

A FACTOR ANALYSIS OF THE FETZER/NIA BRIEF  
MULTIDIMENSIONAL MEASURE OF  
RELIGIOUSNESS/SPIRITUALITY (MMRS)

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ABSTRACT

The Brief Multidimensional Measure of Religiousness/Spirituality (Fetzer Institute/NIA Working Group, 1999) was developed to capture in abbreviated form an array of spiritual/religious constructs that were related to psychosocial and health outcomes. Little research has examined the psychometric aspects of this hybrid scale. Using 452 undergraduate students, normative information at both the item and scale level was provided. The factor structure of the instrument and correlations with personality and family environment were obtained. Results indicated that several of the scales lack reliability, and the issue of how well these scales reflect their original, longer parents remains in question. Principal components analyses indicated that the items of the MMRS constitute three dimensions that are mostly independent of personality. Spirituality and religiosity emerged as highly correlated, unidimensional constructs.

Multiple measures of spirituality and religiousness are available today (see Hill & Hood, 1999). Despite a wide diversity of instruments, authors are developing and adding new instruments to the literature at an exponential rate. However, the easy availability of many instruments has not translated into a growing pool of research studies that provide evidence of construct validity for these measures. For many measures there is only a single study that outlines its basic reliability and validity, usually in a single sample of undergraduate students. This leaves the field with no cumulative body of knowledge on any scale. Gorsuch (1984, 1990), with little success, has gone so far as

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to call for a complete ban on the creation of new instruments until we better understand the existing ones.

Recognizing that the pool of spiritual and religious constructs is diverse, the Fetzer Institute along with the National Institute on Aging assembled a working group of professionals in the area to examine the current state of assessment. Their task was to identify key aspects of spirituality and religiosity along with measures designed to capture those constructs. This group recognized that "... religious/spiritual variables cannot simply be combined into a single scale that examines the effects of a single variable, 'religiosity'; rather, each relevant dimension of religiousness and spirituality should be examined separately for its effects on physical and mental health" (Fetzer/National Institute on Aging Working Group, 1999, p. 2). This group acknowledged that spirituality and religiousness represent multidimensional constructs that need to be represented in their entirety if a scale is to provide useful predictive coverage of the constructs. The Working Group, accordingly, identified 12 separate domains for inclusion in any comprehensive assessment: Daily Spiritual Experiences, Meaning, Values, Beliefs, Forgiveness, Private Religious Practices, Religious/Spiritual Coping, Religious Support, Religious/Spiritual History, Commitment, Organizational Religiousness, and Religious Preference. Previous empirical work found these domains predicted various health outcomes.

For this working group, these 12 domains represented key religious and spiritual categories and items from each domain were condensed into a single scale that they recommended be used in future health research. In creating this measure, called the *Brief Multidimensional Measure of Religiousness/Spirituality (MMRS)*, the working group developed pools of items to measure each of these 12 domains. Some of these items were selected from specific instruments while others captured spiritual or religious themes found in the literature. From these item sets, a smaller number were selected for inclusion into the final scale. Anywhere from 1 to 6 items from each of the 12 sets of items was included in this composite instrument. Although the working group acknowledged that this brief assessment instrument did not represent all domains of spiritual/religious functioning, they did assert that it does serve as a useful starting point for researchers who are interested in examining the role of spirituality in health situations. The MMRS does contain items that represent a putatively wide range of salient religious/spiritual constructs.

*Strength of the MMRS.* The major advantage of the MMRS is that it represents the collective wisdom of an expert panel regarding what constructs constitute the spiritual/religious domain. Although this scale is not seen as comprehensive, it does represent the most inclusive instrument constructed to date and, as such, provides an approximation for what the spiritual/religious domain represents. This raises three important research issues. First, by bringing together items from varied instruments, the MMRS provides an opportunity to examine the factor structure of these constructs so as to determine whether they are truly multidimensional or merely multifaceted. Second, by identifying constructs as being “spiritual” or “religious” in nature, the opportunity exists for examining the degree of overlap these variables have with each other and with established personality variables. To what extent do these numinous dimensions capture aspects of the individual non-overlapping with established personality constructs? Finally, to the extent that spirituality and religiosity represent orthogonal constructs to personality, the dimensions included in the MMRS can serve as the basic building blocks for the construction of a comprehensive taxonomy of spiritual/religious constructs. These numinous variables can serve as empirical reference points for defining what is and is not spiritual or religious.

*Weaknesses of the MMRS.* The most obvious weakness of the MMRS is the fact that it is a compilation of several short forms. Smith, McCarthy, and Anderson (2000) noted eleven “sins” associated with the use of short forms, and the MMRS falls victim to several. First, no evidence is presented that the reduced scales included in the MMRS preserve the content coverage of the domain it intends to assess. Items were selected for inclusion into the MMRS based on item-total correlations: Those items with the highest associations with the total score were included. The negative effect of doing this is that the content breadth of the construct being assessed is narrowed. Thus, these smaller scales may have less predictive validity. A second sin is that no evidence has been presented that demonstrates the extent to which these smaller scales overlap with their larger originals. To what extent does the short version capture similar variance as the longer one? A third difficulty is that no data is presented that demonstrates that the factor structure of the larger instruments has been preserved in the smaller ones. Finally, the whole purpose of using a short form is that it saves time and increases efficiency. Certainly, combining 12 scales into a single instrument

certainly appears to be economical, but no data are presented that insure that this increase in testing efficiency is not offset by a corresponding loss in validity.

