2004

A Psychometric Investigation of Measures of Meaning, Gratitude, and Psychological Health

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A PSYCHOMETRIC INVESTIGATION OF MEASURES OF MEANING, GRATITUDE, AND PSYCHOLOGICAL HEALTH

by
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A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of the requirements of the Sally McDonnell Barksdale Honors College.

Oxford
May 2004

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ACKNOWLEDGEMENTS

I would like to thank Dr. Schulenberg for all of his ideas, guidance, and his happy-go-lucky personality. I would also like to thank the members of my Psychology 405/420 class for their immense help with data collection and data entry.

ABSTRACT

NATALIE L. CATHCART: A Psychometric Investigation of Measures of Meaning, Gratitude, and Psychological Health
(Under the direction of Stefan E. Schulenberg, PhD)

Logotherapy, developed by Viktor Frankl, is a philosophy, a personality theory, and a means of treating emotional difficulties and establishing a sense of meaning and purpose in life. Meaning is the attempt to understand how events in life fit into a larger context. Gratitude is a generalized tendency to recognize and respond with appreciative emotion to other people's benevolence. Gratitude is important to logotherapy because gratitude can be viewed as an attitude that functions as a pathway to meaning. Research suggests that both meaning and gratitude are positively linked to well-being and that a lack of meaning is linked to psychopathology. Despite these apparent relationships, there has not been a significant amount of research conducted on how meaning and gratitude relate to one another and to what degree both of these constructs relate to psychopathology. In this study, we examined the relationship between meaning, gratitude, and psychological well-being, as well as added to the psychometric properties of each of the measures used: the Life Attitude Profile-Revised (LAP-R), the Gratitude Questionnaire (GQ-6), and the Personality Assessment Screener (PAS). It was hypothesized that meaning and gratitude would both be linked to well-being, with the two also being related to one another such that a lack of meaning and a lack of gratitude are

associated with greater degrees of psychopathology. By examining the linear regression equations for the LAP-R and PAS, and the GQ-6 and PAS, the relationship between the variables and the interpretive values of the obtained scores are better understood. Data indicated that meaning and gratitude, and meaning and well-being are statistically related in the predicted direction, and distinct. The relationship between gratitude and psychological well-being is small but statistically significant and in the predicted direction.

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Meaning has been defined in many ways. The most commonly used definition is the attempt to understand how events in life fit into a larger context (Reker, 2000). The term *existentialism* refers to a philosophy that focuses on people's attempts to make sense of their existence by assigning meaning to it and taking responsibility to act accordingly, and is often seen as the science of studying meaning (Reker, 2000). One view is that meaning may be achieved through two existential processes: transcendence and transformation. Transcendence is the practice of making sense of and rising above one's circumstances or situation (Reker, 2000). Transformation is the dynamic process of transforming a given reality into a new potentiality (Reker, 2000). Through research, meaning has been shown to play a significant role in preventing illness, promoting wellness, and leading to successful adaptation to life's changing circumstances (Reker, 2000; Schulenberg, 2003). A defined sense of meaning is associated with having a clear life purpose and a sense of directedness, striving for goals consistent with that life purpose, feeling satisfied with past achievements, and being determined to make the future meaningful (Frankl, 1985; Reker, 2000). Another term, *existential vacuum*, is used when a person is unable to find meaning or purpose in their life and is accompanied by apathy and boredom (Frankl, 1985). Existential vacuum has also been reported to lead to psychopathology such as neurosis, depression, suicidal behavior, drug abuse, and alcohol dependence (Frankl, 1985; Reker, 2000).

Logotherapy, developed by Viktor Frankl, is a philosophy, a personality theory, and a means of treating emotional difficulties and establishing a sense of meaning and

purpose in life (Crumbaugh, 1988; Schulenberg, 2003). The term *logotherapy* comes from the term *logos*, or "meaning" (Frankl, 1955). Logotherapy posits that the primary human motivation is the will to meaning and that meaning can be found under all circumstances, even those that involve intense and unavoidable suffering (Frankl, 1985; Schulenberg, 2003). Frankl (1985) asserts that meaning is derived from 3 broad sources: (1) creative, or what one accomplishes in terms of creative work, (2) experiential, or what one derives from beauty, truth, or love, and (3) attitudinal, or what one derives from reflections on negative aspects of life such as pain and suffering.

