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Empirical Support for a Model of Well-Being, Meaning in Life, Importance of Religion, and Transcendent Experiences

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Abstract: A model developed in an investigation of the effects of transcendent experiences on subjective well-being may provide insight into the weak, positive correlation between religious commitment and well-being. This model suggests that religious commitment influences a person's sense of meaning in life, which, in turn, influences well-being. The model also suggests that transcendent experiences can affect religious commitment, which then influences meaning in life and well-being. The data from a convenience sample of 182 people are very consistent with this causal chain model. More importantly, numerous other studies of the relationships between specific components of the model are consistent with the model. However, the available data and structural equation methods are ambiguous about the direction of causation along this chain path, and reciprocal or bi-directional causation is likely. Although the direction of causation may vary, the intervening or mediating roles appear to apply with either causal direction.

The weak relationship between religious involvement and psychological well-being is somewhat surprising given the prevalence of religious beliefs in the United States. Gallup surveys report that 94% of Americans say they believe in God, 54% say that religion is very important in their lives, and 38% say their religious involvement has been a "very positive" experience (Gallup and Castelli, 1989:35,45). Beliefs that have such widespread affirmation might be expected to have a strong positive impact on peoples' lives. In addition, as Koenig (1990) noted, a strong association between religious commitment and well-being would be expected based on individual testimonials. However, reviews of research on the relationship between religious commitment and psychological well-being find only a weak positive association overall (Bateson, Schoenrade and Ventis, 1993:287; Bergin, 1983; Koenig, 1990; Witter, Stock, Okun, and Haring, 1985).

In a recent project that investigated the effects of transcendent experiences on people's lives, our initial data supported a model that may offer some insight into the relationship between religious commitment and well-being. Although our data were from a nonrandom sample from a selected population, the resulting model appears remarkably consistent with and integrates a

wide body of data from other sources. The data and model support the hypothesis proposed by Zika and Chamberlain (1992b) that a sense of meaning in life mediates or intervenes between religious beliefs and well-being. A relatively low correlation between religious commitment and well-being follows naturally from this model. Our work also extends the analysis to include the role of transcendent experiences.

The purposes of this paper are (a) to describe a model of the relationships among well-being, religious commitment, meaning in life, and transcendent experiences, (b) to summarize data that pertain to this model, and (c) to discuss the implications of the model. We start with brief summaries of the concepts and limitations for each component of the model and for the statistical methods used to evaluate the model.

COMPONENTS OF THE MODEL

Well-Being

Subjective well-being is a global assessment of all aspects of a person's life and includes a cognitive-judgement component, life satisfaction, and two emotional components, positive affect and (absence of) negative affect (Diener, 1984). Well-being consists of stable dispositions or personality traits combined with short-term states resulting from transient events or environmental conditions (Chamberlain and Zika, 1992a; Diener, 1984; Pavot and Diener, 1993). Available data generally support the picture that good or bad events cause corresponding fluctuations in well-being that subsequently tend to return to a relatively stable baseline level, but major losses can cause long-term decreases in well-being (Braumeister, 1991:226-229; Chamberlain and Zika, 1992a; Diener, 1984; Lehman, et al., 1993).

The inadequate understanding of the relative roles of the trait and state aspects of well-being and the associated inability to identify factors that can cause long-term positive shifts in well-being are major gaps in well-being research. This situation results from the primarily correlational nature of the existing studies, which cannot disentangle factors that influence well-being from factors that are influenced by well-being. The stable trait aspects of well-being presumably are more likely to influence other factors, whereas the fluctuating state aspects of well-being are more likely to reflect influences by other factors.

Meaning and Purpose in Life

Certain psychologists believe that meaning in life is essential for psychological health in general (e.g., Maddi, 1967; Yalom, 1980) and various others propose that meaning in life protects against adverse health effects from stressful events (e.g., Antonovsky, 1987; Kobasa, 1979; Wortman, Silver, and Kessler, 1993). The term meaning in life indicates that a person is committed to a concept, framework, or set of values that (a) makes life understandable, (b) offers goals to attain, and (c) provides fulfillment (Battista & Almond, 1973). The most widely used meaning in life scale is the Purpose in Life test (Crumbaugh & Maholick, 1964).

The Purpose in Life test, like other meaning in life scales, has items on life satisfaction and depression and therefore can be expected to exaggerate relationships with well-being

(Dufton and Perlman, 1986; Dyck, 1987; Yalom, 1980:456). This overlap with two components of well-being is a serious problem.

The inadequate understanding of the specific factors that provide meaning in life is a major gap in this area of research. Research to-date has focused on the degree or intensity of an overall sense of meaning in life, with little consideration that different sources of meaning may have different effects. The majority of people report that more than one factor gives their life meaning (Battista and Almond, 1973; Baumeister, 1991:5). Baumeister (1991) provides an interesting review and discussion of the potential sources of meaning in life. The relative roles of meanings or goals that are of a transcendent or mythical nature versus goals that are more tangible and short-term may be particularly important.

