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Spirituality and the MMPI-2 Restructured Clinical Scales

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The present investigation examined the relation between spirituality, measured by the Expressions of Spirituality Inventory (ESI; MacDonald, 2000); and the Minnesota Multiphasic Personality Inventory-2 Restructured Clinical (MMPI-2 RC) scales (Tellegen et al., 2003) using data from a previously published study (i.e., MacDonald & Holland, 2003). Zero-order, multiple, and partial correlations were calculated to explore the association. All multiple correlations, wherein the five ESI dimensions were used collectively to predict MMPI-2 RC scales, emerged significant for all MMPI-2 RC scales. For zero-order correlations, all RC scales were found to have a significant relation with at least one ESI dimension. Existential Well-Being (EWB) was found to be significantly negatively associated with all MMPI-2 RC scales except RC9-Hypomanic Activation. When compared to correlations between the ESI and the MMPI-2 Basic Clinical Scales, the RC scales seem to produce a similar pattern of coefficients but of lower magnitude. The study concludes with a discussion of the findings, limitations, and suggestions for clinical practice and future research.

Keywords: *spirituality, Minnesota Multiphasic Personality Inventory-2 Restructured Clinical (MMPI-2 RC) Scales, measurement, psychopathology*

In the last few decades, spirituality has been increasingly recognized as an important aspect of human functioning, which demonstrates a robust but complex association to health and well-being (Elmer, MacDonald, & Friedman, 2003; Gartner, 1996; MacDonald & Friedman, 2002). Despite such recognition, there appears to be a lag in how spirituality is being incorporated into assessment practices by health professionals (e.g., psychologists). Even more simply, there appears to be minimal published research that examines the relation of spirituality to instruments commonly used in clinical assessment. If spirituality is indeed an area of functioning that is important, then it would be logical that research should be done to establish how it relates to popular clinical tests since such investigations will help practitioners better incorporate spirituality into assessment. The fact that the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000) includes a diagnostic category for religious or spiritual problems further reinforces arguments about the need for research to be done that supports ways in which spirituality can be considered in formal psychological assessment.

Based precisely on such reasoning, MacDonald and Holland (2003) completed a study examining the association of the Basic Clinical scales of the Minnesota Multiphasic Personality Inventory, Second Edition (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) to self-reported religious involvement and to a multidimensional measure of spirituality called the Expressions of Spirituality Inventory (ESI; MacDonald, 1997, 2000) with a nonclinical sample of 239 university students. For those unfamiliar with the test, the MMPI-2 is one of the most widely used measures of psychopathology (Greene, 2011), and while it contains a variety of scale sets, the Clinical scales are the most venerable and widely used of them all. In their original incarnation on the first MMPI (Hathaway & McKinley, 1940), the clinical scales were derived using an empirical test construction strategy (as opposed to a theory driven strategy) where items from a large item pool were assigned to scales based on their ability to differentiate between normal people and known diagnostic groups. This approach ultimately resulted in the creation of 10 scales that were preserved in the MMPI-2. These scales are called Hypochondriasis (Hs,

a.k.a Scale 1), Depression (D, a.k.a Scale 2), Hysteria (Hy, a.k.a Scale 3), Psychopathic Deviate (Pd, a.k.a Scale 4), Masculinity-Femininity (Mf, a.k.a Scale 5), Paranoia (Pa, a.k.a Scale 6), Psychasthenia (Pt, a.k.a Scale 7), Schizophrenia (Sc, a.k.a Scale 8), Hypomania (Ma, a.k.a Scale 9), and Social Introversion (Si, a.k.a Scale 0). As for the measure of spirituality used by MacDonald and Holland (2003), the ESI was constructed by MacDonald (2000) in order to address problems with the definition and measurement of spirituality seen in the literature. In particular, starting with the view of spirituality as representing a multidimensional domain of human functioning, which incorporates experiential, cognitive, affective, and behavioral components, MacDonald completed a series of factor analyses involving a total of 20 different tests of spirituality and related constructs and

identified five robust factors which appeared to embody central features of spirituality. The ESI was constructed to tap these five factors. Table 1 presents the names of these dimensions along with a brief description of each and examples of measures that contribute to each of the dimensions.