Gary T. Reker has been an extensive researcher of meaning over the years. Reker summarizes common sources of meaning found in scientific literature. These include, but are not limited to, personal relationships, altruism, religious activities, creative activities, personal growth, meeting basic needs, financial security, leisure activities, personal achievement, leaving a legacy, enduring values or ideals, traditions and culture, social/political causes, humanistic concerns, hedonistic activities, material possessions, and one's relationship with nature (Reker, 2000). Reker divides meaning into three structural components. The cognitive component of meaning involves making sense of one's life experiences. The motivational component entails the value system constructed by each individual. Lastly, the affective component refers to the feelings of satisfaction and fulfillment one gets from their experiences and from achieving their goals. Reker also describes that there are levels of existential meaning, explaining that depth of meaning refers to the *quality* of a person's experiences of meaning. Four levels of depth were proposed into which experiences of meaning could be classified: self-preoccupation with hedonistic pleasure and comfort (level 1); devotion of time and energy to the

realization of personal potential (level 2); service to others and commitment to a larger societal or political cause (level 3); and entertaining values that transcend individuals and encompass cosmic meaning and ultimate purpose (level 4). As one begins to experience meaning from sources at the third and fourth levels, they become more fulfilled and satisfied with life compared to individuals who experience meaning from levels one and two (Reker, 2000).

Significant advances have been made in meaning-related research over the years, particularly with regard to how it is measured (Schulenberg, 2003). Some examples of general measures of meaning are the Purpose-in-Life test (PIL; Crumbaugh & Maholick, 1964) and the Life Purpose Questionnaire (LPQ; Hablas & Hutzell, 1982). These measures assess how much meaning a person has found. Other measures purportedly assess more specific aspects of meaning. Examples include the Seeking of Noetic Goals test (SONG; Crumbaugh, 1977a, 1977b), which was constructed to measure a person's motivation to find meaning, and the Meaning in Suffering Test (MIST; Starck, 1983, 1985), which was designed to assess meaning derived from experiences of suffering. A third type of measure taps multi-dimensional subcomponents of meaning, that is, they assess meaning along many different areas. Among these are the Life Regard Index/Life Regard Index-Revised (LRI/LRI-R; Battista & Almond, 1973/Debats, 1998) and the Life Attitude Profile-Revised (LAP-R; Reker, 1992). The LRI consists of 28 items with a 5-point Likert-type scale, divided equally into two subscales. In it, meaning in life is defined by the concept of positive life regard, referring to an individual's belief that he/she is fulfilling his/her positively valued life-framework or life-goals (Battista & Almond, 1973). The LAP-R, developed by Reker in 1992, is a 48-item measure with a 7-

point Likert-type scale. It is scored and profiled in terms of six dimensions and two composite scales. The six dimensions are purpose, coherence, choice/responsibility, death acceptance, existential vacuum, and goal seeking. Each is calculated by the sum of eight separate items. The two composite scales are the personal meaning index and existential transcendence. Each of these subscales are based upon Frankl's logotherapeutic constructs, giving the LAP-R the advantage of a multi-dimensional measure through which many facets of Frankl's logotherapy can be assessed in a single scale (Reker, 2000).

An area of particular relevance to logotherapy is gratitude. Gratitude can be viewed as an attitude that functions as a pathway to meaning (Schulenberg, 2001, 2003). Like meaning, gratitude has many different definitions. One definition that encompasses its major aspects is that it is a generalized tendency to recognize and respond with appreciative emotion to the roles of other people's benevolence in the positive experiences and outcomes that one obtains (McCullough, Emmons, & Tsang, 2002). In its simplest form, it is an emotional response to a gift (Emmons & Crumpler, 2000). It also takes on many different roles. It is an emotion, an attitude, a moral virtue, a habit, a personality trait, and a coping response (Emmons, McCullough, & Tsang, 2003). The word *gratitude* is derived from the Latin word *gratia*, meaning grace, graciousness, or gratefulness (Emmons, McCullough, & Tsang, 2003). All derivatives from this Latin root "have to do with kindness, generousness, gifts, the beauty of giving and receiving, or getting something from nothing" (Pruyser, 1976, p. 69). Although gratitude cannot be expressed intrapersonally (towards oneself), it can be and often is expressed

interpersonally (towards others) or transpersonally, toward interpersonal (nature) or nonhuman (God, animals) sources (Emmons & Shelton, 2002).

Research by McCullough, Emmons, and Tsang (2002), has shown how a grateful disposition is linked to other personality traits. First, it is linked to positive affective traits and well-being. Seeing oneself as the beneficiary of other people's generosity may lead one to feel affirmed, esteemed, and valued, which may boost self-esteem and perceived social support. Second, it is linked to prosocial traits. Grateful disposition is rooted in the basic traits that orient people toward sensitivity and concern for others. Third, it is linked to religion and spirituality. Gratitude is found in many of the world's religions. As a result, many positive life events that are not due to the actions of another person (e.g., pleasant weather, avoiding an automobile accident) may be perceived as occasions for gratitude to God.