Self-Rated Importance of Religion

A self-rated importance of religion question measures the same construct as intrinsic religiosity scales and is a key dimension of religious involvement. These measures assess the degree that religion is the most important motivation or guiding principle in a person's life. The two items on the standard intrinsic religiosity scale that usually have the highest correlations with the full scale are: "My religious beliefs are what really lie behind my whole approach to life," and the negatively loaded "Although I believe in my religion, I feel there are many more important things in life" (Genia, 1993; Gorsuch and McPherson, 1989; Hoge, 1972). The obvious correspondence between intrinsic religiosity and self-rated importance of religion was verified in a factor analysis by Gorsuch and McFarland (1972) that identified the two measures as indicators of one factor.

Intrinsic religiosity is one of the most widely used measures in research on religion (Donahue, 1985). The concept and term originated with Allport (1960:264, 1966), and have evolved into a measure of religious commitment that is relatively independent of specific religious beliefs (Gorsuch, 1991). Standard scales have been developed (Hoge, 1972; Gorsuch and Venable, 1983). Self-rated importance of religion is typically measured with one item asking how important religion is to the person. Although religious involvement is widely presumed to have several dimensions, other proposed dimensions have not caught on the way that intrinsic religiosity has.

The relationships between intrinsic religiosity and the religion questions often asked in large social surveys are unclear. One common survey question is some form of "how religious do you consider yourself to be?" Although this question presumably correlates with questions like "how important is religion to you," the two questions have a different emphasis and we found no data comparing them. Questions about frequency of attending religious services are known to correlate with intrinsic religiosity, but also probably reflect other dimensions of religious involvement, as well as non-religious factors such as physical health (Levin and Markides, 1986) and social support (Ellison and George, 1988; Taylor and Chatters, 1988).

Transcendent Experiences

Mystical experiences are perceived as contact or union with a transcendent or ultimate divine reality and have several key characteristics (Spilka, Hood, and Gorsuch, 1985:176). These characteristics include: (a) a profound sense of unity, (b) a sense that the experience is noetic or a source of direct knowledge, (c) a sense that the experience is holy or spiritual, (d) ineffability or impossibility of describing the experience in words, and (e) presence of positive affect.

Mystical experiences can be viewed as part of a larger domain of *transcendent* experiences, which include similar experiences without the holy or religious connotation (Bourque, 1969; Spilka, Hood, and Gorsuch, 1985:Chapter 8). Transcendent experiences are one extreme on a continuum that includes experiences with varying numbers and intensities of the key characteristics (Spilka, Hood and Gorsuch, 1985:182; Thomas and Cooper, 1980). Also, mystical experiences are a category of the broader domain of religious experiences (Hardy, 1979; Margolis and Elifson, 1979; Spilka, Hood and Gorsuch, 1985).

Mystical experiences can influence a person's religious beliefs and a person's religious beliefs apparently can affect the occurrence of mystical experiences and/or the perception that transcendent experiences are religious experiences (Hay and Morisy, 1985; Spilka, Hood, and Gorsuch, 1985:Chapter 8). This is another situation when it is difficult to sort out the direction of causation.

National surveys consistently find that 30% to 40% of the American people report they have had one or more mystical or religious experiences. These percentages occur consistently in surveys using different questions (Back and Bourque, 1970; Davis and Smith, 1994:124; Gallup and Castelli, 1989:68-69; Greeley, 1975; Spilka, Hood, and Gorsuch, 1985:182-184).

However, 3% or less may be a more accurate estimate of the percentage of the population with full or "classic" mystical experiences. These survey questions appear to capture a much broader range of experiences than traditional mystical experiences. The question developed by Hardy (1979:18-19,125) was specifically intended to address a broad range of religious experiences . The question developed by Greeley (1975:43-57) was specifically intended to capture mystical experiences; however, Greeley (1975:77,79) found that although 35% of a national sample indicated one or more mystical experiences, only 3% of the sample described "authentic" mystical experiences that included at least three characteristics of classic mystical experiences. In very similar results with the same question, Thomas and Cooper (1978, 1980) found in two studies that 34% of the subjects in each study reported an experience, but only 2% and 1% reported "classical" mystical experiences. In a recent factor analysis of a multi-item spiritual experience scale, VandeCreek, Ayres, and Bassham (1995) found that this same question correlated only .16 with the spiritual experience factor.

Improved measurement methods and conceptual distinctions are needed for progress in understanding transcendent and religious experiences. Methods that measure various types and degrees of experiences and corresponding distinctions in terminology may be particularly valuable. Hood (1975) and Kass, et al. (1991) have developed mystical or spiritual experience scales that may provide a basis for further research.

MODELING METHODOLOGY

Path Analysis

Path analysis compares the relative strengths of the correlations among variables and can evaluate which variables appear to have some type of intervening or intermediate role between other variables.