In their study, MacDonald and Holland (2003) found that those reporting active religious involvement obtained significantly lower t-scores than those reporting a religious affiliation but no involvement on Scale 2 (Depression), Scale 4 (Psychopathic Deviate), Scale 6 (Paranoia), Scale 7 (Psychasthenia), and Scale 8 (Schizophrenia). Effect sizes of these differences, however, were observed to be small (e.g., η^2 ranged from .02-.03 for all significant findings). They also found that when the sample was bifurcated into subgroups

Table 1. Descriptions and convergent correlates of ESI Dimensions from MacDonald (2000)

Dimension Name	Description	Partial list of correlates
Cognitive Orientation toward Spirituality (COS) (40 items, $\alpha = .97$)	Beliefs, attitudes, and perceptions about the significance of spirituality for daily living and sense of personal identity	Measures of non-religious spirituality and subjective spiritual well-being including Spiritual Orientation Inventory (Elkins et al., 1988); Assessment Scale (Howden, 1992), Spiritual Well-Being Questionnaire (Moberg, 1984)
Experiential/Phenomenological Dimension (EPD) (19 items, $\alpha = .91$)	Spiritual experiences including religious, mystical, and transcendent experiences	Measures of explicit spiritual and mystical experience including Mystical Experiences Scale (Hood, 1975), Peak Experiences Scale (Mathes et al., 1982), Ego Permissiveness Inventory (Taft, 1969)
Existential Well-Being (EWB) (9 items, $\alpha = .85$)	Sense of meaning and purpose of existence and perception of self as being competent	Measures of explicit existential well-being and self-satisfaction including Spiritual Well-Being Scale (Paloutzian & Ellison, 1982), Ego Grasping Orientation (Knoblauch & Falconer, 1986)
Paranormal Beliefs (PAR) (13 items, $\alpha = .91$)	Belief in paranormal phenomena (e.g., ESP)	Measures of explicit belief in the paranormal including the Paranormal Beliefs Scale (Tobacyk & Milford, 1983), and subscales of the Assessment Schedule for Altered States of Consciousness (van-Quekelberghe et al., 1991)
Religiousness (REL) (17 items, $\alpha = .94$)	Beliefs and practices associated with intrinsic religious orientation (e.g., belief in higher power, prayer/meditation)	Measures of intrinsic religiosity and religious well-being including Intrinsic Religious Motivation Scale (Hoge, 1972), and Religious Orientation Scale (Allport & Ross, 1967)

Note: Table adapted from MacDonald and Holland (2003), descriptions and alpha coefficients from MacDonald (2000)

based upon the presence versus absence of one or more clinically significant Clinical scale scores (i.e., t-score of 65 or higher), a significantly larger proportion of the not-religiously involved participants were observed to have a clinically significant MMPI-2 clinical profile.

When examining the relation of the Clinical scales to the ESI dimensions, MacDonald and Holland (2003) found that, with the exception of Scale 5 (Masculine-Feminine) and Scale 9 (Hypomania), all MMPI-2 Clinical scales

were significantly associated ($p < .001$) with overall spirituality (as represented in standard multiple regressions wherein all five ESI dimensions were used as predictors), as well as with at least one of the five ESI dimensions of spirituality as manifested in bivariate correlations (both zero-order correlations and partial correlations where each ESI dimension was correlated to each MMPI-2 scale after controlling for the remaining four ESI dimensions). Closer inspection of their results revealed that some components of spirituality were strongly and inversely related to MMPI-2 Clinical scales (e.g., Existential Well-Being), while others demonstrated weaker but still inverse associations (e.g., Religiousness was negatively associated with Scale 4–Psychopathic Deviate). Still others produced positive associations with some Clinical scales (e.g., Paranormal Beliefs was found to be significantly and positively correlated with Scale 6–Paranoia).

Table 2 presents the main correlational findings reported by MacDonald and Holland (2003). Further, using the presence versus absence of one or more clinically significant scores as a grouping variable and the five ESI dimensions as dependent variables, a MANOVA found a significant difference between groups with subsequent univariate ANOVAs uncovering Existential-Well-Being as the only dimension that had significantly different scores across the two groups (with the former group producing lower scores than the absence-of-clinically-significant-scores group).