McCullough, Emmons, and Tsang (2002) have categorized gratitude into four facets. They call the first facet of the grateful disposition *intensity*. A dispositionally grateful person who experiences a positive event is expected to feel more intensely grateful than would someone less disposed toward gratitude. The second facet is *frequency*, which deals with how often a person is disposed to express gratitude. The third facet is *span*. This facet measures how many different things a person is grateful for at a given time. The fourth facet is *density*, which refers to the number of persons to whom one feels grateful for a single positive outcome. These authors also identified three components of gratitude: (1) a warm sense of appreciation for somebody or something; (2) a sense of good will toward that person or thing; and (3) a disposition to act positively that flows from appreciation and goodwill. In addition to facets and

components, Emmons, McCullough, and Tsang (2003) indicated that gratitude has three functions. Specifically, gratitude serves as a *moral barometer*, providing individuals with an affective readout that accompanies the perception that another person has treated them prosocially. Second, it serves as a *moral motive*, stimulating people to behave prosocially after they have been the beneficiaries of other people's prosocial behavior. Third, it serves as a *moral reinforcer*, encouraging prosocial behavior by reinforcing people for their previous prosocial behavior (McCullough, Emmons, & Tsang, 2002).

Gratitude, like meaning, is being researched with greater frequency. For example, two recent and promising self-report measures of gratitude as a personality disposition have been constructed: the Gratitude Resentment and Appreciation Test (GRAT; Watkins, Grimm, & Hailu, 1998) and the Gratitude Questionnaire (GQ-6; McCullough, Emmons, & Tsang, 2002). These measures emphasize the emotional component of gratitude more so than the moral component of reciprocity. The GRAT consists of 44 items which represent three factors: resentment, simple appreciation, and social appreciation. The GQ-6 is a relatively new instrument that began as a 39-item measure but was reduced to six positively and negatively worded items for the final version. With these six items, this measure is able to tap each of the four facets of gratitude: intensity, frequency, span, and density (Emmons, McCullough, & Tsang, 2003). A comparison of the Satisfaction With Life Scale (SWLS), one of the most frequently used measures of subjective well-being, and the GQ-6 showed that gratitude was related to the more affective component of subjective well-being (Watkins, 2004).

Purpose of This Study

As stated before, gratitude is important because it can be viewed as an attitude that functions as a pathway to meaning (Schulenberg, 2001, 2003). Research suggests that both meaning and gratitude are positively linked to well-being and that a lack of meaning is linked to psychopathology such as anxiety and depression (Reker, 2000). Despite these apparent relationships, there has not been a significant amount of research conducted on how meaning and gratitude relate to one another and to what degree both of these constructs relate to psychopathology. In this study, we examined the relationship between meaning, gratitude, and psychological well-being. The Life Attitude Profile-Revised, the Gratitude Questionnaire, and the Personality Assessment Screener were used to assess these variables. It was hypothesized that meaning and gratitude would both be linked to well-being, with the two also being related to one another such that a lack of meaning and a lack of gratitude are associated with greater degrees of psychopathology. By examining the linear regression equations for the LAP-R and PAS, and the GQ-6 and PAS, the relationship between the variables and the interpretive values of the obtained scores will be better understood. Finally, the current study seeks to add to the psychometric properties of each of these measures.

Methods

Participants

Two hundred undergraduate students enrolled in psychology courses participated, receiving one hour of extra credit as compensation. Of the 200 participants, 127 (63.5%) were female and 73 (36.5%) were male. The participants ranged in age from 18 to 43

and had a mean age of 19.48 years (*SD* = 2.85). One hundred and fifty-four of the students (77%) stated their race/ethnicity as Caucasian, 38 (19%) as African American, 1 (< 1%) as Asian American, 1 (< 1%) as Hispanic American, and 6 (3%) of the students reported themselves as other. One hundred and thirty-eight (69%) were freshmen, 27 (13.5%) were sophomores, 22 (11%) were juniors, 12 (6%) were seniors, and 1 (< 1%) indicated other. The mean GPA of 196 of these students was 3.09 (*SD* = 0.58, min = .60, max = 4.00). The remaining 4 (2%) did not provide their GPA.

Measures

Measures included: (1) a demographics survey, (2) the Life Attitude Profile-Revised, (3) the Gratitude Questionnaire-6, and (4) the Personality Assessment Screener.

Demographics survey. The demographics survey included questions about the participants' age, gender, ethnic/racial background, current GPA, and classification (e.g., freshman, sophomore).

Life Attitude Profile-Revised (LAP-R; Reker, 1992). The LAP-R is comprised of 48 items that measure six dimensions of meaning: purpose (PU), coherence (CO), choice/responsibility (CR), death acceptance (DA), existential vacuum (EV), and goal seeking (GS). The measure uses a 7-point Likert-type response format. The score of each dimension ranges from 8 to 56. There are two composite scales. The score for the first scale, the Personal Meaning Index (PMI), is calculated by adding the purpose and coherence dimension scores. This score ranges from 16 to 112. The score for the second scale, Existential Transcendence (ET), is found by adding the purpose, coherence, choice/responsibility, and death acceptance dimension scores and subtracting the existential vacuum and goal seeking scores. This score can range from -80 to 208. A

higher score on each of the scales is related to a higher level of meaning with the exception of the EV and GS dimensions in which a higher score is related to lower degrees of meaning (Reker, 1992, 1994).