The foundation for path analysis is the realization that if variable B has a causal or mediating role between variables A and C, then the correlation between A and C is equal to the correlation between A and B multiplied by the correlation between B and C (see Asher, 1983, for a readable introduction to path analysis). Note that the correlation between A and C will normally be substantially less than either the correlation between A and B or the correlation between B and C. This precise specification of the relationship among correlations will probably not hold if variable A affects variable C partially or entirely by mechanisms other than variable B.

The usual method to statistically evaluate the mediating role of variable B is a regression with variable C as the dependent variable and variables A and B as predictor variables. If mediation by B is the only mechanism for A to influence C, this regression should find that (a) the relationship between variables A and C becomes zero or nonsignificant when adjusted for variable B, and (b) the relationship between variables B and C is basically unaffected by adjustment for variable A. If variable A affects variable C by other mechanisms in addition to variable B, then the relationship between A and C will be reduced but not be zero when adjusted for B. The *path coefficients* between variables are the standardized regression coefficients adjusted for the other predictor or causal variables. Of course, this regression approach to path analysis requires that the data meet all the assumptions of ordinary regression analysis.

Path analyses, like other uses of ordinary regression, often fail to meet the assumption that the predictor variables are measured without error and also are susceptible to confounding by unmeasured causal variables (James, Mulaik and Brett, 1982). Both of these problems can introduce significant bias in the results.

Structural Equation Models

Structural equation models are an extension of path analysis that can handle measurement error and a wider range of relationships among variables. In essence, structural equation methods are a merging of regression analysis, path analysis, psychometrics, and factor analysis. All the various equations for path analysis and measurement error are solved simultaneously. The overall fit of a structural equation model is based on the degree that the correlations among the measured variables match the correlations predicted by the model. Various measures of goodness of fit have been developed. In addition to the overall fit, individual path coefficients can be tested to see if they are zero or some other specific value.

The results of structural equation models must be taken with caution at present because fundamental methodological issues have not yet been resolved. The requirement that data be

normally distributed is much more important in structural equation methods than in ordinary regression. Hu, Bentler and Kano (1992:351) noted that the assumption of normality is usually violated in practice and found in simulation studies that "normal-theory tests worked well under some conditions but completely broke down under other conditions." Robust methods that do not assume normality have been proposed, but initial investigations suggest that the most widely recommended method (weighted least squares) may sometimes require sample sizes of 5,000 to be valid (Hu, Bentler and Kano, 1992). Other robust methods may perform better, but the current state of structural equation methodology does not provide practical, usable guidelines for the conditions under which the different methods can be used with confidence.

At present, structural equation models may be most useful for investigating the dominant features of the relationships in a model. Subtle distinctions and precise parameter estimates are usually tenuous at best.

The Problem of Causal Direction

Structural equation models and path analysis normally provide evidence consistent with a group of models and rarely provide evidence uniquely supporting just one causal model. Numerous models usually can be developed that fit the data equally well. In a review of 99 published applications of structural equations, MacCallum et al. (1993:190) found that the median number of alternative models that fit the data equally well was 12 using a methodology that counted only a portion of the alternative models.

In particular, structural equation models normally cannot determine or verify the direction of causation. In the earlier example that variable A affects variable B which affects C, identical statistical results will occur if the causal directions are reversed so that variable C influences B which then influences A, or if variable B is the cause of both variables A and C (Asher, 1983:21). In addition, the variables could be correlated without being causally related.

These uncertainties are compounded by the fact that reciprocal or bi-directional causation is rampant with human beings. We affect other people and our environment, and we are affected by other people and the environment. As noted in earlier sections, the factors being discussed in this paper are likely candidates for reciprocal causation. Although structural equation methods can be used to investigate reciprocal causation, these analyses require additional and usually questionable assumptions, and are relatively undeveloped (Kenney, 1979:109). In particular, the time periods between sequential causal events and the time lags for causal influences to propagate should be considered in the design and interpretation of structural equation models in general and particularly for the feedback loops with reciprocal causation models.

Structural equation models and path analysis can provide evidence that variable B appears to have some type of intermediate or intervening role between variables A and C, but the exact causal nature of that role usually must be determined by other evidence. This more modest conclusion is often a step forward in our knowledge. In general, randomized experiments provide the most compelling evidence of causation. However, a correlational model that makes useful predictions may be valuable even if the details of causation are uncertain.

DATA COLLECTION

As part of a study to investigate how transcendent and paranormal experiences affect people, we collected data on several psychological and health-related measures. The present report focuses on the findings for transcendent experiences and the relationships among variables that have precedents from previous research.

Questionnaire[1]

Well-being was measured with six items derived from the Medical Outcomes Study (Stewart, Ware, Sherbourne and Wells, 1992; Veit and Ware, 1983). The respondents indicated how much of the time during the past month they had each of three positive feelings and three negative feelings. The six response options ranged from "all of the time" to "none of the time."

Meaning in life was measured with one item asking "Have you found meaning and purpose for your life?" The four response options ranged from "very much" to "no."

