increased levels of stress. Regarding overall descriptive statistics, means on all the measures were comparable to those found in other studies utilizing similar populations.

Convergent and Discriminant Validity of Meaning Measures (Concurrent Correlation Analyses)

Analyses of the Pearson correlations among variables, summarized in Tables 2, 3, and 4 for baseline, time 2, and time 3, respectively, can give us a feel for the construct validity of the primary predictor variables (i.e., those assessing existential meaning). That is, the extent to which the meaning measures did not correlate with social desirability or stress, and were more highly correlated with one another than with the measures of depression, hope, or internal locus of control, is related to the extent to which they reflect an enduring and unique personality variable that might be labeled existential meaning. Significant correlations of meaning variables with stress would suggest that meaning changes as a function of changes in stress, whereas a personality variable ought to be less reactive than this. Correlations with social desirability would imply that self-reported meaning levels have some degree of confound with a tendency to fake good or be self-deceptive. And for a meaning measure to be more highly correlated with an

Table 1. Descriptive Statistics Broken Down by Gender

	Females N = 272		Males N = 122		Overall N = 395	
Scale	*M*	*SD*	*M*	*SD*	*M*	*SD*
Personal Meaning Profile (t1)$^{\Psi *}$	323.68	39.66	312.63	46.37	320.21	42.06
Personal Meaning Profile (t2)*	325.92	43.97	309.89	54.54	320.90	47.95
Personal Meaning Profile (t3)*	328.67	46.84	316.02	57.42	324.69	50.57
Spiritual Meaning Scale (t1)*	66.81	7.46	63.08	10.88	65.61	8.84
Spiritual Meaning Scale (t2)*	66.64	8.37	62.24	11.93	65.24	9.83
Spiritual Meaning Scale (t3)*	67.19	8.17	62.13	12.80	65.59	10.11
LRI-R-framework (t1)	34.29	5.16	34.07	5.95	34.23	5.40
LRI-R-framework (t2)	34.46	5.56	34.21	5.81	34.39	5.63
LRI-R-framework (t3)	34.64	5.60	34.42	6.11	34.58	5.75
DASS-depression (t1) $^{\Psi}$	5.26	6.06	5.97	7.18	5.47	6.42
DASS-depression (t2)	5.12	5.81	6.39	7.13	5.51	6.26
DASS-depression (t3)	4.58	5.56	5.25	7.02	4.78	6.04
PAI-depression (t1)	14.32	9.50	14.35	9.04	14.31	9.34
PAI-depression (t2)	14.03	9.83	15.14	11.05	14.36	10.21
PAI-depression (t3)	13.19	10.60	14.43	12.20	13.57	11.11
Beck Depression Inventory-II (t1) $^{\Psi}$	9.46	7.03	8.41	6.86	9.12	6.98
Beck Depression Inventory -II (t2)	9.02	7.89	8.12	8.95	8.75	8.22
Beck Depression Inventory -II (t3)	7.63	7.87	7.34	8.23	7.54	7.97
Beck Hopelessness Scale (t1)	2.94	2.53	3.35	3.62	3.07	2.91
Beck Hopelessness Scale (t2)	2.91	2.65	3.35	3.76	3.04	3.04
Beck Hopelessness Scale (t3)	2.79	2.84	3.46	4.14	2.99	3.31
Adult State Hope Scale (t1) $^{\Psi}$	37.53	6.16	37.94	7.15	37.67	6.47
Adult State Hope Scale (t2)	38.02	6.35	38.89	7.08	38.30	6.58
Adult State Hope Scale (t3)	38.53	6.56	38.65	7.59	38.57	6.88
Herth Hope Scale (t1) $^{\Psi *}$	70.23	10.00	67.70	11.96	69.46	10.68
Herth Hope Scale (t2)*	71.40	10.74	68.52	14.17	70.51	11.95
Herth Hope Scale (t3)*	72.43	11.80	68.58	15.27	71.24	13.06
Stress (t1)*	18.36	8.27	15.41	8.46	17.46	8.42
Stress (t2)*	18.41	8.53	14.98	7.49	17.37	8.37
Stress (t3)*	17.88	8.85	15.54	8.11	17.19	8.71
Internal Locus of Control (t1)	36.47	4.69	36.30	5.22	36.43	4.85
Internal Locus of Control (t2)	36.74	4.97	36.14	5.63	36.56	5.18
Internal Locus of Control (t3)	36.91	5.41	36.50	6.23	36.79	5.67
Social Desirability (t1) $^{\Psi}$	3.96	2.16	3.93	2.37	3.95	2.23
Social Desirability (t2)	3.77	2.37	4.06	2.57	3.87	2.43
Social Desirability (t3)	3.74	2.47	3.79	2.45	3.76	2.46

Note. $^{\Psi}$ = Overall mean changed to a statistically significant degree ($p < .05$) over the course of the study; * = Mean levels for women and men differed to a statistically significant degree ($p < .05$); t1 = baseline; t2 = one month; t3 = 2 months; Stress measured with the Undergraduate Stress Questionnaire; Internal locus of control measured with Levenson's Internal scale; Social Desirability Measured with Short form A of the Marlowe-Crowne.

indicator of another construct than with another measure of meaning suggests that the instrument assesses another construct more than it assesses meaning.

Pearson correlations in which a meaning measure correlated significantly with social desirability, or was more highly correlated with a non-meaning measure than with any of the other measures of meaning are bolded in Tables 2, 3, and 4, because such correlations are indicative of compromised construct validity in the measure of meaning. Over the three time

Table 2. Concurrent Correlations at Baseline

Scale	PMP	SMS	LRIF
Personal Meaning Profile (PMP)	1.00	0.73**	0.61**
Spiritual Meaning Scale (SMS)	0.73**	1.00	0.54**
LRI-R-framework (LRIF)	0.61**	0.54**	1.00
Short form A Marlowe-Crowne Social Desirability	**0.20****	0.05	**0.17***
Undergraduate Stress Questionnaire	0.02	0.10	-0.04
DASS-depression	-0.41**	-0.31**	-0.41**
PAI-depression	-0.55**	-0.42**	-0.50**
Beck Depression Inventory-II	-0.39**	-0.27**	-0.40**
Beck Hopelessness Scale	-0.55**	-0.46**	-0.52**
Adult State Hope Scale	**0.63****	0.43**	0.52**
Herth Hope Scale	**0.76****	**0.64****	**0.62****
Internal locus of control	0.29**	0.26**	0.27**

Note. * = $p < .01$; ** = $p < .001$.

Table 3. Concurrent Correlations after One Month (Time 2)

Scale	PMP	SMS	LRIF
Personal Meaning Profile (PMP)	1.00	0.73**	0.64**
Spiritual Meaning Scale (SMS)	0.73**	1.00	0.52**
LRI-R-framework (LRIF)	0.64**	0.52**	1.00
Short form A Marlowe-Crowne Social Desirability	**0.17***	0.09	**0.20****
Undergraduate Stress Questionnaire	-0.06	0.02	-0.15*
DASS-depression	-0.48**	-0.31**	-0.44**
PAI-depression	-0.61**	-0.42**	**-0.54****
Beck Depression Inventory-II	-0.53**	-0.35**	-0.45**
Beck Hopelessness Scale	-0.60**	-0.51**	**-0.60****
Adult State Hope Scale	**0.68****	0.46**	**0.57****
Herth Hope Scale	**0.79****	**0.63****	**0.66****
Internal locus of control	0.37**	0.26**	0.25**

Note. * = $p < .01$; ** = $p < .001$.