Revision to the MMPI-2:

The Restructured Clinical Scales

Since the publication of MacDonald and Holland's (2003) findings, efforts have been made by researchers to address longstanding problems with the psychometric properties of the MMPI-2 Clinical Scales, which include such difficulties as excessive intercorrelatedness between scales and weak evidence supporting their criterion and discriminant validity (Graham, 2006; Nichols, 2006). These efforts have culminated in the development of the Restructured Clinical (RC) scales. The RC Scales were created to "preserve the important descriptive properties of the existing MMPI-2 Clinical Scales while enhancing their distinctiveness" (Tellegen et al., 2003, p. 1). A major objective in the development of these scales was to remove the nonspecific distress variance that is shared by most psychiatric disorders from each of the Clinical scales (Tellegen et al., 2003; Sellbom, Ben-Porath, & Bagby, 2008). This was done through the use of principal components analysis wherein variance

Table 2. Summary of MacDonald and Holland (2003) correlational findings involving the MMPI-2 and ESI

ESI Dimensions						
MMPI-2 Clinical	COS	EPD	EWB	PAR	REL	Mult. R
Hs–Scale 1	.07 (-.00)	.16 (.11)	-.33 (-.33)	.16 (.07)	.05 (.04)	.38
D–Scale 2	-.11 (.03)	-.10 (-.09)	-.65 (-.64)	.01 (-.02)	-.12 (-.03)	.65
Hy–Scale 3	.09 (.06)	.18 (.12)	-.27 (-.27)	.14 (.05)	.02 (-.04)	.33
Pd–Scale 4	-.09 (.10)	-.01 (-.04)	-.46 (-.44)	.14 (.11)	-.21 (-.19)	.50
Mf–Scale 5	-.11 (-.16)	-.03 (.10)	.08 (.08)	-.16 (-.15)	-.01 (.10)	.23
Pa–Scale 6	.00 (.05)	.10 (.02)	-.47 (-.46)	.24 (.19)	-.07 (-.05)	.52
Pt–Scale 7	-.04 (.10)	-.04 (-.09)	-.54 (-.53)	.10 (.07)	-.10 (-.08)	.55
Sc–Scale 8	-.01 (-.01)	.14 (.11)	-.48 (-.47)	.19 (.11)	-.06 (-.02)	.51
Ma–Scale 9	.02 (.01)	.18 (.13)	-.06 (-.03)	.18 (.11)	-.07 (-.09)	.25
Si–Scale 0	-.15 (-.00)	-.26 (-.21)	-.45 (-.47)	-.13 (-.09)	-.09 (.04)	.53

Note. Mult R = Multiple Correlation based upon standard regressions using all five ESI dimensions as predictors of each MMPI-2 Clinical Scale. All multiple correlations significant at $p < .001$ except those for Mf and Ma. Coefficients in parentheses are partial correlations ($df = 233$) where the ESI dimension was correlated to the each MMPI-2 clinical scale while controlling for the remaining four ESI dimensions. Zero order and partial correlation coefficients of .21 or greater are significant at $p < .001$.

associated with general distress was extracted as the first component and partitioned out of the total item score variance. Thereafter, items were retained that were found to associate in conceptually expected ways on the remaining components.

In their finalized form, the RC scales are made up of a total of nine scales, one of which is designed to measure generalized demoralization (RCd) and the remaining eight to assess statistically and conceptually redefined versions of all but two of the original Clinical scales (i.e., all but Scale 5–Masculine-Feminine and Scale 0–Social Introversion, which were deemed to be of minimal clinical importance). These eight scales are called Somatic Complaints (RC1), Low Positive Emotions (RC2), Cynicism (RC3), Antisocial Behavior (RC4), Persecutory Ideation (RC6), Dysfunctional Negative Emotions (RC7), Aberrant Experiences (RC8), and

Hypomanic Activation (RC9). One noteworthy change that deserves mention relates to RC3. In particular, Tellegen and colleagues (2003) elected to reverse score the items so that it transformed the scale from a measure of naiveté to a measure of cynicism. Table 3 presents descriptions of each of the RC scales.