Importance of religion was measured with one item imbedded in a list of ten items with the heading "To what extent do the following values and motivations give your life meaning and purpose?" The religion item was "observe spiritual or religious beliefs." The five response options ranged from "Not at all a purpose of life" to "Extremely important purpose of life." Although this question differs from the usual importance of religion question, it does indicate the importance of religion to the person.

Transcendent experiences were measured with one item that asked "Have you ever had a transcendent or spiritual experience (overwhelming feeling of peace and unity with the entire creation, or profound inner sense of Divine presence)?" The two response options were "yes" and "no."

Respondents

Questionnaires without missing data on the key variables were obtained from a convenience sample of 182 people. The sample consisted of people who were interested in paranormal phenomena, including people who attended talks on parapsychology, contacted a parapsychology research center, or had ordered books or materials related to paranormal phenomena. The mean age of the respondents was 38 and ranged from 16 to 89. About 35% were under age 25 and 15% over age 60. Women were 70% of the sample.

MODEL DEVELOPMENT AND EVALUATION STRATEGY

The starting point for model development was Chamberlain and Zika's (1992b) hypothesis that meaning in life mediates the effects of importance of religion on well-being. We

[1] The questionnaire underwent minor modification of wording and significant modification of format during the period of data collection.

extended the model to evaluate whether importance of religion mediates the effects of transcendent experiences on meaning in life and on well-being. This sequence from transcendent experiences to importance of religion to meaning in life to well-being gives a causal chain model as shown in Figure 1.

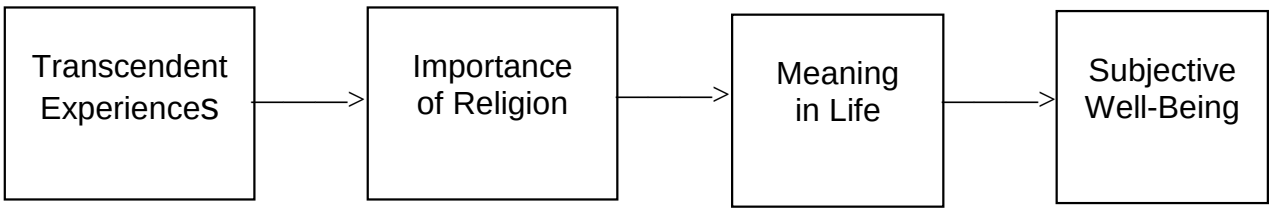

Figure 1. Causal Chain Path Model.

This causal chain model can be evaluated by determining whether: (a) the structural equation goodness of fit measures indicate a good fit overall, (b) the magnitudes of the path coefficients between sequential variables in the chain are significantly different from zero, (c) the magnitudes of the path coefficients between variables that are not sequential in the chain are near zero, and (d) the magnitude of the correlations between variables that are not sequential in the chain match the correlations expected by multiplying the path coefficients for intervening variables. Although these analyses are largely redundant, they bring into focus different aspects of the model and facilitate comparison with other studies.

The chain model was evaluated with and without adjustment for measurement error. The path analysis that assumes no measurement error allows comparison with previous studies that have been analyzed with this assumption. The analysis with measurement error may be more consistent with the true path coefficients and with previous studies that used more reliable multi-item scales. For the measurement error analysis, the observed reliability of .85 was used for the multi-item well-being measure. Because reliability cannot be directly estimated for single-item measures, a range of reliabilities was examined.

We also evaluated the model using methods that do and do not assume the data are normally distributed. All variables were significantly non-normal. Based on the findings of Chou and Benter (1995), the maximum likelihood method was used as the method that assumes normality. The distribution-free method was weighted least squares. The analyses were done using PROC CALIS in SAS for Windows, Release 6.08.[2]

Initial analyses indicated that age, gender, and education did not affect the path coefficients of interest here. For simplicity and to avoid sample size reduction from additional missing data, these variables were not included in the analysis.

[2] Another reason for using the maximum likelihood method is that this version of SAS is known to give incorrect results for certain goodness of fit measures with other methods (Hartman, 1995:9).

RESULTS OF MODEL EVALUATION

The structural equation goodness of fit measures indicate the chain model fits the data well. For the analysis using the maximum likelihood method without measurement error, the goodness of fit chi-square test is not significant (chi-square=5.43, 3 df, N=182, p=.14), the Comparative Fit Index is .978, Bentler and Bonett's Non-normed Fit Index is .955, and the Goodness of Fit Index is .985. (For these indexes, values near 1.0 indicate a good fit and .90 is generally considered the minimum acceptable value.). The goodness of fit results were slightly better for the analyses with measurement error and with weighted least squares. The results for the individual paths are summarized separately below.

To give a reasonable estimate of the effects of measurement error, the results for a reliability of .65 for the single-item measures are presented. The analyses with different reliabilities showed that as reliability decreased, the magnitude of the significant (non-zero) path coefficients monotonically increased and the t values (significance levels) of the path coefficients decreased slightly. On the other hand, the magnitude of nonsignificant (near zero) path coefficients and the associated t values tended to drift near zero as reliability decreased. The magnitudes of the path coefficients were very similar with the weighted least squares method as with the maximum likelihood method. The t values tended to be slightly lower with weighted least squares. For simplicity, only the results for the maximum likelihood method are reported here.