Table 4. Concurrent Correlations after Two Months (Time 3)

Scale	PMP	SMS	LRIF
Personal Meaning Profile (PMP)	1.00	0.76**	0.65**
Spiritual Meaning Scale (SMS)	0.76**	1.00	0.64**
LRI-R-framework (LRIF)	0.65**	0.64**	1.00
Short form A Marlowe-Crowne Social Desirability	**0.20****	0.09	**0.20****
Undergraduate Stress Questionnaire	-0.09	0.02	-0.18**
DASS-depression	-0.56**	-0.42**	-0.47**
PAI-depression	-0.64**	-0.52**	-0.55**
Beck Depression Inventory-II	-0.58**	-0.44**	-0.51**
Beck Hopelessness Scale	-0.62**	-0.57**	-0.60**
Adult State Hope Scale	**0.70****	0.58**	**0.65****
Herth Hope Scale	**0.81****	**0.70****	**0.68****
Internal locus of control	0.43**	0.32**	0.35**

Note. * = $p < .01$; ** = $p < .001$.

periods, the Personal Meaning Profile (PMP) had 9 such undesirable correlations, the framework subscale of the Revised Life Regard Index (LRI-R-framework) had 10, and the Spiritual Meaning Scale (SMS) had only 3 (all of which were with the Herth Hope Scale). The PMP and LRI-R-framework were correlated with social desirability at all three time points. There were several instances in which the PMP or LRI-R-framework was more highly correlated with a hope measure than with one of the other meaning measures, and all the meaning measures were more highly correlated with the Herth Hope Scale (HHS) than with at least one other meaning measure. This latter result may speak more to the HHS's lack of discriminant validity than to shortcomings on the part of the meaning measures. However, the meaning measures appear to have excellent discriminant validity with regard to depression. There was only one "bad" correlation in terms of the depression-meaning relationship, and that was between the LRI-R-framework and the PAI's depression scale (PAI-dep) at time 2. Of course, the correlation analyses show clearly that meaning has significant relationships with hope and depression, highlighting meaning's clinical relevance. But they also suggest that the SMS is a more pure measure of existential meaning than are the PMP or LRI-R-framework, and that the construct of

meaning is distinct from that of depression but perhaps not from the construct of hope.

Structural Equation Model of Meaning and Depression

To examine the hypothesis that changes in existential meaning and depression reciprocally and prospectively predict on one another, AMOS 3.61 (Arbuckle, 1995) was used to conduct a latent cross-lagged panel analysis modeling the relationship between meaning and depression across 3 time points, each separated by one month. A latent social desirability factor was included in the model, and variance in depression and meaning accounted for by social desirability was partialed out by including regression lines from the social desirability variable at times 2 and 3 to the meaning and depression variables at times 2 and 3.

Before exploring the measurement and structural models, the extent to which the proposed model fit the data was observed. Indices used to assess model fit were the Normed Fit Index (NFI: Bentler & Bonnett, 1980), Comparative Fit Index (CFI: Bentler, 1990), and Root-Mean-Squared Error of Approximation (RMSEA: Steiger, 1990). For the NFI and CFI, values above .95 suggest good fit, whereas RMSEA values of .06 and lower indicate good fit (Byrne, 2001). For the current model, the NFI, CFI, and RMSEA were .96, .98, and .04, respectively. Also speaking to the appropriateness of the current model, the only standardized residuals beyond the 2.58 threshold were covariances of ¯2.85 and ¯2.67 between the LRI-R-framework at time 1 and the PAI-dep at times 1 and 3, respectively (corresponding to the “bad” correlation mentioned earlier between the LRI-R-framework and PAI-dep). Further, no modification index was greater than 11.5.

Results for the measurement models are shown in Figure 2, and the structural model is displayed in Figure 3. Regarding the measurement models, all loadings on the latent variables were statistically significant, that is, at least twice the size of their standard errors. All but four

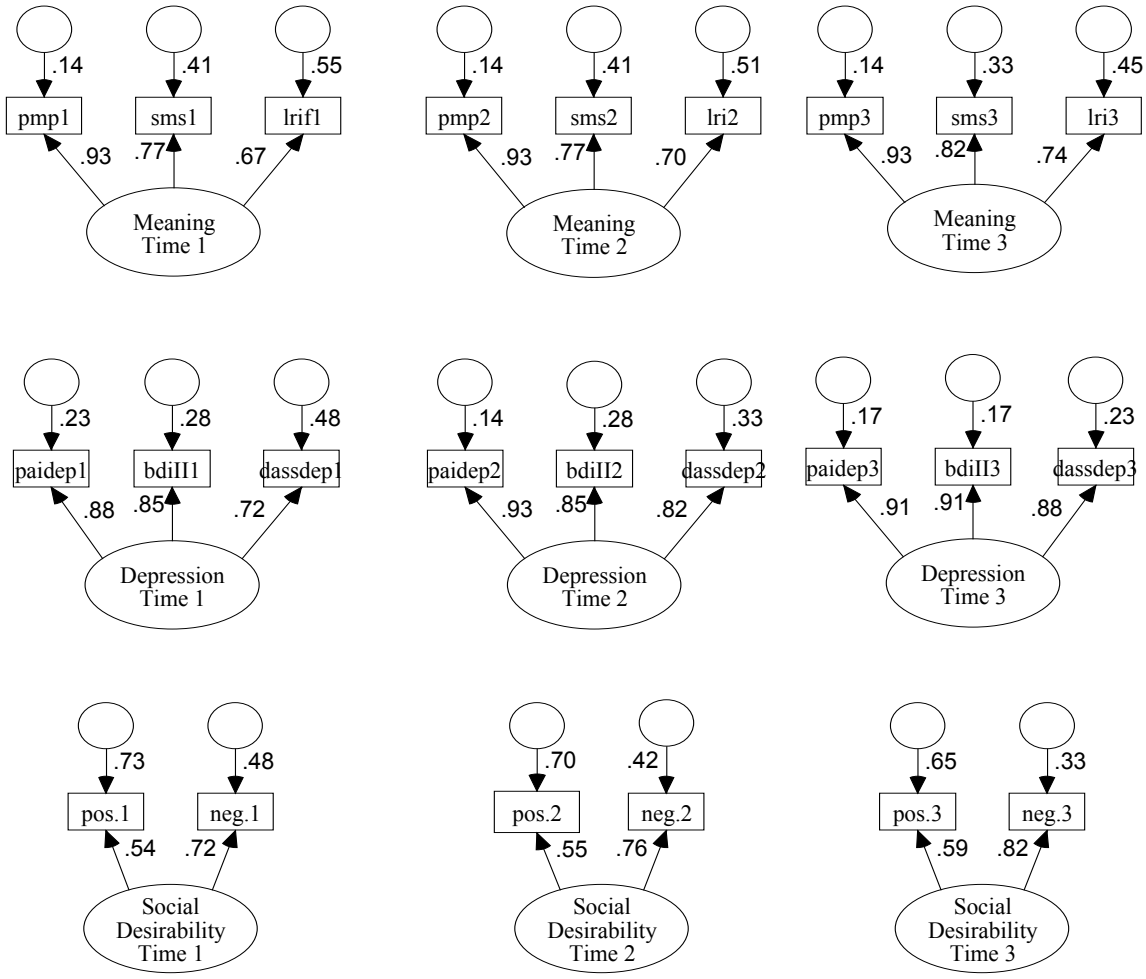

Figure 2. Standardized Measurement Models for Meaning, Depression, and Social Desirability.