These are important psychometric issues that need to be resolved if the MMRS is to be considered a useful instrument for the field. However, we identify two other limitations to the scale. First, although normative information is provided for each item on the scale (Fetzer Institute/NIA Working Group, 1999), no such information is given for the short scales themselves. Thus, users are not given useful interpretive information regarding each of the smaller scales. As such, the MMRS represents more of an epidemiological-type screener than an assessment tool. Second, no validity information about the scales is provided. Thus, there is some question regarding the practical utility of this instrument for the field.

The purpose of this study is to address some of these issues. First, normative information will be given for *both* the individual items and the short scales in a general sample of college students. Alpha reliabilities for these short scales will also be examined. The entire scale itself will then be factor analyzed in order to address the following questions: (a) How many dimensions underlie the items included in the MMRS? Will separate dimensions appear for each of the different scales represented in the items? (b) To what extent will the spirituality (those items that address a relationship with some transcendent reality) and religiosity (those items that relate to involvements in rituals and practices identified with a specific religious denomination) items of the MMRS form different dimensions? (c) To what extent will these dimensions of spirituality and religiosity overlap with each other? Based on the results of the principal components analysis, factors will be derived and then correlated to other measures of personality, spirituality, and family dynamics. This will be done to determine whether these items hold any intrinsic validity. Finally, another principal components analysis will be performed where the MMRS items will be analyzed along with measures of the five-factor model (FFM) personality domains and a measure of spirituality. Such an analysis will examine the extent to which items contained in the MMRS are overlapping with traditional personality qualities. To be ultimately of use to the field, measures of spirituality and religiosity should capture aspects of psychological functioning that are not redundant with extant measures of personality (see Piedmont, 2005).

## METHOD

*Participants*

Participants consisted of 452 undergraduate students (309 women, 142 men), ages 17 to 41 (Mean = 18.9) from a Midwestern state university. Concerning religious preference, 48% were Catholic, 41% were Christian, 1% were Jewish and Muslim, 4% were atheist/agnostic, and 6% indicated other. All participants volunteered and received course credit for their involvement.

*Measures**Brief Multidimensional Measure of Religiousness/Spirituality (MMRS)*

The Fetzer Institute/National Institute on Aging Working Group (1999) developed this 40-item questionnaire by compiling abbreviated measures of 12 key domains (Daily Spiritual Experiences, Meaning, Values, Beliefs, Forgiveness, Private Religious Practices, Religious/Spiritual Coping, Religious Support, Religious/Spiritual History, Commitment, Organizational Religiousness, and Religious Preference) that were identified as relevant to health outcomes and physiological, mental, and emotional well-being. Because the items of the MMRS were derived from a variety of instruments, there is no common response format. Items were answered from 4-point Likert-type to 8-point Likert-type indices along with a few open-ended questions. For the purposes of this paper, one item was not included in any analyses because it did not convey anything more than demographic information about the respondent: Item 36, which asked for participants' religious affiliation. Therefore, only 39 items were included in all analyses. Two of these items were transformed into  $z$ -scores prior to analysis. These were Item 32 (*During the last year how much was the annual contribution of your household to your congregation or to religious causes?*) and 33 (*In an average week, how many hours do you spend in activities on behalf of your church or activities that you do for religious or spiritual reasons?*). Because these items were on metrics very different from the other items and would bias any analyses, they were transformed. Idler et al. (2003) analyzed data from the General Social Survey of 1998 where the MMRS was included. Results provided general support for the reliability of most of the content scales and evidence of convergent and discriminant validity was provided.

*Spiritual Transcendence Scale*

Developed by Piedmont (1999), this 24-item scale consists of three subscales: Universality (a belief in the unity and purpose of life), Prayer Fulfillment (an experienced feeling of joy and contentment that results from prayer and/or meditation), and Connectedness (a sense of personal responsibility and connection to others). Items are answered on a 1 (*strongly agree*) to 5 (*strongly disagree*) Likert-type scale. A rater version of this scale was also developed to be completed by the peer evaluators. This form contains the same format as the self-report version, with the exception that items are worded in the third person. Piedmont (1999, 2001) has shown these scales to have acceptable reliabilities for both the self-report (.83, .87, and .64 for Universality, Prayer Fulfillment, and Connectedness, respectively) and peer versions (.91, .87, and .72, respectively). Scores on these scales have also been shown to predict a variety of related spiritual constructs and a number of psychologically salient outcomes (e.g., stress experience, well-being, and attitudes towards sexuality; Piedmont, 1999). Piedmont and Leach (2002) have showed that the STS generalized cross-culturally to a sample of Indian Muslims, Christians, and Hindus.