Meaning in Life and Well-Being

Consistent with the chain model, the path coefficients between meaning in life and well-being are .49 and .63 without and with measurement error, respectively. As shown in Table 1, the t values of 6.81 and 5.11 from the full model are well above the value 2.0 that indicates a nonzero path coefficient. These t values test whether the relationship between the two variables is significant after adjusting for the other variables in the model.

These path coefficients are at the low end and middle of the range of correlations typically found in other studies (see Table 1). The correlation coefficient for this study is .49, which is at the low end of the range of typical values. This result is not surprising because the single-item meaning in life measure used in this study should have a lower reliability than the scales used in the majority of the other studies. The path coefficient adjusted for measurement error is .63, which is in the middle of the range of typical values. The fact that the meaning in life measure used here does not have the overlap with life satisfaction and depression found in the longer scales probably also contributes to the lower correlations in this study.

TABLE 1.

Paths Expected to be Significant with the Causal Chain Path Model

Path	Path Coefficient[a] for Chain Model With No Measurement Error	Path Coefficient for Chain Model With Measurement Error[b]	Correlation in This Study	Typical Correlations in Other Studies
Meaning in life to Well-Being	.49 (t=6.81)[c]	.63 (t=5.11)	.49	.50 - .75
Importance of Religion to Meaning in Life	.39 (t=4.64)	.58 (t=3.49)	.39	.25 - .40
Transcendent Experiences to Importance of Religion	.39 (t=5.64)	.60 (t=5.37)	.39	.35 - .60

[a] The path coefficients are standardized coefficients. The path coefficients for the chain model assuming no measurement error should equal the correlation coefficients except for slight differences resulting from different algorithms.

[b] The model with measurement error used the observed reliability of .85 for well-being and .65 for the reliabilities of the other measures.

[c] These t values are from the full or saturated model with direct paths between all variables and test whether the relationship between the two variables is significant after adjustment for the other variables in the model. The path coefficients for the full model are not shown here but were approximately the same magnitude as for the chain model given here. The usual criteria is that t values greater than 2.0 indicate a nonzero path coefficient. The t values for the path coefficients were obtained from the covariance matrix rather than the correlation matrix.

Other studies typically found correlations of .50 to .75 between meaning in life and well-being. Zika and Chamberlain (1987, 1992b) investigated the correlation between three different meaning in life scales and the three components of well-being. The four samples were from New Zealand and included 194 mothers, 150 elders, 160 students, and 120 randomly selected community adults. The majority of the various correlations between meaning in life and well-being components were in the range of .50 to .75. Harlow, Newcomb and Bentler (1986) in a study of 722 young adults found correlations of .64 for females and .65 for males between the Purpose in Life test and a factor consisting of positive affect, negative affect, impaired motivation, and impaired relationships. In a sample of 560 randomly selected residents of Akron, Ohio, Poloma and Pendleton (1990) found that a 2-item meaning in life scale correlated .54 with a 4-item life satisfaction scale, .44 with a one-item happiness measure, and -.25 with a four-item negative affect scale. In general, these studies found that meaning in life has a higher correlation with positive affect and life satisfaction than with (lack of) negative affect. Also, as expected, the correlations tended to be higher with more reliable measures.

Importance of Religion and Meaning in Life

The path coefficients between importance of religion and meaning in life are .39 and .58 without and with measurement error respectively (see Table 1). Consistent with the chain model, the values are very significantly different from zero.

These two values are at the upper end and above the range of correlations typically found in other studies. The .39 correlation for this study is at the upper end of the range of typical values rather than at the lower end as would be expected based on the reliability of the single-item measures used here. The higher values in the present study may reflect the fact that our importance of religion question differed from the questions normally used and was specifically linked to purpose in life. The characteristics of the selected sample in this study may also be a factor in the higher correlation.

Other studies typically found correlations of .25 to .40. With 318 randomly selected residents of Memphis, Peterson and Roy (1985) found that a three-item measure of importance of religion correlated .25 with a three-item meaning and purpose scale. Paloutzian, Jackson, and Crandall (1978) report that the correlations between a standard intrinsic religiosity scale and the Purpose in Life test were .34 for 84 college students and .37 for 177 adults. Crandall and Rasmussen (1975) also found that the correlation between the Purpose in Life scale and a standard intrinsic religiosity scale was .31 for 71 college students. Chamberlain and Zika (1988) report that for the sample of 188 New Zealand mothers, a measure related to intrinsic religiosity correlated r=.27 with the Purpose in Life scale, and .34 and .25 with two other meaning in life scales. For a sample of 822 church members, King and Hunt (1975) found that an 8-item subscale (salience:cognitive) that included 3 items from intrinsic religiosity scales correlated .41 with a 5-item positive meaning in life subscale and -.25 with a 4-item negative (lack of) meaning in life subscale.