correlations between error variances across time points were statistically significant, the four non-significant values being the correlations between the error variances for the negatively worded items on the MCSD and of the error variance for the PMP at time 2 with the PMP at time 3. Regarding the structural model, the significant, negative value for the diagonal arrow in panel 2 running from Meaning to Depression, displayed in Figure 3, indicates that decreases in meaning over the first month of the study significantly predicted increases in depressive symptoms over the second month of the study. None of the other cross-lags were significant, suggesting that changes in meaning drive changes in depression, but not vice versa. Thus,

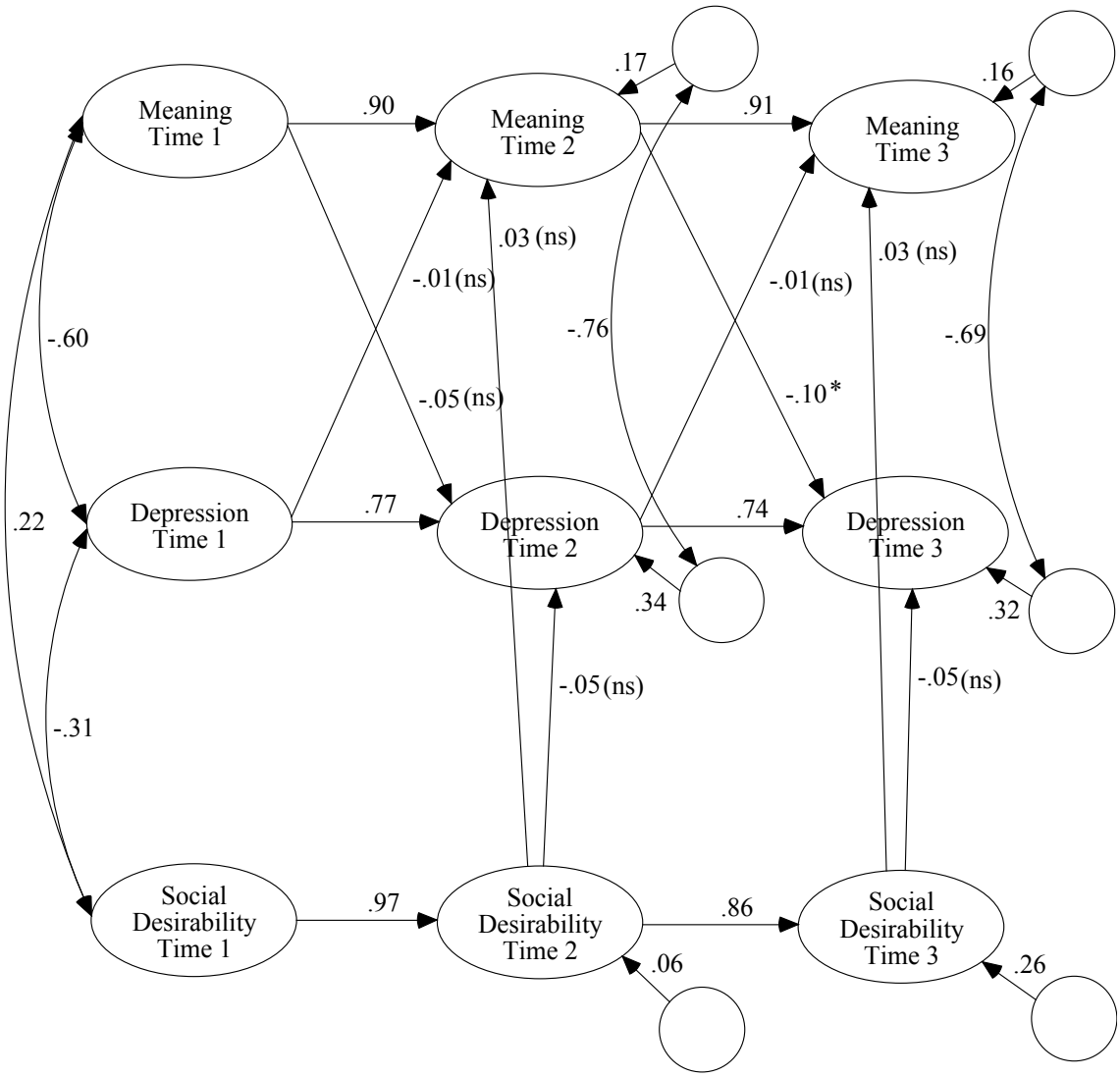

Figure 3. Latent Cross-Lagged Panel Model of Meaning and Depression over 2 One-Month Time Periods, Controlling for Social Desirability.

although the hypothesis of reciprocal prediction between meaning and depression was not supported, the model provides evidence for unidirectional causation in which existential meaning has influence on depressive symptoms. There are additional aspects of the structural model shown in Figure 3 that are worthy of comment. First, Social Desirability and Meaning are quite stable across time, as indicated by the large values for their stability estimates as well as the

relatively small values of their disturbances. However, all disturbances except for that of social desirability at time 2 were significantly greater than 0 and all correlations and stability estimates in the structural model were statistically significant.

Structural Equation Model of Meaning and Hope

The same procedure was used to examine the hypothesis that existential meaning and hope have reciprocally causal influence on one another as was used to examine meaning's relationship with depression, with the HHS, SHS, and BHS serving as indicators for the latent hope variable. Foreshadowed, however, by the correlation analyses suggesting that meaning and hope might not be independent constructs, results for the model were inadmissible due to a portion of the covariance matrix not being positive definite. The problem was that the indicators of meaning and hope overlapped to such a degree that the disturbances in meaning and hope at time 2 had a correlation greater than one. The author therefore investigated the difference in fit at baseline between two different measurement models of hope and meaning, one in which all the meaning and hope measures loaded on a single factor and another in which they loaded on two different factors. If allowing the meaning and hope indicators to load on separate factors fit the data substantially better than forcing them to load on a single factor, then conceptualizing meaning and hope as separate variables would remain plausible. When all measures were forced to load on a single factor, the chi square value with 9 degrees of freedom was 53.17, with NFI = .96, CFI = .97, and RMSEA = .11. When the meaning measures were allowed to load on a meaning factor that was distinct from but correlated with a hope factor on which the hope measures loaded, the chi square with 8 degrees of freedom was 42.08, with NFI = .97, CFI = .97, and RMSEA = .10. Thus, although the chi square change between the two models was significant ($p < .01$), suggesting that a two-factor model fit the data better than a one-factor model, the other fit indices indicated little advantage for creating separate meaning and hope

factors.

The ambiguous results for the above noted model testing are the price paid when measures are constructed with too much emphasis on convergent validity and too little on discriminant validity. Because of the problems with using all three meaning measures to form a latent variable that is distinct from hope, the SMS was selected as the sole representative of existential meaning for the analysis of meaning's relationship with hope, because it was the only of the three meaning measures that demonstrated excellent discriminant validity. The SMS was then run in three separate cross-lagged panel analyses predicting the three different measures of hope. These models were similar in nature to the model for meaning and depression, except that social desirability was not included due to the SMS's not being correlated with social desirability. Regarding fit statistics, the NFI was .96 for all three models, the CFI was .96, .96, and .97 for the BHS, SHS, and HHS models, respectively, and the RMSEA was .20, .18, and .19 for the BHS, SHS, and HHS models, respectively. The RMSEA values were thus considerably higher than the limit of .07 that indicates deficient model fit. Modification indices implied that the model would fit better by accounting for the fact that the disturbances for hope/hopelessness at time 2 appeared to have a substantial negative relationship with the disturbances at time 3, and the same was true for the disturbances in spiritual meaning. However, correlations between disturbances at different time points were not freed to be estimated in the original models because doing so does not make sense theoretically. What the odd correlations between the disturbances suggest is that many of those whose levels of spiritual meaning and hope changed during the first month of the study experienced a similar change in the opposite direction (i.e. a return to original levels) during second month of the study. There was consequently a substantial portion of variance in spiritual meaning and hope at time 3 that could not be explained by time 2 levels of these variables but could be accounted for by baseline levels. To represent this fact,

hope/hopelessness at baseline was freed to predict hope/hopelessness at time 3 directly (not just through time 2 hope/hopelessness), and the same was done for spiritual meaning. Making this change, which makes substantive sense, improved the model fit tremendously. With the above noted modifications, the NFI and CFI were greater than .99 for all three models, and the RMSEA was .04, 0, and 0 for the BHS, SHS, and HHS models, respectively.