*Faith Maturity Scale, Short Form (FMS)*

Developed by Benson, Donahue, and Erickson (1993), this scale assesses the degree to which one's life is energized by a fulfilling faith orientation. Although this instrument contains 38 items, the version used in this study was the 12-item short form developed by Donahue (reported in Benson et al., 1993). Benson et al. (1993) report a correlation between scores on the short version and the total scale of  $r = .94$ . There are two subscales: the Horizontal, which evaluates the degree to which one's faith leads toward commitments to help others, and the Vertical, which looks at one's sense of closeness to God. Scores are obtained by simply adding responses from each item. Alpha reliability for the overall score was reported to be .88 for an adult sample of mainline Protestants. Individuals responded to the questions on a 1 (*never true*) to 7 (*always true*) Likert-type scale. One item, Item 9, was changed in these research studies from "My life is committed to Jesus Christ" to "My life is committed to the God of my understanding." This was done to make the scale relevant to non-Christian, God-believing participants. Piedmont and Nelson (2001) found the scales to be structurally and predictively valid in a

large sample of mostly Catholic individuals. Further, information on this scale was found to be independent of existing personality measures.

*Adjective Check List (ACL)*

Developed by Gough and Heilbrun (1983), this measure consists of 300 adjectives from which individuals select those which are viewed as most self-descriptive. Using a panel of experts familiar with the five-factor model (FFM) of personality, John (1990) created adjective marker scales for each dimension of the FFM by having these experts identify Adjective Check List items representative of each domain. These rational judgments were supported by empirical analyses that demonstrated both the convergence of these markers both with other measures of the FFM (McCrae, 1990) and with relevant scales from the ACL (Piedmont, McCrae, & Costa, 1991). These FFM marker scales were used in this study to capture self-ratings of personality.

*Family Environment Scale (FES)*

Developed by Moos and Moos (1994), this scale contains 90 statements about various aspects of one's family environment that are responded to on a true-false scale. The instrument has 10 scales which assess three different domains of family life: *Quality of the Relationships* which is measured by the Cohesion, Expressiveness, and Conflict scales; *Personal Growth* which is measured by the Independence, Achievement Orientation, Intellectual-Cultural, Active-Recreational Orientation, and Moral-Religious Emphasis scales; and the *System Maintenance Dimension*, captured by the Organization and Control scales. These scales show adequate internal consistency and temporal stability. Research has shown that the dimensions are useful for understanding the contribution of family dynamics to the experience of both physical and psychological problems. Piedmont, Ciarrocchi, and Williams (2002) showed that these scales correlated in meaningful ways with different types of God image. Thus, one's family environment appears to impact how one's spirituality and religious values develop.

*Procedure*

All participants completed the questionnaires in groups of 10 to 25 individuals. All materials were presented as part of an overall packet

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of information. The order of the scales was counterbalanced to control for potential order effects. All participants volunteered and received course credit for their time.

## RESULTS

### *Descriptive Statistics*

Table 1 presents the descriptive statistics for each item separately by gender. These results find mean-level values were consistent with those presented normatively, although only seven significant gender differences are noted here in contrast to the 24 found normatively. This may be a function of the smaller sample size used in this study. Nonetheless, women rated themselves significantly higher on “forgiveness of others” and “private prayer,” while men rated themselves higher on “feel that God is punishing them,” “religion involved in dealing with stress,” “congregation makes many demands,” “to what extent do you consider yourself to be a religious person,” and “To what extent do you consider yourself to be a spiritual person.”

Table 2 presents the descriptive statistics and alpha reliability estimates for each of the short scales. Alpha reliabilities for the different scales range from .28 to .91 (median = .68). Of the 15 values presented, five are under .60. Thus, the selection of items based on their item-total correlations has not resulted in smaller scales with high reliabilities. This may be a result of the very small number of items used to assess each construct. A comparison of the mean level scores for each of these scale with comparable scores obtained in a sample of adult, chronic pain patients (Rippentrop, Altmaier, Chen, Found, & Keffala, 2005) provides surprising similarities. Aside from the coping and religious support scales, there is much consistency in means and standard deviations across these two very diverse samples.

### *Factor Analysis*

Using SPSS 11.5, a principal components analysis was conducted using the 39 MMRS items. Nine factors emerged with eigenvalues greater than one, and the scree test indicated that three factors, accounting for 43% of the variance, were appropriate (first five eigenvalues were: 12.66, 2.34, 1.81, 1.58, 1.49). These factors were obliquely rotated and the pattern loadings are presented in Table 3. As can be seen, Factor 1 appears to capture spiritually-related issues, with



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Table 1. Descriptive Statistics for Each MMRS Item Separately by Gender