While the RC scales have garnered a good deal of attention since their release in 2003 with a fair number of empirical studies showing that they are an improvement over the original Clinical scales and with their popularity resulting in the creation of the MMPI-2 Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008), to date no research has appeared in the published literature investigating the association of the RC scales to spirituality. In this vein, the purpose of the present study was to examine the relation of the MMPI-2 RC scales to spirituality as measured by

the ESI through a re-analysis of the data used by MacDonald and Holland (2003). We elected to re-analyze these data since it would allow for a direct comparison of the RC scales to the Basic Clinical scales in a way that would help determine if the RC scales demonstrate a more robust and differentiated pattern of associations with the ESI as compared to the original scales. Considering the findings of the MacDonald and Holland study, it was expected that (a) all of the ESI dimensions collectively would be significantly related to all MMPI-2 RC scales as manifested in statistically significant multiple correlations, (b) at the level of the individual ESI dimensions, every MMPI-2 RC scale would produce a significant correlation with at least one ESI dimension, with Existential Well-Being demonstrating a more general pattern of significant negative associations, Religiousness producing a significant negative correlation with RC4, and Paranormal Beliefs generating a significant positive association with RC6.

Methods

Participants

The sample used in this study was the same used in MacDonald and Holland (2003). It consisted of 239 self-

RC Scale Name	Parent Clinical Scale	General Description
Demoralization (RCd) (24 items, $\alpha = .89$)	None	General unhappiness; Hopelessness
Somatic Complaints (RC1) (27 items, $\alpha = .83$)	Scale 1 Hypochondriasis	Preoccupation with bodily concerns
Low Positive Emotions (RC2) (17 items, $\alpha = .73$)	Scale 2 Depression	Lack of hedonic capacity; passive social withdrawal
Cynicism (RC3) (15 items, $\alpha = .78$)	Scale 3 Hysteria	Other-referential belief about malevolence and untrustworthiness
Antisocial Behavior (RC4) (22 items, $\alpha = .73$)	Scale 4 Psychopathic Deviate	Externalizing proclivities; disinhibitory style; nonconformity
Ideas of Persecution (RC6) (17 items, $\alpha = .70$)	Scale 6 Paranoia	Self-referential paranoid ideation; persecutory delusions
Dysfunctional Negative Emotions (RC7) (24 items, $\alpha = .85$)	Scale 7 Psychasthenia	Negative emotions including: fear, anxiety, and anger
Aberrant Experiences (RC8) (18 items, $\alpha = .79$)	Scale 8 Schizophrenia	Bizarre perceptual experi- ences/hallucinations and nonpersecutory delusional beliefs
Hypomanic Activation (RC9) (28 items, $\alpha = .75$)	Scale 9 Hypomania	Grandiose self-view; general excitation; risk taking

Note. Descriptions based on Tellegen et al. (2003). Alpha coefficients based upon current sample. Basic Clinical scales Masculine-Feminine (Scale 5) and Social Introversion (Scale 0) not included in RC Scale set.

selected university students from a mid-sized Canadian university (65 males, 174 females). The sample had a mean age of 21.16 years, ranging from ages 18 to 51 (SD=4.51). For all cases in the sample, MMPI-2 validity scores fell within the score ranges recommended by Butcher, Graham, and Ben-Porath (1995; e.g., less than 30 missing item responses, L and K t-scores less than 80, F scale raw score less than 30, VRIN t-score less than 80, and TRIN raw score greater than 5 but less than 13).

Measures

The Minnesota Multiphasic Personality Inventory-2 (MMPI-2; Butcher et al., 1989) was used in this study. The MMPI-2 is a paper-and-pencil measure of personality structure and psychopathology, which consists of 567 items in a true-false response format and takes approximately 60 to 90 minutes to complete. The Restructured Clinical (RC) scales were used in this investigation. Examination of the psychometric properties of the MMPI-2 RC scales indicates satisfactory internal consistencies for all the RC scales using multiple samples (Tellegen et al., 2003). For instance, Tellegen and colleagues (2003) reported median Cronbach's alphas across samples ranging from .76 to .86 for men and .76 to .85 for women. With the sample from our study, the mean t-score across all RC scales was 54.77 with scale means ranging from 49.05 (RC2) to 57.44 (RC8). The mean inter-item reliability coefficient across all RC scales was .78 with RC6 obtaining the lowest value ($\alpha = .70$) and RCd producing the largest ($\alpha = .89$).