Results of the modified path analyses for spiritual meaning's relationship with the BHS, SHS, and HHS are depicted in Figure 4. Note that because a regression path was entered directly from each variable at baseline to that variable at time 3, the path from each variable at time 2 to that variable at time 3 is not a test-retest reliability or stability coefficient. Paths from variables at baseline to those variables at time 2 are stability coefficients, whereas paths from time 2 to 3 represent the portion of a time 3 variable that is not predicted by that variable at baseline but is predicted by that variable at time 2. This ensures that all paths from time 2 to time 3 (including cross-lags) are not merely predicting people's returning to baseline levels at the end of the study after having deviated from those levels during the first month of the study.

Figure 4 illustrates the reciprocal relationship between spiritual meaning and hope/hopelessness. As indicated by the significant cross-lags in the second panel from the SMS to SHS and HHS, changes in spiritual meaning over the first month of the study predicted changes in both measures of hope over the subsequent month. Likewise, changes in each of the hope measures over the first month predicted changes in spiritual meaning over the second month. The non-significant lag from spiritual meaning at time 2 to the BHS at time 3 indicates that changes in spiritual meaning did not significantly predict subsequent changes in hopelessness. However, like in the SHS and HHS models, the beta for the lag from spiritual meaning at baseline to the BHS at time 2 was significant, as was the lag from BHS at time 2 to spiritual meaning at time 3. This suggests that that those with low levels of spiritual meaning are

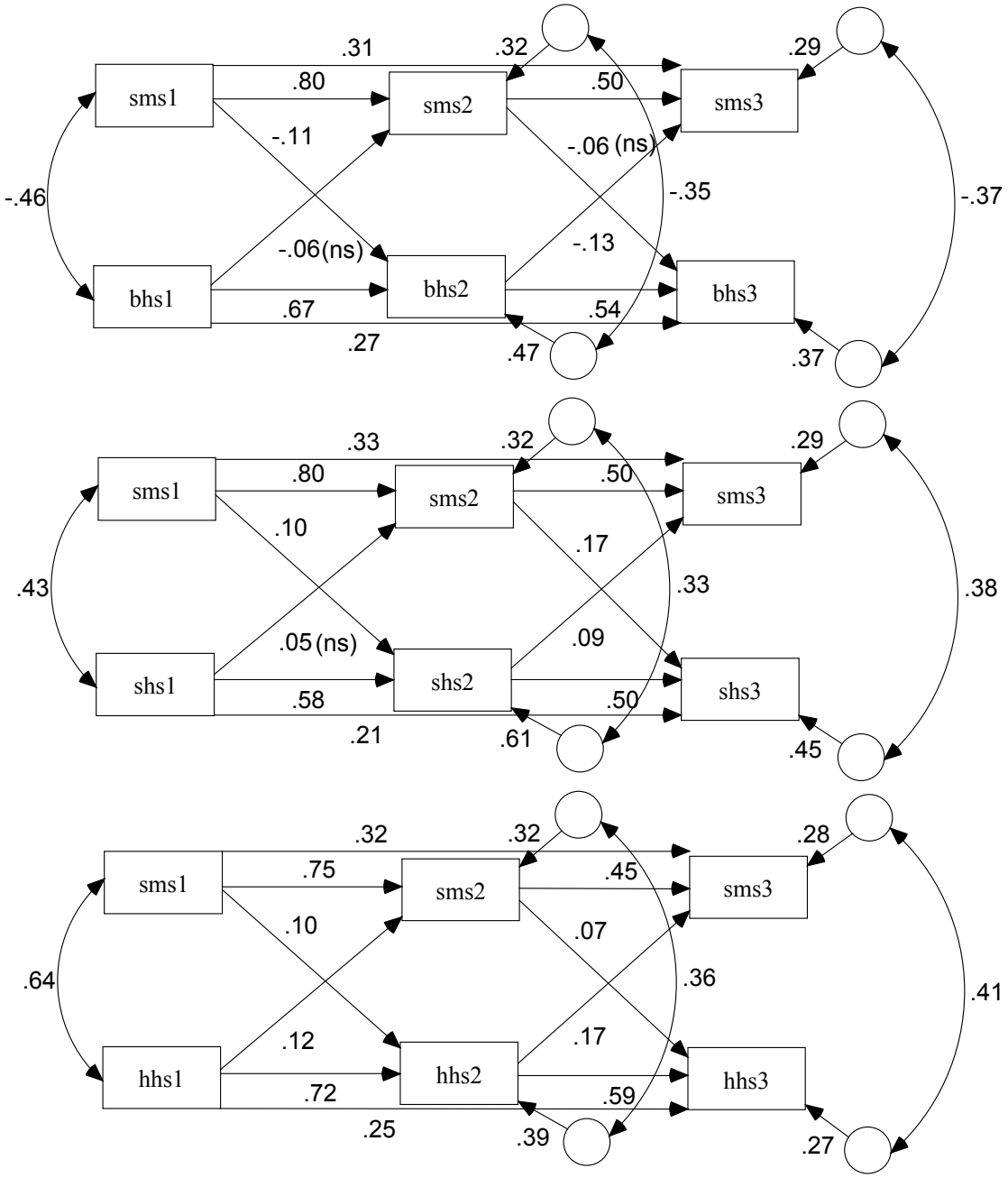

Figure 4. Three Cross-Lagged Panel Analyses of Spiritual Meaning (sms) and the Beck Hopelessness Scale (bhs), Adult State Hope Scale (shs), and Herth Hope Scale (hhs), respectively, over 2 One-Month Time Periods. All values are statistically significant ($p < .05$) except those labeled ns.

vulnerable to increased hopelessness, with such increases in hopelessness leading to subsequently decreased levels of spiritual meaning.

Interaction between Meaning and Stress

Structural equation modeling provided evidence that changes in meaning precede proportional changes in depressive symptoms, and that changes in spiritual meaning precede proportional changes in the experience of hope, with meaning likely having causal influence on hope and depression. The question remained as to meaning's ability to serve as a resiliency variable or stress buffer. Regression analysis was used to test the extent to which meaning as assessed by a composite of z-score transformed scores from the PMP, SMS, and LRI-R-framework interacts with stress to prospectively predict depressive symptoms as measured by a composite of z-score transformed scores from the BDI-II, PAI-dep, and DASS-dep, and whether the SMS interacts with stress to prospectively predict hope as measured by the HHS, SHS, and BHS. It was predicted that the interaction of baseline meaning levels with residual change in stress over the course of the study would predict residual change in depression and hope over the course of the study beyond baseline stress, baseline meaning, and residual change in stress. The interaction was predicted to moderate the positive relationship between residual change in stress and residual change in depression and the inverse relationship between residual change in stress and residual change in hope, such that as meaning levels at baseline increased, stress' relationships with hope and depression would decrease.