The following psychometric properties for a young adult population are described by Reker (1992). The internal consistency (N=348) coefficients of the six dimensions range from .77 (EV) to .87 (PU), and are .91 and .90 for the PMI and ET scales, respectively. The test-retest stability estimates on a subsample of participants (N=200) for a 4-6 week interval range from .77 to .90. The construct validity of the LAP-R was assessed in a series of eight studies involving eighteen different measures. When the construct validity of the PMI was studied (N=186 older adults), two of the psychosocial variables measured were psychological well-being and depression. The factor loadings were .76 and -.72 respectively, suggesting that high levels of meaning are indeed positively related to well-being and negatively related to depression (Reker, 1992).

The LAP-R is of primary interest as a measure of meaning because in a single scale it purportedly taps a variety of different dimensions of meaning, each of which focuses on facets of Frankl's logotheory. Using the measure in this study affords opportunities to explore the psychometric properties of the instrument and further explore the utility of Frankl's logotheory.

Gratitude Questionnaire (GQ-6; Emmons, McCullough, & Tsang, 2003). The GQ-6 is a self-report measure that was originally comprised of thirty-nine positively and negatively worded items that assess experiences and expressions of gratefulness and appreciation in daily life. It was then narrowed down to six items of which four are positively worded and two are negatively worded and reverse-scored. The six items are

scored on a 7-point Likert-type scale ranging from one (strongly disagree) to seven (strongly agree). The six items are designed to examine the four gratitude facets: intensity, frequency, span, and density (Emmons, McCullough, & Tsang, 2003).

In an initial investigation of the GQ-6 on a sample of 238 undergraduate psychology students, the mean was found to be 33.12 with a standard deviation of 5.28 and an internal consistency alpha of .82. But, the GQ-6 has not been extensively studied given it is a new measure. Additional psychometric studies are warranted. This investigation will seek to add to this measure's psychometric properties.

Personality Assessment Screener (PAS; Morey, 1997). The PAS, designed by Leslie Morey, is a condensed version of the Personality Assessment Inventory (PAI). It is comprised of twenty-two items which measure ten elements, representing ten clinical problem domains: negative affect (NA), hostile control (HC), acting out (AO), suicidal thinking (ST), health problems (HP), alienation (AN), psychotic features (PF), alcohol problem (AP), social withdrawal (SW), and anger control (AC). Each of the ten elements has its own individual score comprised of two or three items. A PAS total score is calculated based on the responses to all items. Both the basic scores and the total score are converted to probability scores (*P*) which reflect the probability that the individual would obtain a problematic profile on the PAI. For the PAS element scores, the scores are divided into four risk groups each with different *P* score ranges: normal (<40.0*P*), mild (40.0*P* to 49.9*P*), moderate (50.0*P* to 74.9*P*), and marked (>74.9*P*). For the PAS total score, the scores are divided into six risk groups with different *P* score ranges: low (<15.00*P*), normal (15.00*P* to 29.99*P*), mild (30.00*P* to 47.99*P*), moderate (48.00*P* to 74.99*P*), marked (75.00*P* to 99.81*P*), and extreme (>99.81*P*). Any PAS score above 50

signifies that it is more likely than not that the person is experiencing some type of clinically significant problem (Morey, 1997).

Psychometric properties of the PAS are described by Morey (1997). The internal consistency reliability for the PAS total scores was calculated on three different norm populations, a census population of 1000, a clinical population of 1246, and a college student population of 1051, and were .75, .79, and .72, respectively. For the community population, the element alphas ranged from .34 (AP) to .68 (ST). The element alphas for the clinical population ranged from .48 (HC) to .84 (ST), and the college population's element alphas ranged from .29 (AP) to .77 (SW). The test-retest reliability for the PAS total scores (*N*=a combined community and college population of 155) was .86. With respect to diagnostic indicators, groups with a diagnosable mental disorder often display an elevated score on the PAS Total score. In general, individuals with more severe disorders, with multiple diagnoses, or with both obtain higher scores than those with less severe disorders (Morey, 1997).

The PAS was a measure of interest because in a single, brief measure it is able to tap ten different dimensions of psychopathology. It is also effective because it has established risk groups for each of the elements as well as for the total score.

Procedures

Participants were recruited through a posting on the bulletin board in the psychology building at a medium-sized Southern university. Data was collected in a number of group administration sessions. Each participant was given a packet containing the demographic survey, the LAP-R, the GQ-6, and the PAS. Participants received course credit for their participation.