The Expressions of Spirituality Inventory (ESI; MacDonald, 1997, 2000) was used to measure spirituality. The ESI is a 98-item self-report measure that utilizes a Likert-type scale with five response alternatives ranging from 0 (Strongly Disagree) to 4 (Strongly Agree). The ESI measures five dimensions of spirituality: Experiential/Phenomenological Dimension (EPD), Cognitive Orientation towards Spirituality (COS), Existential Well-Being (EWB), Paranormal Beliefs (PAR), and Religiousness (REL). Dimension scores are obtained by adding appropriate item responses. It contains 40 items on COS, 19 items on EPD, 9 items in EWB, 13 items on PAR, and 17 items on REL. Brief descriptions of what is measured by each dimension can be found in Table 1. The ESI has revealed reliable scores with scale alphas ranging from .85 to .97 across the five dimensions. Furthermore, the ESI has been shown to have good factorial, convergent, discriminant, and criterion validity (MacDonald, 2000).

Spirituality and the MMPI-2

Procedure

Data for this study were originally collected as a part of a larger test battery used in a factor analytic investigation on spirituality (MacDonald, 1997) and more recently used in a study of the MMPI-2 clinical scales and spirituality by MacDonald and Holland (2003). Participants were recruited through in-class presentations and advertisements posted around the university community. Those who volunteered completed the questionnaires at one of several testing sessions held on campus and proctored by the second author. All participants read and signed an informed consent form prior to completing the tests.

Results

In order to assess the shared and unique association each ESI dimension has with the MMPI-2 RC scales, multiple correlations, zero-order correlations, and partial correlations were calculated. For the multiple correlations, all ESI dimensions were used as predictors of each MMPI-2 RC scale in nine standard multiple regressions. For the partials, each ESI dimension was correlated with each MMPI-2 RC scale after controlling for the other four ESI dimensions (see Table 4). Examination of the multiple correlations reveals coefficients ranging in magnitude from .23 for RC9 to .71 for RCd. All coefficients were significant at $p < .001$, with the exception of multiple correlation involving RC9 for which the coefficient was found to be significant at $p < .05$.

Inspection of the zero-order correlations showed a differential pattern of significant coefficients between the MMPI-2 RC scales and each of the five ESI dimensions. EWB obtained the most noticeable array of significant correlations. The EWB dimension is significantly negatively correlated ($p < .001$) with MMPI-2 RCd ($r = -.71$), RC1 ($r = -.44$), RC2 ($r = -.57$), RC3 ($r = -.25$), RC4 ($r = -.27$), RC6 ($r = -.24$), RC7 ($r = -.46$), and RC8 ($r = -.26$). COS is negatively correlated with MMPI-2 RCd ($r = -.14$, $p < .05$), RC2 ($r = -.17$, $p < .01$), RC3 ($r = -.13$, $p < .05$), and RC4 ($r = -.13$, $p < .05$). EPD generated significant positive correlations with RC1 ($r = .20$, $p < .01$), RC8 ($r = .29$, $p < .001$), and RC9 ($r = .20$, $p < .01$), and a significant negative correlation with RC2 ($r = -.16$, $p < .05$). PAR produced significant positive correlations with RC1 ($r = .18$, $p < .01$), RC6 ($r = .19$, $p < .01$), RC8 ($r = .32$, $p < .001$), and RC9 ($r = .15$, $p < .05$). Lastly, REL obtained a significant negative correlation with RC4 ($r = -.26$, $p < .001$).