MMRS Item	Women		Men		<i>t</i>
	<i>n</i>	Mean	<i>n</i>	Mean	
Daily Spiritual Experiences					
Feel God's presence	309	3.39	142	3.29	.66
Find comfort in religion	309	3.44	142	3.41	.19
Feel deep inner peace	309	3.31	142	3.49	-1.52
Desire to be closer to God	309	3.76	141	3.84	-.53
Feel God's love	308	3.74	142	3.69	.33
Touched by beauty of creation	309	3.84	142	3.73	.81
Meaning					
Life unfolds according to divine plan	308	3.04	142	2.92	1.45
Sense of mission	309	2.93	142	2.86	.93
Values/Beliefs					
God watches over	307	3.52	142	3.43	1.39
Responsibility to reduce pain/suffering	307	2.76	142	2.72	.54
Forgiveness					
Forgives self	309	3.12	142	3.03	1.29
Forgives others	309	3.35	142	3.16	2.64**
Know that God forgives	305	3.65	142	3.55	1.44
Private Religious Practices					
Private prayer	307	4.51	142	4.00	2.87**
Mediation	308	1.95	142	2.15	-.13
Religious Programs	308	1.57	142	1.57	.01
Bible reading	309	2.23	142	2.39	-1.22
Grace for meals	309	3.28	142	3.48	-.89
Religions & Spiritual Coping					
<i>Positive Religious Coping</i>					
Life is part of a larger force	309	2.25	142	2.39	-1.55
Work with God as a partner	309	2.18	142	2.31	-1.60
Look to God for support	309	2.96	142	2.85	1.20
Religion involved in dealing with stress	309	1.54	142	1.70	-2.04*
<i>Negative Religious Coping</i>					
Feel that God is punishing	306	1.31	142	1.49	-2.75**
Wonder if abandoned	306	2.12	140	2.24	-1.19
Make sense of situation without God	308	2.68	141	2.68	.01
Religious Support					
<i>Congregation Benefits</i>					
Congregation helps with illness	308	2.93	142	2.78	1.35
Congregation helps with problems	308	2.84	142	2.76	.71
<i>Congregation Problems</i>					
Congregation makes many demands	308	1.52	141	1.67	-2.02*
Congregation is critical	308	1.63	141	1.70	-.80
Religious/Spiritual History					
Faith change	308	.35	142	.39	-.75
Faith gain	307	.53	139	.49	.75
Faith loss	308	.32	141	.30	.34
Commitment					
Carry beliefs to other areas of life	308	2.66	142	2.63	.37
Yearly contribution	309	426.72	142	2601.62	-1.26
Service hours	309	1.09	142	3.25	.98
Organizational Religiousness/Public Activities					
Service attendance	309	3.25	142	3.24	.07
Other public religious activities	309	2.16	142	2.25	-.77
Overall Self-Rating of Religious Intensity					
Religious Person	309	2.40	142	2.57	-2.09*
Spiritual Person	309	2.54	142	2.71	-2.11*

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ; two-tailed.

Table 2. *Descriptive Statistics and Alpha Reliabilities for each MMRS Scale*

MMRS Scale	Current Sample			Alpha	Adult Sample <sup>1</sup>	
	<i>n</i>	Mean	<i>SD</i>		Mean	<i>SD</i>
Daily Spiritual Experiences	450	21.44	6.7	.89	22.28	8.3
Meaning	451	5.90	1.3	.70	*	*
Values/Beliefs	448	6.22	1.1	.45	9.33	1.9
Forgiveness	448	9.96	1.6	.61	9.60	1.8
Private Religious Practices	448	13.53	5.5	.71	17.21	8.7
Religions & Spiritual Coping	442	15.19	3.1	.56	*	*
Positive Religious Coping	450	9.03	2.5	.83	13.14	4.5
Negative Religious Coping	444	6.16	1.3	.39	17.33	2.6
Religious Support	450	8.90	2.7	.67	13.62	2.2
Congregation Benefits	451	5.69	2.1	.91	6.61	1.6
Congregation Problems	450	3.22	1.3	.69	7.01	1.3
Religious/Spiritual History	446	1.19	1.0	.28	*	*
Commitment	451	*	*	.51	*	*
Organizational Religiousness/ Public Activities	452	5.43	2.4	.72	5.54	2.7
Overall Self-Rating of Religious Intensity	452	5.05	1.4	.75	5.27	1.5

*Note:* No values are presented for the student sample because two of these items were converted to *z*-scores for analysis. For the adult sample, information on these scales is not provided. Items included in each scale are noted in Table 1.

<sup>1</sup> Data from Rippentrop et al. (2005).

items such as, “I feel God’s love for me,” “I desire a union with God,” and “Frequency of private prayer.” Factor 2 represents religious involvement (or religiosity), as indicated by items such as, “Frequency reading the Bible,” “Frequency of prayer before meals,” and “Had a religious experience that changed life.” Finally, Factor 3 contains items that reflect a state of spiritual distress, represented by a feeling of abandonment by God and interpersonal conflict with other congregants. Items include “I wonder whether God has abandoned me,” “God has abandoned me,” and “How often are the people in your congregation critical of you and the things you do?” Factors 1 and 2 were moderately correlated,  $r = .43$ . Factor 3 was independent of the other two factors.