An attempt was made to further assess the psychometric properties of the three measures. These statistics included, but were not limited to, the mean, standard deviation, minimum, maximum, and internal consistency reliability. A correlation matrix was also tabulated. Finally, regression equations were also calculated to better understand the relationship between meaning and psychopathology, and gratitude and psychopathology, as well as the interpretive value of the obtained scores.

Results

Descriptive statistics and mean comparisons. The means, standard deviations, minimum, and maximum values for the LAP-R dimensions and composites, the GQ-6 total score, the PAS total score, and the PAS subscales were calculated and are presented in Table 1. The mean scores of the LAP-R dimensions ranged from 27.62 (EV; *SD*=7.71) to 43.35 (GS; *SD*=5.32) and the PMI and ET composite means were 83.60 (*SD*=12.72) and 90.58 (*SD*=23.19), respectively. The mean total score of the GQ-6 was 37.56 (*SD*=6.33). The mean scores of the PAS dimensions ranged from 41.85 (AN; *SD*=14.62) to 62.01 (SW; *SD*=17.83) and the PAS total score mean was 47.84 (*SD*=29.53).

T-tests for gender differences were also calculated and are organized in Table 2. For the LAP-R, four of the seven gender differences were found to be statistically significant. On the coherence dimension and the PMI subscale females scored higher than males. For the CR and EV subscales, males scored higher than females. The gender difference between males and females on the GQ-6 is also statistically significant, although females only scored slightly higher than males. For the PAS, two of the gender

differences are statistically significant. On both the AO and AP subscales, males scored higher than females.

Internal consistency. Coefficients for each of the measures and their subscales were calculated and are presented alongside the descriptive statistics in Table 1. The coefficients for the LAP-R dimensions range from .64 (GS) to .86 (DA). The composite coefficients for the PMI and ET are .87 and .82, respectively. Each coefficient is lower than those found in a previous college-aged population. However, the only subscale alpha that is inconsistent with previous data is goal seeking which previously was much higher than in this investigation. The reliability coefficient for the GQ-6 total score for the current study is .87 which in comparison to .82 is consistent with previously recorded norm data ($N = 238$ undergraduate psychology students). The PAS subscale coefficients range from .39 (AP) to .78 (SW). The PAS Total coefficient was found to be .72, which is the same coefficient reported by Morey in the previously described college population.

Correlation matrix. Table 3 organizes the relationships between each of the subscales and total scores of the LAP-R, the GQ-6, and the PAS. Of the eight relationships between LAP-R scores and the GQ-6 total score, five are statistically significant at .01 and the other four are not statistically significant. These correlations range from .01 (DA/GQ-6) to .29 (CO/GQ-6). Of the 88 relationships between LAP-R dimension and composite scores and the PAS total and subscale scores, 33 are statistically significant at .01, 17 are statistically significant at .05, and the remaining 38 are not statistically significant. These correlations range from <.01 (DA/HP) to .44 (EV/PAS Total). Of the eleven relationships between the GQ-6 total score and the PAS total and subscale scores, only two (PAS Total and AC) are statistically significant at .05,

one (NA) is statistically significant at .01, and the remaining eight are not statistically significant, ranging from .01 (PF/GQ-6) to -.19 (NA/GQ-6).

Regression- LAP-R composite scores and the PAS Total Score. In order to better understand how meaning and psychological health are connected and to better understand the meaning of these scores, it is helpful to examine the two LAP-R composite scores and the PAS total score via regression. To do this, the following linear regression equations were calculated for the PMI and ET scores, respectively, $Y = -.70X + 106.17$ and $Y = -.46X + 89.18$, where X = the LAP-R composite score and Y = the PAS total score. To establish what level of meaning is associated with different levels of psychological health, PAS total scores of 50, 60, 70, 80, and 90 were entered into each equation. The corresponding PMI scores were found to be 80.47, 66.14, 51.82, 37.49, and 23.16, respectively. The subsequent ET scores were found to be 85.93, 64.00, 42.06, 20.14, and -1.79, respectively. These results are presented in Table 4.

Regression- The GQ-6 total score and the PAS total score. In order to better understand how gratitude and mental health are connected and to more easily comprehend the significance of these scores, a regression equation was computed, $Y = -.69X + 73.84$, where X = the GQ-6 total score and Y = the PAS total score. PAS total scores of 50 and 60 were entered into the equation. Corresponding GQ-6 scores of 34.45 and 20.00 were found. These results are exhibited in Table 4. PAS total scores of 70, 80, and 90 were not used in calculations because they result in scores that fall below the lowest possible GQ-6 score.

Discussion

The primary purpose of this investigation was to examine the relationship between meaning, gratitude, and psychological well-being. It was hypothesized that because meaning and gratitude both appear to be linked to well-being, they will also be related to one another. Moreover, a lack of meaning and a lack of gratitude would be suggestive of greater degrees of psychopathology. These hypotheses were based on previous studies and consistent with the logotherapy paradigm. An additional goal was to add to the psychometric properties of the Life Attitude Profile-Revised (LAP-R), the Gratitude Questionnaire-6 (GQ-6), and the Personality Assessment Screener (PAS).