One regression analysis was performed for the meaning composite in interaction with residual change in stress predicting the depression composite at the study's end, and three analyses were performed for the SMS in interaction with residual change in stress respectively predicting the three measures of hope at the study's end. For step one of each of these analyses, levels of the respective meaning variable at baseline, the respective outcome variable at baseline,

Table 5. Hierarchical Regression Analysis for Meaning x Residual Stress-Change Predicting Two-Month Depression Levels, Controlling for Baseline Depression, Social Desirability, and Stress

Step	Baseline Depression β (b)	Baseline Stress β (b)	Baseline Social Desirability β (b)	Stress Change β (b)	Baseline Meaning β (b)	Meaning x Stress-Change β (b)	R^2
1	.54 (.57)**	.04 (.01)	.03 (.04)	.21 (.09)**	-.16 (-.17)**	--	.48
2	.55 (.57)**	.03 (.01)	.02 (.03)	.21 (.09)**	-.16 (-.17)**	-.09 (-.02)*	.49

Note. * = $p < .05$; ** = $p < .001$; Social Desirability measured with Short Form A of the Marlowe-Crowne; Stress measured with the Undergraduate Stress Questionnaire; Meaning measured with a composite of z-score transformed scores from the Personal Meaning Profile, Spiritual Meaning Scale, and the framework sub-scale of the Revised Life Regard Index; Depression measured with a composite of z-score transformed scores from the depression scale of the Personality Assessment Inventory, the depression scale of the Depression Anxiety Stress Scales, and the Beck Depression Inventory-II.

stress at baseline, and residual change in stress over the course of the study were entered. For step two of each regression, the interaction between the respective meaning variable and residual change in stress was added. For the analysis using the meaning composite, social desirability at baseline was also entered in step one due to the PMP's and LRI-R-Framework's correlation with social desirability. Results for the analysis predicting depression are summarized in Table 5, and they indicate that the interaction between meaning and residual stress-change did predict a small but statistically significant amount of variance in residual change in depression such that increased amounts of meaning at baseline were linked to a significant decrease in the relationship between change in stress and change in depression. This interaction is illustrated in Figure 5.

Regarding the 3 regression analyses predicting the 3 hope variables, the SMS's interaction with stress predicted a miniscule but statistically significant amount of variance in residual change for the SHS (R^2 change = .007, p = .04), it was a marginally significant predictor of variance in residual change for the HHS (R^2 change = .004, p = .05), and it did not predict significant amounts of variance in residual change for the BHS (R^2 change = 0, ns). Seeing

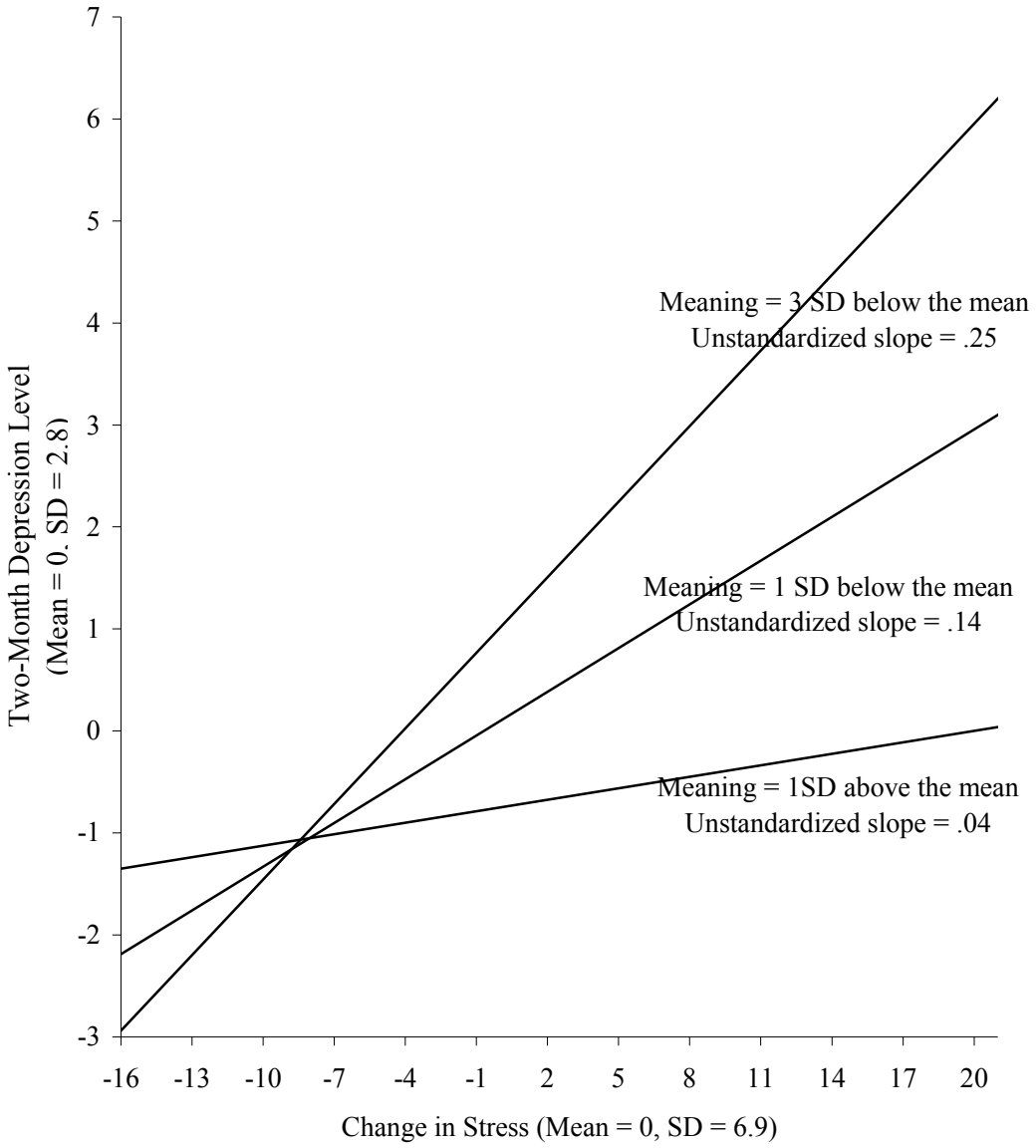

Figure 5. Interaction between Meaning and Residual Change in Stress Predicting Two-Month Depression Levels, Controlling for Baseline Depression, Stress, and Social Desirability.

as how there was no effect for the BHS, while the effects for the HHS and the SHS were small as well as in opposite directions, results suggest that spiritual meaning has no interaction with stress in predicting hope.

Supplemental Analyses

Interaction between Meaning and Locus of Control. The author examined the extent to which the personality variable of internal locus of control had moderating effects on spiritual meaning's relationships with hope and depression that were different than any moderating effects it had on personal meaning. It was supposed that because spiritual meaning involves self-transcendent factors, whereas personal meaning is more concerned with the individual self, spiritual meaning's link to mental health might be enhanced for individuals with lower internal locus of control while personal meaning's might be enhanced for those with higher internal locus of control. Regression analysis was used to test this supposition, with analyses testing the SMS's and LRI-R-framework's interaction with Levenson's (1974) Internal scale in predicting changes in depression and hope over the course of the study. For each analysis, baseline levels of the respective meaning variable, internal locus of control, and social desirability were entered in step 1, and the interaction between the meaning variable and internal locus of control was entered in step 2.