Transcendent Experiences and Importance of Religion

Consistent with the chain model, the path coefficients between transcendent experiences and importance of religion are very significantly different from zero. As shown in Table 1, the path coefficients are .39 and .60 without and with measurement error, respectively. These values are in the low end and upper end of the range of typical correlations found in other studies, which is consistent with the expected lower reliability of the single-item measures in the present study.

A reasonable estimate for the relevant range of correlations typically found in other studies is .35 to .60, however, the results vary widely due to the lack of standard measures for transcendent or mystical experiences. Hay and Morisy (1978) found in a national Survey in Great Britain that two questions about mystical or religious experiences correlated .37 and .40 with a question about the importance of the spiritual side of life. In a series of studies with college students, Hood (1970, 1971, 1972, 1973, 1975, 1978) found correlations between intrinsic religiosity and mystical or other intense religious experiences of .51, .56, .50, .61, .81, and .25. Hood used varying methods for measuring mystical experiences in these studies, and, in two studies, intrinsic religiosity was combined (confounded) with extrinsic religiosity (Hood,

1972, 1973). In a sample of 83 medical outpatients participating in a meditation program, Kass, et al, (1991) reported a correlation of .69 between scores on a standard intrinsic religiosity scale and scores on the INSPIRIT scale for spiritual experiences. The INSPIRIT scale covers certain beliefs and practices in addition to spiritual experiences. Similarly, VandeCreek, Ayres and Bassham (1995) reported a correlation of .61 between a standard intrinsic religiosity scale and the INSPIRIT scale for 247 hospital cancer patients and 124 family members.

Importance of Religion and Well-Being

Consistent with the chain model, the direct path coefficients between importance of religion and well-being are very close to zero for both the models with and without measurement error. These path coefficients and t values test whether importance of religion is related to well-being after adjustment for the mediating role of meaning in life. As shown in Table 2, the t values do not approach significance.

Chamberlain and Zika (1992b) reported similar results for samples of New Zealand mothers, elders, and church members. Using religiosity measures that overlapped with intrinsic religiosity, they concluded that meaning in life mediated the effect of religiosity on well-being. Consistent with the mediation or chain model, they reported that (a) the association between religiosity and the components of well-being became nonsignificant when adjusted for scores on the Purpose in Life scale, and (b) the relationships between meaning in life and the well-being components remained significant after adjusting for religiosity. Unfortunately, their report does not give quantitative information and the results for part of the data, reported in Chamberlain and Zika (1988), provide mixed support for their conclusion.[3]

In the present study, the observed correlation between importance of religion and well-being is .23 ($p<.002$) and the correlation predicted by the chain model is .19 (see Table 2). These correlations are another way of showing that virtually all of the relationship between well-being and importance of religion can be explained by mediation by meaning in life. To get an indication of how consistent the present data are with other studies, the predicted correlation was also estimated using the midpoints of the ranges of typical correlations shown in Table 1. The predicted correlation is the product of the correlation between importance of religion and meaning in life and the correlation between meaning in life and well-being. This predicted correlation is .20, which is very close to the .19 value estimated with the path coefficients from the present data.

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[3] Chamberlain and Zika (1988) report that for the sample of mothers, intrinsic religiosity was significantly related to positive and negative affect after adjusting for meaning in life. Meaning in life appeared to be a suppressor variable because the relationships between religiosity and positive and negative affect were not significant (r's=.102 and -.023, respectively) until adjusted for meaning in life (regression ß's=-.108 and .169). On the other hand, life satisfaction was significantly related to religiosity before adjustment for meaning in life r=.169, but not after (ß=-.018), which is consistent with the mediation hypothesis.

TABLE 2.

Paths Expected to be Zero with the Causal Chain Path Model

Path	Path Coefficient for Full Model With No Measurement Error[a]	Path Coefficient for Full Model With Measurement Error[b]	Correlation in This Study	Predicted Correlation With Chain Model[c]	Typical Correlations in Other Studies
Importance of Religion to Well-Being	.07 (t=0.93)[d]	-.04 (t=-0.25)	.23	.19	.15 - .20
Transcendent Experiences to Well-Being	-.08 (t=-1.16)	-.19 (t=-1.40)	.08	.07	.03 - .09
Transcendent Experiences to Meaning in Life	.14 (t=1.94)	.09 (t=0.59)	.27	.15	No Data

[a] The path coefficients for the full model are paths directly between the two variables in addition to the paths in the chain model. The path coefficients are standardized coefficients. For the case without measurement error, the path coefficients are identical to the standardized multiple regression coefficients (betas) adjusted for the other variables in the model.

[b] The model with measurement error used the observed reliabilities of .85 for well-being and .65 for the reliability of the other measures.

[c] For the causal chain model, the predicted correlation is the product of the path coefficients with no measurement error (given in Table 1) for the intervening steps.