Table 1 summarizes the descriptive statistics and internal consistency of each measure's subscales and total scores. These data add to the norms of each of the measures. Means and standard deviations for the LAP-R dimensions and composites were found in a previous study (Reker, 1992) using participants between the ages of 17 and 24. These data compare quite well with the present study, each falling closely within the same range. Although there do not appear to be established cutoffs for LAP-R scores, a high score on each of the LAP-R dimensions and subscales reflects a high degree of the attribute in question and, in turn, a higher level of meaning (or lower for the EV and the GS dimensions). Therefore, the means found in this investigation for each subscale suggest an intermediate level of meaning in the population being examined. In contrast to the means found, the internal consistency alphas tended to fall a little lower in the present study as compared to Reker's young adult (age 17-24) population. Vogt (1999) indicated that a Cronbach's alpha above .70 suggests that the items in a measure are

assessing the same thing. Only the goal seeking dimension (at .64) does not meet this qualification.

The GQ-6 mean and standard deviation of the present study (M=37.56, SD=6.33) are higher than the previously reported undergraduate population (M=33.12, SD=5.28). This study also yielded a comparable internal consistency alpha, adding further support for the reliability of the measure. In the current study the internal consistency alpha was examined to see what would happen if items were dropped. One would expect the reliability to drop with a decrease in the number of items. It is interesting to note that when the sixth item ("Long amounts of time can go by before I feel grateful to something or someone.") is dropped, the alpha increases from .87 to .92. One may assume that this item does not measure gratitude as well as the other items, but the exact reason for this finding is unclear at this time. A higher score on the GQ-6 is related to an elevated level of gratitude. The mean score for this measure is close to the maximum. The current sample may be reporting a high level of gratitude, or they may have responded in more favorable directions using the response format, or a combination of the two.

For the PAS, each of the subscale score means and standard deviations, as well as the total score mean and standard deviation (total score M=47.84, SD=29.53), closely resemble a previous college population (total score M=41.32, SD=28.87), with the exception of social withdrawal (SW), which was much higher in the present study. All of the subscale means fall in the mild to moderate risk range and the PAS Total score mean falls in the upper mild zone. As a result, it is more likely than not that many of the participants in the present study are at risk for unhappiness and apprehension (NA), problems associated with impulsivity, sensation-seeking, drug use, or a combination of

these (AO), persecutory thinking (PF), social detachment and discomfort in close relationships (SW), a need for control and an inflated self-image (HC), and difficulty in the management of anger (AC) (Morey, 1997). But, as stated before, these numbers appear to be representative for this type of sample. The internal consistency alphas are also fairly consistent with the previous college population norms, with the exception of the HP element score (.19 lower in this investigation than in a previous investigation). The internal consistency alphas for the dimensions are quite low, with the exception of SW and ST but this is to be expected as each of the element scores includes two or three items.

Table 2 shows the *t*-test results by sex. For the LAP-R, the coherence, choice/responsibleness, and existential vacuum dimensions, as well as the PMI composite, were found to have statistically significant differences between males and females. Females scored slightly higher on the coherence dimension, which some may interpret as women having a more logically integrated and consistent analytical and intuitive understanding of self, others, and life in general (Reker, 1992). They also scored higher than males on the PMI, which some may interpret as women reporting more in terms of having life goals, a mission in life, and a sense of direction from past, present, and future, as well as the qualities of the coherence dimension (Reker, 1992). This is consistent with the fact that females scored lower on the existential vacuum dimension. A low score on this subscale represents a lack of meaning in life, a lack of goals, a lack of direction, boredom, apathy, and feelings of indifference (Reker, 1992). On the choice/responsibleness dimension males scored higher than females, which some may interpret as their having greater freedom to make life choices, exercise personal

responsibility, make personal decisions, and have internal control of life events. Although there are some statistically significant gender differences, it is unclear ultimately what this means. Generally, these differences are small, and it may be that although there are some statistically significant differences, they are not clinically or practically significant.

The gender difference between males and females on the GQ-6 is also statistically significant, although females only scored slightly higher than males and, therefore, this result may not be of practical significance. For the PAS, two of the gender differences are statistically significant. On both the acting out and alcohol problem subscales, males scored higher than females. For the acting out subscale, men and women are both in the moderate risk category, but in the alcohol problem subscale, men and women fall in different categories (men in the moderate zone and women in the mild zone). The exact nature of these gender differences is unclear. Future research is needed in this respect.