Factor scores were created using the regression method. These scores were then correlated with measures of religious involvement, personality, spirituality, and family environment. The results are presented in Table 4. As can be seen, Factors 1 and 2 correlated significantly with the religious involvement scales. The pattern of findings supports the validity of these two factors. For example, Factor

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Table 3. Pattern Matrix from the Principal Components Analysis of the MMRS Items

MMRS Item	Component		
	Spirituality	Religiosity	Religious Crisis
<i>Feel God's love for me</i>	<b>.76</b>	.09	-.12
<i>Look to God for strength</i>	<b>.72</b>	.19	-.04
<i>God as partner</i>	<b>.72</b>	.10	.08
<i>Spiritually touched by beauty of creation</i>	<b>.68</b>	.04	.04
<i>God watches over me</i>	<b>.67</b>	.12	-.09
<i>I know God forgives me</i>	<b>.67</b>	-.10	-.09
<i>Sense of Mission</i>	<b>.67</b>	-.02	.12
<i>I feel God's presence</i>	<b>.66</b>	.22	-.12
<i>Desire for union with God</i>	<b>.65</b>	.20	-.05
<i>Carry religious beliefs into life</i>	<b>.62</b>	.22	.01
<i>Find strength in my religion</i>	<b>.60</b>	<b>.31</b>	-.22
<i>My life is part of spiritual force</i>	<b>.60</b>	.07	.28
<i>Events in life unfold in divine plan</i>	<b>.59</b>	.06	.13
<i>Feel a deep inner peace or harmony</i>	<b>.55</b>	.03	-.01
<i>Religion involved in dealing with stressful situations</i>	<b>.52</b>	<b>.40</b>	-.06
<i>I consider myself a spiritual person</i>	<b>.51</b>	.28	.03
<i>I consider myself a religious person</i>	<b>.49</b>	<b>.41</b>	-.05
<i>Frequency of private prayer</i>	<b>.48</b>	<b>.38</b>	-.19
<i>Responsible for reducing pain in the world</i>	<b>.47</b>	.03	.22
<i>I have forgiven myself</i>	<b>.44</b>	-.17	-.09
<i>I have forgiven those who hurt me</i>	<b>.38</b>	-.11	-.04
<i>Frequency read the Bible/other religious literature</i>	.11	<b>.73</b>	.04
<i>Average hours/week spent religious activities (z-score)</i>	-.04	<b>.71</b>	-.08
<i>Frequency take part activities at a place of worship</i>	.05	<b>.70</b>	.13
<i>Frequency attend religious services</i>	.20	<b>.66</b>	-.08
<i>Frequency pray before meals</i>	.05	<b>.59</b>	.10
<i>If ill, how supportive congregation</i>	.17	<b>.58</b>	.09
<i>Had problem, how much comfort from congregation</i>	.17	<b>.56</b>	.09
<i>Frequency view religious programming on radio/TV</i>	.00	<b>.50</b>	.14
<i>Average monthly contribution to congregation (z-score)</i>	-.19	<b>.43</b>	-.14
<i>Had a significant gain in faith</i>	.28	<b>.37</b>	.09
<i>Frequency meditate</i>	.23	<b>.36</b>	.06
<i>Had religious experience that changed life</i>	.22	<b>.36</b>	.12
<i>How often congregation critical of you</i>	.04	.09	<b>.62</b>
<i>God has abandoned me</i>	-.15	-.08	<b>.57</b>
<i>Congregation makes too many demands on you</i>	.07	.12	<b>.54</b>
<i>God is punishing me for my sins</i>	.17	-.02	<b>.51</b>
<i>Had significant loss of faith</i>	-.22	.07	<b>.43</b>
<i>Make sense of situation without relying on God</i>	-.16	-.22	<b>.32</b>

Note: Loadings having an absolute value of .30 or greater are given in bold.

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Table 4. *Correlations Between MMRS Factors and the Religious, Spiritual, and Psychosocial Outcomes*

Outcome Criteria	MMRS Item-Based Component		
	Spirituality	Religiosity	Religious Crisis
<b>Religious Behavior</b>			
Frequency Read the Bible	.39***	.68***	.03
Frequency Read Religious Lit	.33***	.62***	.00
Frequency of Prayer	.61***	.57***	-.11*
Union with God	.67***	.49***	-.08
Relationship with God	.72***	.53***	-.02
Frequency Attend Services	.45***	.71***	-.10*
<b>Personality</b>			
Neuroticism	-.11*	-.08	.04
Extraversion	.03	-.04	.05
Openness	.03	-.01	.01
Agreeableness	.22***	.14**	-.09
Conscientiousness	.12*	.06	-.09
<b>Spiritual Transcendence Scales</b>			
Universality	.52***	.28***	.07
Prayer Fulfillment	.66***	.55***	.09
Connectedness	.24***	.06	-.01
Total Transcendence	.65***	.43***	.08
<b>Faith Maturity Scale</b>			
Vertical Scale	.76***	.47***	-.02
Horizontal Scale	.53***	.35***	.17***
Total FMS	.76***	.51***	.07
<b>Family Environment Scale</b>			
Cohesion	.08	-.05	-.04
Expressiveness	-.03	-.06	.13**
Conflict	.02	.01	.08
Independence	-.05	-.06	.13**
Achievement Orientation	.11*	.07	.12*
Intellectual-Cultural Orientation	.02	-.01	-.01
Activity	.07	-.03	.08
Moral-Religious Orientation	.42***	.47***	.08
Organization	.01	-.03	.05
Control	.03	-.01	.04

$N = 419$ . \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ; two-tailed.