Finally, examination of the partial correlations reveals a similar pattern of significant coefficients between the MMPI-2 RC scales and each of the five ESI dimensions as seen with the zero order correlations. EWB dimension showed significantly negative partial correlations with MMPI-2 RCd ($r = -.70, p < .001$), RC1 ($r = -.43, p < .001$), RC2 ($r = -.55, p < .001$), RC3 ($r = -.26, p < .001$), RC4 ($r = -.25, p < .001$), RC6 ($r = -.19, p < .01$), RC7 ($r = -.47, p < .001$), and RC8 ($r = -.24, p < .001$).

COS generated a significant negative partial correlation with MMPI-2 RC3 ($r = -.14, p < .05$). EPD generated significant positive partial correlations with RC1 ($r = .16, p < .05$), RC8 ($r = .23, p < .001$), and RC9 ($r = .13, p < .05$). PAR produced significant positive partial correlations with RC6 ($r = .17, p < .05$) and RC8 ($r = .22, p < .001$). Lastly, REL obtained a significant negative partial correlation with RC4 ($r = -.23, p < .001$).

Comparison with Basic Clinical Scales

In order to determine if the zero-order correlations obtained with the RC scales were markedly different from those obtained with the Basic Clinical scales as reported in MacDonald and Holland (2003), Steiger's z was calculated comparing the coefficients of Basic Clinical Scales 1, 2, 4, 6, 7, 8, and 9 to RC scales 1, 2, 4, 6, 7, 8, and 9 respectively. No calculations were done involving RCd since there is no corresponding scale in the Basic Clinical scale set. Also, Steiger's z was not calculated for correlations involving RC3 since the scale is reverse keyed compared to its parent scale (i.e., Scale 3- Hysteria) and, as such, the directionality of associations are likely to differ as a result.

Considering the coefficients involving ESI Existential Well-Being, the correlations between Scale 4 and RC4 were found to be significantly different (Steiger's $z = -3.35, p < .001; r(\text{scale } 4) = -.46; r(\text{RC4}) = -.27$) as were the correlations between Scale 6 and RC6 (Steiger's $z = -3.96, p < .001; r(\text{scale } 6) = -.47; r(\text{RC6}) = -.24$) and Scale 8 and RC8 (Steiger's $z = -4.22, p < .001; r(\text{scale } 8) = -.48; r(\text{RC8}) = -.26$). There were no significant differences found between correlations for all coefficients involving ESI Cognitive Orientation toward Spirituality, Experiential/Phenomenological Dimension, Paranormal Beliefs, and ESI Religiousness.

Discussion

As expected, all the ESI dimensions both collectively and individually are significantly related to the MMPI-2 RC scales with each RC scale having a significant relation with at least one ESI dimension. Moreover, ESI Existential Well-Being (EWB) was significantly negatively correlated with all of the MMPI-2 RC scales, with the exception of Hypomanic Activation (RC9). Other negative correlations include: ESI Cognitive Orientation towards Spirituality (COS) and Cynicism (RC3), ESI Experiential/Phenomenological Dimension (EPD) and Low Positive Emotions (RC2), and ESI Religiousness and Antisocial Behavior (RC4). These results are consistent with a vast amount of literature

Table 4. Zero Order, Partial, and Multiple Correlations between ESI Dimensions and MMPI-2 Restructured Clinical (RC) Scale T-scores

		ESI Dimensions					
MMPI-2	COS	EPD	EWB	PAR	REL	Mult. R	
RCd	-.14* (-.07)	-.06 (-.06)	-.71*** (-.70)***	.06 (.04)	-.12 (.04)	.71***	
RC1	.04 (-.09)	.20** (.16)*	-.44*** (-.43)***	.18** (.07)	.08 (.12)	.50***	
RC2	-.17** (-.07)*	-.16* (-.13)	-.57*** (-.55)***	.03 (.05)	-.12 (.06)	.59***	
RC3	-.13* (-.14)*	-.06 (.01)	-.25*** (-.26)***	-.05 (-.04)	-.03 (.11)	.29***	
RC4	-.13* (.05)	.00 (.00)	-.27*** (-.25)***	.13 (.10)	-.26*** (-.23)***	.38***	
RC6	.01 (-.11)	.07 (.02)	-.24*** (-.19)**	.19** (.17)*	.06 (.12)	.31***	
RC7	-.11 (-.02)	-.08 (-.10)	-.46*** (-.47)***	.04 (.06)	-.09 (.02)	.47***	
RC8	.01 (-.12)	.29*** (.23)***	-.26*** (-.24)***	.32*** (.22)***	-.01 (.03)	.45***	
RC9	.07 (-.02)	.20** (.13)*	-.09 (-.11)	.15* (-.08)	.03 (-.00)	.23*	