Table 3 presents a correlation matrix of the relationships between each of the dimensions, subscales, and total scores of the LAP-R, GQ-6, and PAS. Table 4 presents the regression equation results of the predicted scores of the two LAP-R subscales (PMI and ET) and the GQ-6 total score based upon the PAS total score. These data help to establish the extent that meaning, gratitude, and psychological well-being are related. Only five of the eight relationships between meaning (LAP-R) and gratitude (GQ-6) were statistically significant at .01 and the remaining three were not statistically significant. However, the PMI and ET composites correlate with GQ-6 Total scores at .28 and -.27, respectively. These data indicate that these composites individually share 7 to 8% of the variance with GQ-6 scores. These constructs are statistically related but distinct. Of the

eight relationships between meaning (LAP-R) and psychological well-being (PAS total score), six are statistically significant. The PMI and ET composites correlated with PAS total scores at -.30 and -.36, respectively. PMI and PAS Total scores share 9% of the variance, while ET and PAS Total scores share 13% of the variance. These constructs are also related but distinct. The relationship between gratitude (GQ-6) and psychological well-being (PAS total score) is also statistically significant, being correlated at -.15. These scores only share 2% of the variance. Therefore, these constructs are slightly related. It is evident from reviewing the results in Table 4 that as the probability score (PAS Total) rises, PMI and ET scores, as well as GQ-6 scores, fall dramatically and as expected.

The current study was successful in providing additional norms for each of the measures used, as well as providing evidence furthering establishing the relationship between meaning and psychological health and gratitude and psychological health. A primarily Caucasian, college-aged, and freshman sample was studied. It is premature at this time to generalize the present results to other populations. Moreover, although the LAP-R is a comprehensive, multifaceted measure, the GQ-6 and PAS are brief. It would be useful in future investigations to study a more broad population ranging in age, racial/ethnic background, and education, using more comprehensive measures of gratitude and mental health. Replication of this kind would provide more diverse norms and a better understanding of the relationships between the three constructs.

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Table 1

Descriptive Statistics and Reliability (N = 200)

	M	*SD*	*Minimum*	*Maximum*	*Alpha*
LAP-R PU	41.94	7.06	20	56	.79
LAP-R CO	41.66	6.54	24	56	.75
LAP-R CR	42.93	7.16	21	56	.77
LAP-R DA	35.01	9.73	8	55	.86
LAP-R EV	27.62	7.71	10	49	.75
LAP-R GS	43.35	5.32	27	54	.64
LAP-R PMI	83.60	12.72	45	112	.87
LAP-R ET	90.58	23.19	32	154	.82
GQ-6 Total	37.56	6.33	6	42	.87
PAS Total	47.84	29.53	1.67	99.98	.72
PAS NA	50.56	20.57	25.5	100	.61
PAS AO	59.60	21.05	30	100	.51
PAS HP	43.50	13.07	36.3	96.1	.57
PAS PF	55.98	16.42	39.1	95.1	.48
PAS SW	62.01	17.83	39.1	100	.78
PAS HC	51.71	5.60	46	69.3	.44
PAS ST	47.71	17.20	38.6	100	.76
PAS AN	41.85	14.62	33.9	97.5	.62
PAS AP	48.59	15.35	37.3	98.7	.39
PAS AC	53.39	16.25	38.3	97.1	.65

Table 2

t-Tests by Sex (73 males, 127 females)

		M	*SD*	*t-Test Results*
LAP-R PU	Men	40.81	8.17	$t(121.18) = -1.60$
	Women	42.58	6.28	
LAP-R CO	Men	40.15	6.95	$t(198)^a = -2.51^*$
	Women	42.53	6.15	
LAP-R CR	Men	44.71	6.83	$t(198)^a = 2.70^*$
	Women	41.92	7.16	
LAP-R DA	Men	36.56	9.36	$t(198)^a = 1.72$
	Women	34.12	9.86	
LAP-R EV	Men	29.53	7.51	$t(198)^a = 2.71^*$
	Women	26.51	7.64	
LAP-R GS	Men	43.75	6.42	$t(114.60) = .74$
	Women	43.12	4.58	
LAP-R PMI	Men	80.96	14.52	$t(122.76) = -2.10^*$
	Women	85.11	11.34	
LAP-R ET	Men	88.95	25.55	$t(198)^a = -.75$
	Women	91.52	21.77	
GQ-6 Total	Men	36.20	7.56	$t(114.30) = -2.12^*$
	Women	38.34	5.37	

Note. $^*p < .05$ (2-tailed). [a]Equal variances assumed.