1 (spirituality) correlated significantly stronger with the Union with God and Relationship with God items than Factor 2 (religiosity), [ $t(416) = 4.83, 5.53, p < .001$ , respectively]. However, Factor 2 correlated significantly stronger than Factor 1 on the Frequency of

Reading the Bible, Frequency of Reading Religious Literature, and Frequency of Attending Services [ $t(416) = 7.56, 7.10, 7.14, p < .001$ , respectively]. There was no difference concerning Frequency of Prayer [ $t(416) = 1.06$ , n.s.]. Factor 3 correlated negatively with both Frequency of Prayer [ $r(417) = -.11, p < .05$ ] and Frequency Attend Services [ $r(417) = -.10, p < .05$ ].

Factors 1 and 2 both had some overlap with personality, although Factor 1 seemed to be more related than Factor 2. Factor 3 was independent of personality, indicating that the distress individuals' feel in their relationship with God has nothing to do with any sense of personal emotional dysphoria or lability. As expected, both Factors 1 and 2 correlated with the two measures of spirituality. However, Factor 1 (spirituality) correlated significantly stronger with total Transcendence [ $t(416) = 2.68, p < .01$ ] and total Faith Maturity scores [ $t(416) = 7.72, p < .001$ ] than Factor 2 (religiosity). Interestingly, Factor 3 had a significant correlation with the Horizontal Scale from the Faith Maturity Scale [ $r(417) = .17, p < .001$ ]. Finally, both Factors 1 and 2 are correlated with aspects of family functioning that relate to a moral and religious orientation. Factor 3 related to a family dynamic characterized by Expressiveness, Independence, and Achievement Orientation.

Finally, a joint principal components analysis was conducted using the 39 MMRS items, the five personality domains of the FFM, and the three facet scales from the STS. Eleven factors emerged with eigenvalues greater than one, but a scree test indicated that four factors, accounting for 43% of the variance, were appropriate (first six eigenvalues are: 13.60, 2.51, 2.23, 1.92, 1.62, 1.56). These four factors were obliquely rotated and the pattern loadings are presented in Table 5. As can be seen, Factor 1 again represents spirituality. The three facet scales from the STS all load on this dimension as do items such as "I have a sense of mission or calling in my own life," and "I think about how my life is part of a larger spiritual force." Factor 2 represents personality, given that all five of the personality domains have their highest loadings here along with the two items for forgiveness. Factor 3 represents a religiosity dimension and includes items such as "Besides religious services how often do you take part in other activities at a place of worship," "How often do you read the Bible or other religious literature," and "How often are prayers or grace said before or after meals in your home." Factor 4 again represents items capturing spiritual distress themes surrounding

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Table 5. *Pattern Matrix of the Joint Factor Analysis of MMRS Items, Five-Factor Model Personality Domains, and Spiritual Transcendence Facet Scales*