Analyses indicated that spiritual meaning did not have an interaction with internal locus of control in predicting either depression or hope (R^2 = .001, ns and R^2 = .002, ns, respectively). Personal meaning did not interact with internal locus of control in predicting hope (R^2 = .002, ns) but there was an interaction predicting depression. Results of the analysis of internal locus of control and personal meaning predicting depression are summarized in Table 6, and the interaction is actually in the opposite of the predicted direction. That is, as levels of internal locus of control increased, the relationship between personal meaning and depression became weaker rather than stronger.

Behavioral High-Risk Design. The slew of regression analyses employed in the current study in combination with the rather complex structural equation modeling could leave one with

Table 6. Hierarchical Regression Analysis for Personal Meaning x Internal Locus of Control Predicting Two-Month Depression Levels, Controlling for Baseline Depression and Social Desirability

Step	Baseline Social Desirability β (b)	Baseline Depression β (b)	Baseline LRI-R-framework β (b)	Baseline Internal Locus of Control β (b)	Personal Meaning x Internal Locus of Control β (b)	R^2
1	.03 (.03)	.58 (.61)***	-.10 (-.05)*	-.09(-.05)*	--	.43
2	.02 (.02)	.57 (.60)***	-.84 (-.44)**	-.71(-.41)**	1.09 (.01)**	.44

Note. * = $p < .05$; ** = $p < .01$; *** = $p < .001$; Social Desirability measured with Short Form A of the Marlowe-Crowne; Internal Locus of Control measured with Levenson's Internal scale; Personal Meaning measured with the revised framework subscale of the Life Regard Index; Depression measured with a composite of the depression scale of the Personality Assessment Inventory, the depression scale of the Depression Anxiety Stress Scales, and the Beck Depression Inventory-II.

an overly abstract and mathematical feel for the relationship between existential meaning and mental health. To summarize the current data on a more concrete level nearer to the clinical bottom line, a behavioral high-risk design was employed using the BDI-II and the BHS as outcome measures. Two steps were involved in this analysis. First, for all individuals at baseline who were below the cutoff score of 14 on the BDI-II that is indicative of mild depression (Beck et al., 1996) and below a BHS score of 9, which was found in an outpatient clinical population to indicate an 1,100% increased risk of committing suicide (Beck et al., 1990), individuals were classified as being high or low in meaning as determined by their being above or below that sample's mean composite meaning score. In the final step of the behavioral high-risk design, the percentage of people who had become depressed (as indicated by BDI-II scores at or above 14) and hopeless (as indicated by BHS scores at or above 9) by the end of the study was observed for those with high compared to those with low levels of meaning.

Of the initially non-depressed and non-hopeless sample of 309, 135 individuals had a low level of meaning and 174 had a high level. By the end of the study two months later, 5 individuals, all of whom were in the low meaning group at time one, reached levels on the BDI-

II that indicated at least mild depression as well as levels on the BHS that indicated concerning levels of hopelessness. Therefore, 3.7% of the individuals in the low meaning group became hopeless and depressed, compared to 1.6% in the overall sample and 0% in the high meaning group. This means that non-depressed, non-hopeless individuals with lower than average levels of existential meaning at the beginning of the study had a much greater risk of becoming hopeless and depressed by the study's end than individuals with greater than average levels of existential meaning and more than a two fold increased risk compared to the overall sample. If the same mean-split procedure is conducted for the BDI-II or BHS at baseline as was conducted for the meaning composite, then 2 (1.4%) individuals in the 141-member high depression group reached clinical levels of both hopelessness and depression by the study's end versus 3 (1.8%) individuals in the 168-member low depression group. Similarly, 2 (1.6%) individuals in the 124-member high hopelessness group reached clinical levels of hopelessness and depression by the study's end versus 3 (1.6%) individuals in the 185-member low hopelessness group. According to this risk analysis, meaning was a better prospective predictor of hopeless depression than either hopelessness or depression.

CONCLUSION

Construct Validity of Measures of Existential Meaning

The moderate to large correlations that the PMP, LRI-R-framework, and SMS demonstrated with one another add support to their convergent validity, and the fact that their correlations with social desirability were small indicates some degree of discriminant validity. However, the fact that the PMP and LRI-R-framework did have statistically significant correlations with social desirability in combination with the fact that they exhibited several correlations with measures of hope that were larger than their correlation with at least one other measure of meaning are indicative of compromised construct validity on the part of the PMP and LRI-R-framework. On the other hand, the SMS had no significant correlations with social desirability, and it correlated with just a single hope measure (the HHS) more highly than with at least one other meaning measure—with this latter outcome probably being due to the HHS's own lack of discriminant validity rather than that of the SMS.

The structural equation modeling of meaning, depression, and hope is also informative about the construct validity of the three meaning measures. For the model of meaning and depression, all three meaning indicators had high loadings across three time points on the latent meaning variable. And in keeping with the notion that meaning is a personality variable, the meaning factor was relatively stable across time. However, consistent with the results of the correlation analyses, the latent meaning variable overlapped so much with hope as assessed with the HHS, BHS, and SHS, that the model of meaning and hope was inadmissable. One interpretation of such results is that meaning is a construct relatively independent of depression but not hope, and it is perhaps even a necessary component of hope (i.e. One needs an overarching aim before one has a sense of hope about achieving that aim). Another interpretation is that the PMP and LRI-R-framework lack discriminant validity and ought to be revised. The

most likely interpretation is that both of the aforementioned have some degree of truth: A sense of meaning is perhaps necessary for having a sense of hope, but the PMP and LRI-R-framework might become more interpretable if some of the content they contain was brought closer to the core of the constructs they purport to measure.

Meaning's Role in the Etiology of Depressive Symptoms and Hopelessness

Meaning as a Mediator of Change in Hope and Depressive Symptoms. It was demonstrated through structural equation modeling that, controlling for any influence of depressive symptoms on meaning, changes in meaning over a month's time are linked to inversely proportional changes in depressive symptoms over the subsequent month. It was additionally demonstrated that, controlling for any influence of hope on spiritual meaning, changes in spiritual meaning over a month's time are linked to subsequently proportional changes in hope, but not hopelessness. Despite the fact that change in spiritual meaning did not predict change in hopelessness, low levels of spiritual meaning did serve as a vulnerability for increased hopelessness. Unlike meaning's unidirectional relationship with depression, the relationship of spiritual meaning with hope and hopelessness appears to be one of reciprocal determination, as increased hopelessness and decreased hope led to decreased levels of spiritual meaning. Although there was no manipulation of meaning in the study and therefore no possibility for a perfect demonstration of causation, such results are consistent with the hypothesis that a decreased sense of existential meaning is related causally to increased symptoms of depression and decreased hope.

Because of the causal implications of the current findings, it is important to understand what is meant by meaning in the present study. For the analysis of meaning and depression, the existential meaning variable was constituted by 3 meaning subtypes: personal, spiritual, and implicit meaning, which are respectively a sense of coherence and purpose about one's

individual life, belief that a self-transcendent/spiritual force has purpose from which one may derive personal meaning, and exhibition of particular behaviors and attitudes that are normatively viewed by others as indicative of a meaningful life. For present purposes, to be high in meaning was to be high on all three of these subtypes and to be low was to be low on all three. The current findings indicate that where the three subconstructs converge is indeed important, and past research (Mascaro & Rosen, 2005) suggests that where meaning subconstructs converge may be more relevant to clinical concerns than where they are distinct. The bottom line is that to take a hit to one's belief in a spiritual purpose that pervades life, to experience confusion about the direction and purpose of one's own life, and to decrease one's engagement in the experiences thought to lead to a meaningful life will likely lead to increased symptoms of depression. Such symptoms should not be deemed trivial or dismissed as a mere "existential depression." Results of the behavioral high-risk design suggest that the quality of depression to which decreased levels of meaning makes one vulnerable can be in the clinical range and can include an alarmingly severe degree of hopelessness. Implications of the relatively direct relationship found between meaning and depressive symptoms for the treatment of depression are discussed below.