Table 2 (continued)

t-Tests by Sex (73 males, 127 females)

		M	*SD*	*t-Test Results*
PAS Total	Men	50.26	30.61	$t(198)^a = .88$
	Women	46.45	28.92	
PAS NA	Men	47.98	21.52	$t(198)^a = -1.35$
	Women	52.04	19.94	
PAS AO	Men	65.74	20.57	$t(198)^a = 3.20^*$
	Women	56.07	20.59	
PAS HP	Men	43.84	13.86	$t(198)^a = .28$
	Women	43.30	12.64	
PAS PF	Men	55.29	15.42	$t(198)^a = -.45$
	Women	56.37	17.01	
PAS SW	Men	60.06	18.53	$t(198)^a = -1.18$
	Women	63.13	17.38	
PAS HC	Men	51.52	5.14	$t(198)^a = -.37$
	Women	51.82	5.86	
PAS ST	Men	49.36	18.31	$t(198)^a = 1.03$
	Women	46.76	16.52	
PAS AN	Men	41.89	13.57	$t(198)^a = .03$
	Women	41.83	15.25	
PAS AP	Men	53.05	19.42	$t(102.90) = 2.81^*$
	Women	46.03	11.76	
PAS AC	Men	53.81	17.80	$t(198)^a = .28$
	Women	53.15	15.36	

Note. $^*p < .05$ (2-tailed). ^{a}Equal variances assumed.

Table 3

Correlation Matrix (N = 200)

		1	2	3	4	5	6	7	8	9	10
1)	LAP-R PU	--	.75**	.30**	.01	-.49**	-.03	.94**	.78**	.25**	-.32**
2)	LAP-R CO		--	.11	.17**	-.40**	.12*	.93**	.72**	.29**	-.24**
3)	LAP-R CR			--	-.02	.10	.13*	.22**	.36**	.06	.06
4)	LAP-R DA				--	.02	.16*	.09	.42**	.01	-.06
5)	LAP-R EV					--	.41**	-.48**	-.65**	-.27**	.44**
6)	LAP-R GS						--	.04	-.24**	-.03	.19**
7)	LAP-R PMI							--	.80**	.28**	-.30**
8)	LAP-R ET								--	.27**	-.36**
9)	GQ-6 Total									--	-.15*
10)	PAS Total										--
11)	PAS NA										
12)	PAS AO										
13)	PAS HP										
14)	PAS PF										
15)	PAS SW										
16)	PAS HC										
17)	PAS ST										
18)	PAS AN										
19)	PAS AP										
20)	PAS AC										

Note. *p is significant at .05 (1-tailed). **p is significant at .01 (1-tailed).

Table 3 (continued)

Correlation Matrix (N = 200)

		11	12	13	14	15	16	17	18	19	20
1)	LAP-R PU	-.29**	-.16*	-.19**	-.05	-.30**	.11	-.25**	-.18*	-.13	-.10
2)	LAP-R CO	-.20**	-.19**	-.11	-.02	-.25**	.13	-.22**	-.16*	-.15*	-.01
3)	LAP-R CR	-.18*	.24**	-.09	-.02	-.10	.06	.03	-.10	.19**	-.05
4)	LAP-R DA	-.15*	-.04	<.01	-.07	-.06	.14*	.03	<.01	-.09	-.01
5)	LAP-R EV	.36**	.27**	.23**	.23**	.18*	-.06	.31**	.16*	.23**	.16*
6)	LAP-R GS	.12	.20**	.02	.12	-.10	.09	.16*	.02	.06	.10
7)	LAP-R PMI	-.26**	-.19**	-.16*	-.04	-.30**	.12	-.25**	-.18*	-.15*	-.06
8)	LAP-R ET	-.40**	-.18**	-.16**	-.16*	-.25**	.14*	-.25**	-.18**	-.15*	-.13
9)	GQ-6 Total	-.19**	-.03	-.12	.01	-.04	-.03	-.11	-.05	-.05	-0.17*
10)	PAS Total	.66**	.55**	.40**	.47**	.29**	.30**	.50**	.40**	.37**	.54**
11)	PAS NA	--	.13	.34**	.31**	.33**	.14*	.29**	.29**	.13	.43**
12)	PAS AO		--	.04	.14	-.18**	.06	.29**	-.07	.35**	.09
13)	PAS HP			--	.17*	.14*	.04	.17*	.28**	.09	.18**
14)	PAS PF				--	.02	.24**	.27**	.18**	.05	.24**
15)	PAS SW					--	.01	.04	.29**	.03	.14*
16)	PAS HC						--	.14	.03	-.05	.24**
17)	PAS ST							--	.05	.18**	.17*
18)	PAS AN								--	.03	.26**
19)	PAS AP									--	<.01
20)	PAS AC										--

Note. *p is significant at .05 (1-tailed). **p is significant at .01 (1-tailed).

Table 4

Predicted LAP-R and GQ-6 Composite Scores Based on PAS Total Score

Predicted Variable	Individual Predictors		
PAS Total Score	LAP-R PMI	LAP-R ET	GQ-6 Total Score
50	80.47	85.93	34.45
60	66.14	64.00	20.00
70	51.82	42.06	**
80	37.49	20.14	**
90	23.16	-1.79	**

Note. ** Score was not calculated because it fell below the lowest possible GQ-6 score.