MMRS Item	Factor Component			
	Spirituality	Religiosity	Personality	Religious Crisis
<i>Look to God for Strength</i>	<b>.72</b>	.19	-.08	-.17
<i>God watches over me</i>	<b>.70</b>	.07	-.05	-.18
<i>Sense of Mission</i>	<b>.69</b>	-.04	.01	.05
<i>Feel God's love for me</i>	<b>.69</b>	.12	.12	-.23
<i>God as partner</i>	<b>.68</b>	.14	.03	-.03
<i>STS—Universality</i>	<b>.68</b>	-.10	.03	.10
<i>Desire for union with God</i>	<b>.67</b>	.18	-.14	-.16
<i>Spiritually touched by beauty of creation</i>	<b>.66</b>	.04	.11	-.00
<i>My life is part of spiritual force</i>	<b>.66</b>	.04	-.04	.24
<i>Events in life unfold to divine plan</i>	<b>.66</b>	.01	-.08	.07
<i>Carry religious beliefs into life</i>	<b>.65</b>	.20	-.07	-.09
<i>I feel God's presence</i>	<b>.63</b>	.23	-.02	-.23
<i>STS—Prayer Fulfillment</i>	<b>.62</b>	.27	-.04	.07
<i>I know God forgives me</i>	<b>.62</b>	-.10	.13	-.18
<i>Find strength in my religion</i>	<b>.55</b>	<b>.33</b>	-.02	<b>-.33</b>
<i>Religion involved in dealing with stressful situations</i>	<b>.54</b>	<b>.38</b>	-.02	-.13
<i>Frequency of private prayer</i>	<b>.51</b>	<b>.33</b>	-.10	-.26
<i>I consider myself a spiritual person</i>	<b>.51</b>	.27	.14	.02
<i>Responsible for reducing pain in the world</i>	<b>.50</b>	.01	.09	.21
<i>I consider myself a religious person</i>	<b>.46</b>	<b>.42</b>	.10	-.12
<i>STS—Connectedness</i>	<b>.46</b>	-.27	.06	.08
<i>Feel a deep inner peace or harmony</i>	<b>.39</b>	.12	<b>.38</b>	-.02
<i>Had a significant gain in faith</i>	<b>.37</b>	<b>.31</b>	-.07	.07
<i>Frequency take part activities at a place of worship</i>	.06	<b>.71</b>	.07	.13
<i>Frequency read the Bible/other religious literature</i>	.16	<b>.70</b>	.07	.07
<i>Average hours/week spent religious activities (z-score)</i>	-.01	<b>.68</b>	.11	-.02
<i>Frequency attend religious services</i>	.19	<b>.65</b>	.11	-.12
<i>Frequency pray before meals</i>	.08	<b>.59</b>	-.04	.07
<i>If ill, how supportive congregation</i>	.22	<b>.54</b>	.06	.11
<i>Frequency view religious programming on radio/TV</i>	.01	<b>.51</b>	.09	.17
<i>Had problem, how much comfort from congregation</i>	.24	<b>.50</b>	.06	.13
<i>Average monthly contribution to congregation (z-score)</i>	-.13	<b>.38</b>	-.06	-.11
<i>Frequency meditate</i>	.21	<b>.37</b>	.18	.09
<i>Had religious experience that changed life</i>	.31	<b>.31</b>	-.07	.12
<i>FFM—Neuroticism</i>	.14	-.18	<b>-.71</b>	.01
<i>FFM—Openness</i>	-.14	.06	<b>.64</b>	.07
<i>FFM—Conscientiousness</i>	-.07	.12	<b>.56</b>	-.16
<i>FFM—Agreeableness</i>	.10	.07	<b>.52</b>	-.11
<i>I have forgiven myself</i>	.24	-.07	<b>.51</b>	-.06
<i>I have forgiven those who hurt me</i>	.29	-.09	<b>.38</b>	-.01
<i>FFM—Extraversion</i>	.03	-.09	.27	.20
<i>How often congregation critical of you</i>	.04	.19	-.03	<b>.55</b>
<i>God has abandoned me</i>	-.12	-.02	-.03	<b>.54</b>
<i>Had significant loss of faith</i>	-.11	.03	.02	<b>.52</b>
<i>Congregation makes too many demands on you</i>	.05	.24	-.10	<b>.43</b>
<i>God is punishing me for my sins</i>	.23	.02	-.26	<b>.40</b>
<i>Make sense of situation without relying on God</i>	-.19	-.19	.19	<b>.36</b>

Loadings having an absolute value of .30 or greater are given in bold.

abandonment/punishment by God, loss of faith, and conflict with fellow congregants. Interestingly, the only substantive correlation between factors was found for the spirituality and religiosity dimensions (Factors 1 and 3, respectively),  $r = .40$ . All other interfactor correlations were below .05.

#### DISCUSSION

Four important points emerge from these data. First, it is interesting to note that spirituality and religiosity formed their own dimensions that were independent of personality, albeit overlapping ones. This suggests these constructs, despite a variety of definitions and scales, represent unitary dimensions. Rather than being considered multidimensional, religiosity and spirituality may be better conceived as *multifaceted* constructs. A distinction needs to be made between a multidimensional versus multifaceted scale because each carries with it important theoretical and psychometric implications.

A multidimensional scale is one that contains several, independent dimensions. Scores on one of these dimensions do not correlate with scores on any other, and information contained across these dimensions is nonredundant. A multifaceted scale, on the other hand, is one that contains multiple dimensions that are all correlated to some degree. This overlap exists because the dimensions presumably are all emerging from a common latent construct. Multidimensional scales provide breadth of coverage, while multifaceted scales provide greater fidelity of assessment for a single domain. A good example of these two types of scales is the NEO PI-R (Costa & McCrae, 1992). This scale is multidimensional because it assesses the five, independent dimensions of personality and provides comprehensive coverage of the field of traditionally defined personality constructs. It is also a multifaceted instrument because *within* each personality dimension, there are six specific "facet" scales (or subscales) that capture discrete aspects of this larger domain. All six facets are highly correlated and constitute a single overall dimension. However, each facet possesses sufficient unique variance to warrant separate interpretations.

A second important point of these findings is that the spirituality and religiosity dimensions are significantly correlated. This corresponds closely to field research that has polled peoples' perceptions of religiosity and spirituality and found that most people see them

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as closely related, but distinct constructs (Marler & Hadaway, 2002; Zinnbauer & Pargament, 2003; Zinnbauer et al., 1997). In fact, most people see themselves as *both* religious and spiritual, with very few individuals indicating that they are one, but not the other. Piedmont and colleagues (Dy-Liacco, Kennedy, Parker, & Piedmont, 2005; Piedmont, Ciarrocchi, Dy-Liacco, & Williams, 2006) found similar results employing Structural Equation Modeling techniques in several studies, employing both American and Filipino samples, where the latent disattenuated correlation between these two constructs ranged from .45 to .64. Further, these same studies indicated that despite their overlap, spirituality and religiosity reflected important aspects of the numinous that could not be contained by a single dimension. Additional research will need to be conducted that examines the incremental predictive validity of these constructs over each other. Only in this way can it be determined if both are necessary for explaining behavior.