[d] The t values test whether the correlation between the two variables is significant after adjustment for the mediating role of the variables in the chain model. The usual criteria is that t values greater than 2.0 indicate a nonzero path coefficient. The t values for the path coefficients were obtained from the covariance matrix rather than the correlation matrix.

The direct correlations between importance of religion and well-being found in other studies are typically about .15 to .20 for mixed age groups and higher for elders. In a large national survey, Bortner and Hultsch (1970) found that a multi-item life satisfaction measure correlated .17 with a basic importance of religion question. For another large national sample, Hadaway (1978) reported that "importance of having a strong religious faith" correlated .16 with a 9-item life satisfaction scale and .10 with one life satisfaction question. In a sample of 836 older adults, Koenig, Kvale and Ferrel (1988) found a geriatric morale or well-being scale correlated .24 with a standard intrinsic religiosity scale. In a sample of 85 persons aged 65-85, Hunsberger (1985) found that overall happiness correlated .30 with the importance of religious beliefs. McIntosh, Silver and Wortman (1993) in a study of 124 parents who had lost a child to sudden death syndrome found that the correlation between an importance of religion question and a multi-item well-being scale was .18 at 3 weeks after the loss and .05 at 18 months after the loss. In a study of 102 retired blacks, Jackson, Bacon and Peterson (1977-78) found intrinsic

religiosity correlated .06 (not significant) with life satisfaction, however, the relationship became significant when adjusted for other covariates (ß=.283). Because these studies generally used one-item measures for at least one of the variables, the correlations are probably on the low side.

Transcendent Experiences and Well-Being

Consistent with the chain model, the direct path coefficients between transcendent experiences and well-being are not significantly different from zero for analysis with and without measurement errors. These tests evaluate whether transcendent experiences are related to well-being after adjustment for the mediating roles of importance of religion and meaning in life.

The observed correlation of .08 is very close to the .07 correlation predicted by the chain model but is not significantly different from zero. For comparison, the predicted correlation using the midpoints of the typical correlations in other studies is .10. Given the very low correlation predicted by the model, large sample sizes would be needed to obtain significant evidence that the correlation is not zero.

As predicted by the model, two large surveys found evidence for very low but statistically significant correlations between mystical experiences and well-being. In a U.S. national survey, Greeley (1975:60-62) found a correlation of about .09 ($p<.001$) between a well-being scale and reports that mystical experiences occurred "often" (correlation estimated from the Yule's Q value reported by Greeley). Mystical experiences were also correlated separately to a slightly lesser degree with positive affect, life satisfaction, and low negative affect. Greeley (1975:79) also reported that the significant correlation with well-being could be attributed entirely to the respondents with "authentic" mystical experiences. In a national survey in Great Britain, Hay and Morisy (1978) found that the correlation between the same mystical experience question and the same well-being scale used by Greeley was .05 ($p<.01$), and that another religious experience question correlated .03 ($p<.05$) with the well-being scale.

Transcendent Experiences and Meaning in Life

The present data do not fully resolve the issue of whether an intervening role for importance of religion is the only connection between transcendent experiences and meaning in life. As shown in Table 2, the analysis that adjusts for measurement error is consistent with the chain model and shows no evidence for a direct connection. This result is probably more accurate than the analysis that assumes no measurement error, which found an equivocal t value of 1.94 for the direct path coefficient. Equivalently, the observed correlation of .27 is noticeably higher than the predicted correlations of .15 using path coefficients from the present study or .15 using the midpoints of typical correlations in other studies. We found no other studies that reported correlations between transcendent experiences and meaning in life.

Given the lack of data and the uncertainties of structural equation methods, it is reasonable to conclude at present that most, but possibly not all, of the connection between transcendent experiences and meaning in life appears to be mediated by importance of religion.

DISCUSSION AND CONCLUSIONS

The available data are very consistent with the model that the importance of religion to a person affects the person's sense of meaning in life, which in turn affects the person's subjective well-being. The present data and the results of other studies are consistent with this model.

This mediating role for meaning in life explains virtually all of the correlation between intrinsic religiosity[4] and well-being and suggests that other mechanisms for intrinsic religiosity to affect well-being have a minor role. The relatively low positive correlation between well-being and intrinsic religiosity scores reflects that facts that, for the population as a whole, (a) importance of religion is one of several factors that affect meaning in life, and (b) meaning in life is one of several factors that affect well-being.

This model does not imply that intrinsic religiosity is the only aspect of religion that affects well-being. However, other religious dimensions that affect well-being and/or meaning in life should be relatively independent of (not correlated with) intrinsic religiosity.[5]

The available data are also consistent with the model that transcendent or mystical experiences affect the importance of religion, which in turn, affects meaning in life and well-being. Thus, in this causal chain model, importance of religion mediates the impacts of transcendent experiences. This model predicts that the net correlation between transcendent experiences and well-being will be positive, but very small. The available data are very consistent with this prediction. Here too, transcendent experiences appear to be one of several factors that affect the importance of religion to a person. In terms of population statistics, the impacts of transcendent experiences become increasingly diluted at each step in the chain. Of course, the effects for individuals may vary greatly from the overall population averages.