Note. COS = Cognitive Orientation toward Spirituality, EPD = Experiential/ Phenomenological Dimension, EWB = Existential Well-Being, PAR = Paranormal Beliefs, REL = Religiousness. Mult R = Multiple correlation. RCd = Demoralization, RC1 = Somatic Complaints, RC2 = Low Positive Emotions, RC3 = Cynicism, RC4 = Antisocial Behavior, RC6 = Persecutory Ideation, RC7 = Dysfunctional Negative Emotions, RC8 = Aberrant Experiences, RC = Hypomanic Activation (RC9). Partial correlations reported in parentheses involved correlating each ESI dimension to each MMPI-2 RC scale after controlling for the other four ESI dimensions. * $p < .05$, ** $p < .01$, *** $p < .001$.

which suggests that more spiritual individuals are likely to experience higher levels of physical health and psychological well being and less psychopathology and antisocial behavior (Brown, O'Grady, Farrell, Fechner, & Nurco, 2001; Cotton, Larking, Hoopes, Cromer, & Rosenthal, 2005; McCoubrie & Davies, 2006; Miller, 1998; Pargament, 1997).

However, akin to MacDonald and Holland (2003), the results of this investigation also yielded some significant positive correlations between some ESI dimensions and MMPI-2 RC scales. More specifically, the Experiential/Phenomenological Dimension (EPD) was significantly positively correlated with Somatic Complaints (RC1), Aberrant Experiences (RC8), and Hypomanic Activation (RC9). Also, ESI Paranormal Beliefs was significantly positively associated with Persecutory Ideation (RC6) and Aberrant Experiences (RC8), the former of which was consistent with our research expectations based upon past findings with the Basic Clinical Scales. These results are generally in line with what has been reported in the published literature; spiritual experience tends to demonstrate inconsistent associations with measures of psychopathology and belief in the paranormal is more generally linked to higher levels of pathology (MacDonald & Friedman, 2002).

When comparing our findings to those of MacDonald and Holland (2003), it appears that with only a few exceptions involving RC3 specifically, the magnitude and directionality of correlations are essentially the same for the RC scales as they are for the Basic Clinical scales. Where significant differences in correlations were found, the most ostensible trend was in the direction of the coefficients being smaller for the RC scales than for the Basic Clinical scales (e.g., with EWB, correlations with RC4, RC6, and RC8 were significantly smaller than with the corresponding Clinical scales). This downward trend in the correlations makes sense since the RC scales were designed with the intent of removing a general distress component that contributed to the Clinical scales being markedly intercorrelated. The resulting effect of partialing out this general variance would be the attenuation of the magnitude of correlations with measures of well-being, including existential well-being. In the case of RC3, different correlations from Scale 3 were produced with both Cognitive Orientation toward Spirituality (COS) and the Experiential/Phenomenological Dimension (EPD). In both instances, the coefficients for Scale 3 and

RC3 were in different directions (e.g., Scale 3 correlated positively and RC3 negatively with COS and EPD). This finding does not really come as a surprise since RC3 is comprised of items from Scale 3 that were reverse keyed thereby resulting in a construct that is the opposite of what Scale 3 was originally designed to assess. Also, when one considers the magnitude of the coefficients with both MMPI-2 scales, the effect size can be described as small. By association, these findings are unlikely to hold much import for elucidating the relation of spirituality to specific forms and manifestations of psychopathology.