Conclusions about meaning's mediation of change in levels of hope are confined to the subtype of spiritual meaning, as the other 2 meaning subtypes were too confounded with hope to allow for interpretable analysis. Spiritual meaning, a sense that life is pervaded by a transcendent force in which one may participate, and three different forms of hope appear to exhibit reciprocal determination of one another. The picture that emerges is this. As people experience decreases in their sense of participation in something transcendent, they are likely to become more hopeless about achieving their long- and short-term goals. Similarly, as they become more hopeless about achieving their long- or short-term goals, they are likely to experience a decrease in the sense that they are participating in something transcendent. This relationship is phenomenally

important, because insofar as meaning (in the current study) and hope (Whisman & Kwon, 1993; Kwon, 2000) are clearly linked to depression, their reciprocal relationship highlights either a downward spiral into despair or an ever accelerating ascent up the mount of well-being.

Meaning as a Moderator of the Deleterious Effects of Stress. Data from the current study suggest that changes in one's sense of existential meaning induce changes in depressive symptoms and hope. They also suggest that a sense of existential meaning can moderate the relationship between increased stress and increased depressive symptoms. That is to say, while a loss of meaning appears to trigger depressive phenomena, the steady maintenance of meaning provides some protection or resiliency against increased depression in response to stress. Although this moderation effect is small, Figure 5 shows clearly that depressive symptoms will be more reactive to stress if individuals have a low sense of existential meaning than if they have a greater sense of meaning. And if we combine the increased reactivity of their depressive symptoms to stress with the fact that individuals with a deficient sense of meaning are already more depressed than those without such a deficit, then the significance of even a small interaction with stress becomes clinically important.

Unlike the findings for meaning and depression, spiritual meaning did not interact with stress in predicting hope. This may be accounted for by the decreased level of stress-reactivity in hope relative to depression and perhaps by the equivalent natures of hope and meaning. Consider first the fact that the correlations between the hope measures and stress across all three time points ranged in absolute value from .02 to .18, whereas the correlations between the depression measures and stress ranged from absolute values of .28 to .39. The less reactive hope is to stress, the less of a relationship there is for meaning to moderate. Consider also that meaning and hope both appear to be variables that are future looking. Meaning involves the thought, "In what direction shall I head?" Hope involves the thought, "Can I really head in the direction I wish to

head?" And as mentioned earlier, part of the concept of existential meaning (viz. having a framework for living that leads to the pursuit of specific goals or ends) might be necessary for having hope. The two constructs are so similar by definition (and empirically, as shown in this study) that hope very likely plays the same moderator role as does meaning, and is therefore not likely to be a reactive variable whose relationship with stress will be moderated.

Study Limitations and Implications

Limitations. Looking to the future, the current study contains weaknesses that require correcting and highlights areas for clinically useful research. Regarding weaknesses, the overwhelmingly Protestant Christian and white nature of the study's sample is not adequately representative of the United States' heterogeneous population. Similar investigations as the present one should therefore be conducted within populations with more cultural heterogeneity. Second, seeing as how the primary issue in the current study was existential meaning's causal influence on depressive phenomena, the fact that there was no experimental manipulation of meaning is a methodological shortcoming. Certainly there are ethical problems with attempting to induce a state of meaninglessness in subjects to the end of increasing their depression levels, and this is why the counterpart strategy of outcome research is warranted. That is, the gold standard for assessing meaning's causal influence upon depression would be to compare a meaning-focused treatment for depression with alternative treatments, and analyzing not just the extent to which the meaning-focused treatment influences depression, but also the extent to which changes in meaning within the meaning-focused treatment mediate changes in depression.

A final issue regarding study limitations involves the PMP's and LRI-R-framework's deficient discriminant validity, as demonstrated by their correlations with social desirability and the frequency with which they were correlated with measures of hope to a greater extent than they were correlated with other meaning measures. Now the PMP and the construct it measures

are by their nature heterogeneous and consequently should correlate with a broader array of constructs than the more homogeneous constructs of spiritual and personal meaning. However, a device purporting to measure meaning predominantly ought to have stronger relationships with other meaning measures than with variables that are by definition more peripheral to the assessment of meaning. Particularly if they are not being employed in combination with other meaning measures to form a latent or composite variable, then the PMP and LRI-R-framework should have their content modified, with items being isolated that are most central to the construct of meaning. This would increase the likelihood that any significant effects found while using these measures would be due to meaning rather than to extraneous variables. The author endorses modifying the LRI-R-framework and PMP in this way and using them in combination with the more recently developed and already adequately specific SMS, which can be found in the Appendix.

Implications. The current findings point in directions beyond merely correcting the study's weaknesses. The three measurement devices used in the present research could be useful in examining the mechanisms by which meaning impacts mental health. For instance, the experience of existential meaning seems to bring with it two primary features, an affectively charged sense of striving towards highly valued (often spiritual) ends, as well as a coherent framework that structures this striving. It is the combination of structure and striving that the author believes can lead to changes in depressive symptomatology and provide resiliency against decompensation when faced with stress. A worthwhile investigation might involve determining how well measures of meaning can predict behaviors marked by a lack of structure (e.g., excessive levels of disorganized activity a la mania or Attention-Deficit/Hyperactivity Disorder) or a lack of striving (e.g., affective symptoms of depression) relative to other clinical phenomena.

Results of the current study point to specific ways in which the topic of existential meaning might be addressed in psychotherapy for depressive disorders. The fact that meaning appears to have direct influence on depression and hope favors evaluating meaning early in therapy, as if it played a proximally causal role in the distress that brings individuals to treatment. Particularly if meaning-related assessment devices indicate that patients have levels of existential meaning significantly below the norm, then a clinician should not be averse to asking patients about their views on the meaning of life, the purpose of their own life, and the areas from which they discover meaning. The PMP could prove especially useful in this latter regard because it could indicate if a patient is hypo-engaged in any of the areas from which individuals tend to find meaning. To the author's knowledge, standardized meaning-related assessment has not been attempted within such a clinical context.

Also worth considering are the present study's findings regarding meaning's role as a stress buffer. These suggest that psychotherapists could foster resiliency in their patients by helping them explore ways of maintaining a sense of existential meaning. Now the topic of maintaining meaning might induce one to ask how meaning is enhanced in the first place. It has been presumed before (Yalom, 1980) that meaning can be elusive when it is sought with too much conscious vigor and Western resolve. The assumption is that sitting in a dark room asking oneself over and over again, "What does it all mean?" might not be as fruitful as developing mindfulness skills that allow the psyche to become open to the meanings emerging from even the simplest activity. This assumption is consistent with principles underlying extant interpersonal (Cashdan, 1982) and behavioral (Jacobson, Martell, & Dimidjian, 2001) treatments for depression. For instance, people often report meaning as arising from experiences of interpersonal intimacy and connectedness (Ali & Toner, 2001; Ali, Oatley, & Toner, 2002; Debats et al., 1995; Moore, 1997; Debats, 1999), and the fact that 2 of the PMP's 7 subscales

(relationship and intimacy) are interpersonal in nature provides convergent support for this notion.