The high likelihood of reciprocal causation is the greatest uncertainty with this model. The likely reciprocal relationship between mystical experiences and religious commitment is the clearest example. As suggested by Greeley (1976:141), a "cycle of reinforcement" between mystical experiences and religious orientation seems plausible. Such a cycle would manifest as a positive correlation in cross sectional studies like those reviewed here.

Traumatic events possibly may induce a partial or complete reversal of the causal chain. Baumeister (1991:232-268) concludes that a health crisis or traumatic loss tends to cause a loss

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[4] In this discussion, we use the terms intrinsic religiosity and importance of religion interchangeably because, as noted in an earlier section, the standard intrinsic religiosity scales measure the same construct as an importance of religion question.

[5] This model does imply that religious dimensions that are related to intrinsic religiosity and appear related to meaning in life will be unrelated to meaning in life when adjusted for importance of religion. Consistent with this view, Peterson and Roy (1985) found that meaning in life was correlated with church attendance and three other aspects of religious beliefs; but these correlations became nonsignificant when adjusted for importance of religion. On the other hand, importance of religion was significantly related to meaning in life with and without adjustment for the other variables.

of meaning in life. This theory implies that a severe decrease in well-being can affect a person's sense of meaning in life. Further, Baumeister (1991:232) suggests that "suffering stimulates the needs for meaning" because "people analyze and question their sufferings far more than their joys." A crisis or severe loss leads many people to re-evaluate their world view and/or life priorities, which in turn, leads to an increase in the importance of religious beliefs for a portion of these people. Numerous studies have found that a crisis leads to increased importance of religious beliefs for some people (e.g., Hall, 1986; Koenig, 1994:428-430; Lehman, et al., 1993; Reed, 1987). These and other studies also show that for a smaller portion of people, the loss of meaning from a traumatic event apparently propigates back another step on the chain and causes a reduction or loss of religious commitment. At this point, the fact that religious or mystical experiences are sometimes associated with or triggered by a crisis or despair (Gallup and Castelli, 1989:68; Hardy, 1979:28) becomes particularly intriguing; however, to our knowledge, the preceeding and subsequent relationships with religious commitment have not been investigated for these cases.

Compensating reciprocal causation or feedback is implied with these responses to traumatic events. A loss of meaning in life induces an increase in importance of religion, which then increases or restores meaning in life. This compensating (rather than reinforcing) feedback would result in misleadingly low correlations between the variables in cross sectional studies and may be a reason that the correlations between importance of religion and meaning in life are lower than might be expected (typical correlations of .25 to .40).

On the other hand, a strong sense of meaning and purpose can make compensating feedback unnecessary because the person is resilient to a crisis or loss. Baumeister (1991:233) notes that people are willing to endure pain and misfortune if they believe there is a meaning or purpose for it. In fact, people voluntarily undertake experiences that are unpleasant or even traumatic if there is a reason. Athletic training is a mild example and war is an extreme example. When people's sense of meaning and purpose withstands a traumatic experience, the normal positive correlation between meaning and well-being may become dissociated. In time of war, people who are fighting for a cause may have simultaneously a high sense of purpose and low well-being.

What is noteworthy, and the main point of this paper, is that the available data and literature suggest that causal effects in either direction remain on the proposed chain path. The direction of causation may vary; but meaning in life appears to mediate between well-being and intrinsic religiosity with either causal direction. The chain model identifies a sequential path, but cannot prescribe which direction the causes flow on the path or that they always flow in one direction. This conclusion is consistent with the limited ability of path analysis to verify the direction of causation in cross sectional studies. Similarly, given the uncertainties in the current state of methodology, it would be premature to conclude that mediation by meaning in life is absolutely the only connection between intrinsic religiosity and well-being. However, the available data suggest that mediation by meaning in life dominates the relationship between intrinsic religiosity and well-being. In addition, the evidence for the chain model is less convincing for the transcendent experiences end of the model because of the lack of standard methods for investigating these experiences.

These ideas about the process that links intrinsic religiosity and well-being may be of value to those who help people with their spiritual needs. In addition, this review leads to three points in particular regarding future research:

1. Methods that measure various types and degrees of transcendent and religious experiences and corresponding distinctions in terminology need to be developed.
2. Given the central role of meaning in life, research is needed to better understand what factors lead to a strong sense of meaning in life and the relationship between transcendent meanings and more mundane goals.
3. We believe it is likely that meaning in life plays an important role in the trait aspect of well-being. If this is true, meaning in life may offer a means for stable, positive shifts of well-being. Consistent with this hypothesis, Koenig (1994:431-437) provides evidence that religious conversions can produce long-term, increased well-being. These ideas merit further investigation, particularly because there is a major gap in understanding factors that can induce long-term positive shifts in well-being.

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