Taken together, the results of this study suggest that the RC scales may be generally viewed as equivalent to the Basic Clinical Scales, offering neither benefit nor liability in the exploration of the relation of spirituality to mental health. With that stated, there do appear to be a number of specific scales within both MMPI-2 scale sets that demonstrate sufficiently substantive associations to spirituality, which would justify not only further empirical investigation but also could serve as the basis for utilizing the MMPI-2 for the identification of problems in functioning that may be associated with spirituality (e.g., spiritual emergency; Grof & Grof, 1990). By substantive associations, we mean correlations of a magnitude of .21 or higher. This follows the suggestion of Butcher et al., (1995, p. 322) who argued that, based upon their own research, correlations .20 or lower generally tend to be uninformative. In particular, with the exceptions of Scale 5 (Masculine-Feminine), Scale 9 (Hypomania), and RC9 (Hypomanic Activation), elevations on the remaining Clinical and RC scales may be associated with diminished existential well-being (e.g., problems finding meaning and purpose in life; perception of self as inefficacious and/or unable to cope with life's adversities). Elevated scores on Scale 4 (Psychopathic Deviate) or RC4 (Antisocial Behavior) may be indicative of difficulties associated with identification with and/or adherence to an organized faith system (e.g., problems with religious doctrine, practice, or lifestyle). Lastly, elevations on the Clinical scales of Schizophrenia (Scale 8) and Social Introversion (Scale 0) or the RC scale of Aberrant Experiences (RC8) may indicate the presence of non-ordinary experiences and thought patterns associated with the occurrence of spiritual experiences and belief in the paranormal that should garner further attention by clinicians. Based upon the results of this study and MacDonald and Holland (2003), Scale 1 (Hypochondriasis), Scale 6

(Paranoia), RC1 (Somatic Complaints), and RC6 (Ideas of Persecution) also appear to have some relevance to the identification of non-ordinary experiences and beliefs associated with spirituality, though the magnitude of their associations to spiritual variables suggests that the utilization of these scales should be done with some degree of caution.

Elevations on any of the scales named above should prompt health professionals to make deliberate and specific inquiries about their clients' spirituality through both qualitative (e.g., interview) and quantitative (e.g., standardized assessment instruments) means to ascertain the extent to which problems in spirituality are contributing to dysfunction. A formal and systematic exploration of client spirituality is an absolute necessity since the presence of some its core elements, such as spiritual experiences, is often erroneously assumed by conventional practitioners to reflect serious psychopathology (e.g., psychosis; see Clarke, 2001) when, in many cases, they may simply be a natural manifestation of states of consciousness that have been espoused by transpersonal clinicians and theorists as a human developmental and evolutionary birthright and as an expression of advanced states of health and integration (e.g., Johnson & Friedman, 2008; Grof & Grof, 1990; Wilber, 2000). In fact, we strongly recommend that clinicians consider adopting the approach to the differentiation of conventional pathology from spiritual emergence and spiritual emergency that was devised and thoroughly presented by Grof and Grof (1990), since it is consistent with current diagnostic practices utilized by medical and psychological practitioners and yet is inclusive of transpersonal views of health and pathology.

Limitations of the Study

Despite the potential of our results to inform clinical practice and to further an understanding of the linkage of spirituality to psychopathology, our findings should be interpreted with some caution for at least three reasons. First, even though MacDonald and Holland (2003) provided compelling argumentation supporting the utilization of a nonclinical student sample (e.g., see footnote on page 403 of their article), since the MMPI-2 is used primarily with clinical populations, it appears reasonable to conjecture that there may be some constraints on the generalizability of our results to such populations. Replication of this study with samples drawn from a variety of clinical populations is ostensibly needed. Second, we did not adjust significance

levels to account for the increase in statistical Type I error (i.e., finding a significant result because of chance alone) that occurs when a large number of analyses are simultaneously conducted. As such, it is reasonable to conjecture that at least some of our results may be due to chance. This would seem to be most likely with significant correlations that reflect a small effect size (e.g., correlations of absolute magnitude between .13 and .20). Third, research on the relation of spirituality and religion to health has suggested that the association may be at least partially mediated by such factors as social support (e.g., Sternthal, Williams, Musick, & Buck, 2010). Extending from this, future research examining the association of MMPI-2 scale sets to spirituality should try to incorporate potential mediators to see if significant associations with spiritual variables continue to exist.

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