The other 5 areas assessed by the PMP (i.e. achievement, religion, self-transcendence, self-acceptance, and fair treatment) may also lead to an enhanced sense of meaning. Overlapping these categories of implicit meaning, Baum and Stewart (1990) found that individuals commonly report work, love and marriage, childbirth, and engagement in independent, avocational activities as leading to a sense of meaning in life, with the last category highlighting the potential relevance of creativity and play to a sense of existential meaning. Similarly, Ali and Toner (2001) and Ali et al. (2002) found some dominant sources of meaning in women to be spirituality, career concerns, romantic relationships, friendship relationships, and familial relationships, with Ali et al. (2002) finding additional categories of physical exercise and creative (artistic) expression. Finally, in Heiland et al.'s (2002) study of HIV positive patients, the categories of career, self-indulgence, spirituality, romantic partners, family and friends, helping others, and leisure (avocational) activities emerged as common sources of meaning. A cursory analysis of such qualitative studies yields several sources of meaning that are common to multiple populations. These include spirituality or religiosity; interpersonal relations such as friendships, romantic relationships, and familial relationships; altruism or self-transcendence; career or achievement related activities; and avocational or artistic activities. The current finding that hope may influence spiritual meaning suggests that meaning could be enhanced through the establishment of valued, concrete, and achievable goals within the aforementioned domains. Needless to say, clinical service would be informed greatly by research exploring how these domains of behavior and experience can be reinforced and processed to the end of fostering a robust sense of personal and spiritual meaning.

Offering more in-depth insight into the loss and recovery of meaning is the social-

cognitive area of theory and research. For instance, Baumeister (1991) posits 4 general needs, including purpose, value, self-efficacy, and self-worth, that are singly necessary and jointly sufficient for a sense of existential meaning. Presumably, a meaningful view of the world is one resulting in the generation of achievable goals that are perceived as valuable or just, a sense that there is influence on or control over important life events, and the belief that the individual is a basically good and worthwhile person. As one develops or loses a view of self and world that satisfies these four needs, meaning will be enhanced or lost, respectively. It is also useful to consult theory and research on the way cognitive schemata comprising people's systems of meaning accommodate themselves to and assimilate life events (Epstein, 1994; Park & Folkman, 1997; Thompson & Janigian, 1988). It appears that meaning-related schemata maintain coherence and purpose by providing answers to fundamental questions (i.e. by generating attributions) about important life events. These questions are related to how the event happened, why it happened to the person to whom it happened, how the event could be controlled or influenced, to what end the event occurred, and what can be gleaned from the event for optimizing the individual's (perhaps revised) purpose in life. If a meaning schema does not provide answers to such questions when un-ignorable, negative life events occur (i.e. when a meaning system cannot assimilate an event), the event is experienced as traumatic and is ruminated upon (or even re-experienced) until the system accommodates it. Such factors imply that, when traumatic events occur that disconfirm integral assumptions within a person's meaning framework, recovery of meaning in the form of a more mature and flexible framework might be obtained by processing the negative event in terms of the factors that led to its occurrence, why it occurred to the person to whom it occurred, what might be done to control similar future events, why it may have occurred in a teleological sense, and what can be taken from it and used as material for the pursuit and attainment of valued life goals. Baumeister

(1991) discusses the less acute version of such a process, in which multiple factors that are dissonant with a particular system of meaning accumulate over time in a process called crystallization of discontent. This process leads to abandonment of the increasingly insufficient system of meaning, often followed by a meaning vacuum. The recovery of meaning occurs through exploration of alternative ways for generating purpose, value, self-efficacy, and self-worth.

The topic of influencing meaning leads to questions about which psychotherapeutic approaches are most suitable to the treatment of meaninglessness. To the author's mind, a therapist can facilitate meaning from cognitive, behavioral, dynamic, or humanistic/emotion-focused perspectives. A cognitive approach would be more likely to focus on distortions and attributions that block a patient's attainment of a sense of meaning, and it would rely on creative thinking regarding how a patient already has or might discover a purpose that harmonizes with some greater societal or transpersonal aim. Of course, the processing of traumatic or meaning discrepant events that was discussed above is clearly a cognitive sort of intervention. A more behavioral approach might involve the development of mindfulness skills, which have already been shown useful in the treatment of a variety of psychopathologies (Baer, 2003). Such skills open a patient's mind to the intrinsic rewards (or positive reinforcement value) in simple behaviors, and they can be used in combination with behavioral engagement in the experiences cited earlier as common sources of meaning (e.g., interpersonal relationships, altruistic activities, creative endeavors, career-related activities, or spiritual pursuits). A psychodynamic therapist like Yalom would be more likely to point out a patient's avoidance of the issue of existential meaning, and the manifestation of this avoidance in things like guilt about "not doing anything with my life", self-destructive and often drug-abusing engagement in the hedonistic life, and a general running away from the hard work entailed by the pursuit of any heart-felt purpose. A

humanistic and emotion-focused approach to meaning—imagine a combination of Carl Rogers, Leslie Greenberg, and Viktor Frankl—would revolve around the notion that emotionally intimate relationships appear to drive a sense of existential meaning. To the extent that a patient is informed on a concrete and emotional level through congruent interaction with the therapist that her primary emotions are valid and worthwhile, she can begin to use those primary emotions to develop a framework of pursuits that reflects her true purpose in life. An integrated approach, preferred by the author, relies on constant employment of humanistic/emotion-focused methods aimed at uncovering and validating primary emotions that are the wellspring of meaning, a combination of interpreting patients' avoidance of the responsibility for discovering their purpose in life and challenging any biases they have regarding life's potential for meaning, while following a sequence from mindfulness skills training to mindful engagement in simple (yet self-transcendent and non-self-focused) behaviors hypothesized to lead to an enhanced sense of meaning in life. The present discussion of meaning-focused therapy should make clear that the construct of existential meaning is not so ethereal as to evade the sort of conceptualization that lends itself to empirical analysis and widespread clinical application.

Findings of the present study indicate not only that a variable as uniquely human and spiritual as existential meaning can be assessed empirically, but it can also inform the conceptualization and treatment of depression. And the discussion above makes clear that a meaning-informed approach to psychotherapy can be conceptualized in a straightforward manner that is abundantly suitable for outcome research. The author encourages clinical researchers to develop ways of using the three meaning instruments utilized in the current study for assessment within clinical practice, to continue to explore the mechanisms influencing existential variables and the mechanisms by which existential variables influence mental health, and to increase research and reliance on meaning-focused interventions for problems such as hopelessness and

depression.

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APPENDIX

SMS[1]

1	2	3	4	5
I totally disagree	I partially disagree	I'm in between	I partially agree	I totally agree

_____ 1. There is no particular reason why I exist.

_____ 2. We are each meant to make our own special contribution to the world.

_____ 3. I was meant to actualize my potentials.

_____ 4. Life is inherently meaningful.

_____ 5. I will never have a spiritual bond with anyone.

_____ 6. When I look deep within my heart, I see a life I am compelled to pursue.

_____ 7. My life is meaningful.

_____ 8. In performing certain tasks, I can feel something higher or transcendent working through me.

_____ 9. Our flawed and often horrific behavior indicates that there is little or no meaning inherent in our existence.

_____ 10. I find meaning even in my mistakes and sins.

_____ 11. I see a special purpose for myself in this world.

_____ 12. There are certain activities, jobs, or services to which I feel called.

_____ 13. There is no reason or meaning underlying human existence.

_____ 14. Something purposeful is at the heart of this world.

_____ 15. We are all participating in something larger and greater than any of us.

[1] Items 1, 5, 9, and 13 are reverse scored.

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