Third, the two items dealing with forgiveness of self and others are linked notably with the personality dimensions rather than spirituality/religiousness. Forgiveness is being presented in both the clinical literature and research in the psychology of religion as a salient spiritual/religious construct. According to current data, however, the construct of forgiveness is distinct from religious and spiritual phenomena. This may be due to these items not explicitly linking forgiveness to God, the divine, or the sacred. However, using more developed measures of forgiveness, Walker and Gorsuch (2002) found that the dimensions of the FFM explained anywhere from 10% to 32% of the variance in four dispositional measures of forgiveness, a similar finding to the results here linking forgiveness to personality. Consistent with Walker and Gorsuch, the factor analysis results (i.e., Factor 2) showed that low Neuroticism and high Openness, Agreeableness, and Conscientiousness were linked to more frequent forgiving of self and others (Extraversion loaded less than .30 on this factor). This raises the empirical question, "How much overlap can a numinous scale have with personality and still be considered numinous?"

Finally, the fourth factor that emerged in this data set dealt with issues surrounding abandonment by God and rejection by one's faith community. This dimension was independent of the other factors. There is growing research attention focusing on the "dark side" of religiosity/spirituality and uses terms such as "negative religious coping" (Pargament, 1997) or religious/spiritual struggle (Exline & Rose,



2005). The loadings of these items contribute further to this important issue in religious research by identifying a core set of conflict-based items that are not simply a product of emotional dysphoria or interpersonal style. These items rather represent a direct conflict with transcendent issues that seemingly tap into other psychological aspects of the individual not already identified by traditional personality dimensions.

*Limitations.* There are two issues that need to be considered when evaluating these findings. First, the limited nature of this sample needs to be considered. Participants are college students, mostly white, and predominantly Christian. Although the obtained mean scores were found comparable to scores obtained in an adult medical sample, it is not clear how these results may generalize to other, more diverse samples. Second, our conclusions about the unidimensional nature of spirituality and religiosity need to be tempered by the fact that the MMRS scales, because they are so brief, do not provide much depth to the constructs they assess. As a result, they may reflect only the more general aspects of the numinous, which may explain why these scales formed only two dimensions. It is possible that if more developed measures of these constructs (e.g., their long forms) were employed, a more diverse factor structure may have been found.

*Conclusions.* Overall, these findings provide some much-needed information about the MMRS scale and its utility to the field. Although items were selected on the basis of their item-total correlations, it is clear that several of these small item scales have very poor reliability. For those with more acceptable levels, it still needs to be determined whether they maintain the content coverage of the constructs they are intended to measure. Much more information still needs to be collected about the validity of the MMRS scales before it can be considered a useful psychometric instrument for assessing numinous qualities. As it currently exists, it should not be considered anything more than just a brief screening instrument.

Nonetheless, these data do offer support for the potential utility of the constructs contained in the MMRS for expanding our understanding of spiritual processes. Research should continue to explore the predictive value of the individual types of constructs (e.g., private religious practices, daily spiritual experiences, religious coping, etc.), especially using the long form versions, where normative and validity data already exist (e.g., *The Daily Experiences Scale*, Underwood

& Teresi, 2002; *The Religious Coping Scale*, Pargament, Koenig, & Perez, 2000). Researchers should also examine the larger numinous dimensions these scales form; they may serve as the basis for the development of a taxonomy of numinous constructs. Further, the data do indicate that the information captured by the MMRS (with the exception of the forgiveness items) appeared to be mostly independent of personality as represented by the domains of the FFM. Thus, the MMRS has the potential to add explanatory power to any predictive model. Future research will need to document the incremental validity of the MMRS (Piedmont, 2005).

The principal components analyses indicated that despite having a collection of items from 12 different domains, these items really constitute two major areas of interest: one relating to spiritual experiences and the other to religious involvements. These highly correlated dimensions did evidence some construct validity. Thus, the diverse numinous phenomena may coalesce around these two, uni-dimensional constructs; spirituality and religiosity may be core individual difference qualities that are affected by different psychological systems. Such a finding is consistent with research studies using other measures of spirituality and religiosity (e.g., Dy-Liacco, et al. 2005; Piedmont, et al. 2005). For now, though, individuals interested in measuring spiritual and religious qualities may be better served by employing established instruments. It may be premature for the MMRS to be used as a broadband measure of the numinous. More evidence is needed demonstrating that the scales are faithful reflections of the larger scales from which its items were harvested. It also needs to be determined whether the MMRS scales have sufficient predictive validity to be useful in both research and applied contexts.

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