

**YOUTH'S WELL-BEING: A MEDIATION MODEL OF PERSONALITY, IRRATIONAL BELIEFS, AND
SPIRITUALITY IN MALAYSIAN CONTEXT**

Haslina Muhamad

University of Malaya, Kuala Lumpur, Malaysia

John Roodenburg

Monash University, Australia

Dennis, W. Moore

Monash University, Australia

YOUTH'S WELL-BEING: A MEDIATION MODEL OF SPIRITUALITY, IRRATIONAL BELIEFS, AND PERSONALITY IN MALAYSIAN CONTEXT

Emerging adulthood (as seen in individuals between 18 and 25) has always been associated with rapid biology, cognitive and social changes. These changes may pose significant developmental challenges to long term well-being. Due to these challenges, the young adults are at risk for experiencing lower level of life satisfaction, happiness, self-esteem, and positive mood. Recent evidence from western and eastern studies suggest that psychological disorders usually begins during adolescence and emerging adulthood (Yonker, Schnabelrauch, & DeHaan, 2012) and the rates of mental health problems among the youths are quite high (Lemola, Perkinson-Gloor, Brand, Dewald-Kaufmann, & Grob, 2015; Yahaya, Momtaz, Othman, Sulaiman, & Mat Arisah, 2012). In response, researchers began to investigate the means that may help to escalate the level of well-being among the youths. Research has established the importance of spirituality in enhancing the state of well-being (Kim & Esquivel, 2011). For instance, many studies have documented the positive relationship between spirituality and life outcomes like satisfaction and happiness, as well as a beneficial effect on psychological and social problems such as depression and substance abuse (Moreira-Almeida, Neto, & Koenig, 2006). Most empirical research also supports spirituality's beneficial potential to help others ameliorate and cope with illness (Büssing, Ostermann, & Matthiessen, 2007).

Even though the importance of spirituality in facilitating well-being is acknowledged by many researchers (Koenig, 2012; Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2014), some researchers have argued that spirituality, being numinous and immaterial, is an improper and inappropriate subject to be studied scientifically (Miller & Thoresen, 2003). This is due to the nature of spirituality constructs that, according to Piedmont (2005), have much in common in terms of nature and content, with traditional personality variables such as "being intrinsic to the person, motivational in nature, providing stability in functioning over time, and providing consistency in behaviour across situations" (p. 253). This led Piedmont (2005) to suggest that "such overlap in form and function makes it only logical for one to view spiritual and religious constructs within the interpretive umbrella of broader models of personality" (p. 254). Consequently, the interpretive value of spirituality, can be enhanced more specifically by linking it with the now well-established and accepted personality trait model of personality, the Five-Factor Model (FFM) (McCrae & John, 1992).

In order to explore the potential role of spirituality in facilitating Malaysian young adult's well-being, this research follows on from researchers who specifically advocate investigating the associations between spirituality and personality in terms of Five-Factor Theory (FFT; McCrae & Costa, 2008b). Within the framework of FFT, spirituality is considered as characteristic adaptations that are acquired from the interaction of the individual's basic tendencies (i.e. personality traits) and external influences. In other words, spirituality is a concrete and acquired construct that develops as a function of social interactions (McCrae & Costa, 2003), while personality traits are considered as endogenous basic traits, largely based on genetic and biological influences (Saroglou, 2010). As an instance, a woman or man who is by nature agreeable and conscientious (basic tendencies), tend to be, remain, or become spiritual (characteristic adaptations) if he or she grows up in a spiritualistic family environment (external influences). Based on the FFT, spirituality and personality traits in this research are related to each other and are both shown to be important correlates of positive psychological constructs, such as happiness and life satisfaction that indicate well-being (Löckenhoff, Ironson, O'Cleirigh, & Costa, 2009).

Various theoretical orientations, observations, and understandings have led researchers to propose and investigate irrational beliefs as a potential mediator in various psychosocial-life outcomes relationships, specifically those between spirituality and well-being (Siegel & Schrimshaw, 2002), personality and subjective well-being (Strobel, Tumasjan, & Spörrle, 2011). However, an extensive literature search did not locate any studies investigating the mediational role of irrational beliefs on the personality-spirituality relationship. To date, the majority of studies have explored the relationships between spirituality-personality, spirituality-irrational beliefs, and personality-irrational beliefs rather than investigating these relationships concurrently. To fill this gap, and to further advancement in knowledge on personality-spirituality relationship, we have conducted a research that takes into account the mediating role of irrational beliefs in the personality-spirituality relationship.

However, the instruments used to measure spirituality, personality, and irrational beliefs were predominantly developed and validated in Western settings. Considering the context of the current study, it can be argued that these measures may not be culturally relevant to be applied to other cultures beyond the borders of the United States and other European-based cultures (Behling & Law, 2000). Furthermore, the use of instruments in cross-cultural research requires translating the instruments into the target language. In the case of the current study, the instruments need to be properly and accurately translated into the Malay language, as majority of the Malaysians speak and understand Malay. The translation needs to take into account the linguistic and cultural factors that allow

the instruments to be tested for cross-cultural applicability. Hence, another aim of this study is to determine the cross-cultural applicability of these instruments.

Spirituality

Despite considerable interest in the area of spirituality, researchers have been unable to agree on their definition of spirituality, which reflects the nature of the spirituality domain as being highly subjective, personal, and individualistic. Scott (as cited by Zinnbauer, Pargament, & Scott, 1999) performed a content analysis of 40 definitions of spirituality commonly found in spirituality literature. His analysis revealed that spirituality was categorized into themes such as “connectedness or relationship, behaviours reflecting sacred or secular beliefs, belief in something transcendent, existential questions and references to institutional structures”. Based on his analysis, spirituality can generally be conceptualized as “one’s personal relationships to larger, transcendent realities, such as God or the universe” (Piedmont, Ciarrochi, Dy-Liacco, & Williams, 2009, p. 163). The variations in the definition of spirituality however, led several researchers such as Lodhi (2011), Moberg (2002), George et al., (2000), and Hill et al. (2000) to conclude that spirituality is a multidimensional domain which should be defined with multiple component constructs.

A review on recent spirituality literature also revealed that most research had been undertaken in the context of Western Judeo-Christian tradition, limiting the conceptualizations of spirituality to what that context offers (Spilka, Hood, Hunsberger, & Gorsuch, 2003). It is therefore anticipated that the conceptualizations of spirituality are based on this tradition. However, Takahashi and Ide (2003) put forward evidence that spirituality is understood, conceptualized, and interpreted differently by people in different cultures and religious backgrounds. Some Muslim researchers such as Shamsuddin (1992) and Amer and Hood (2008) contend that the Islamic concept of spirituality and its measurement is fundamentally dissimilar from Judeo-Christian perspectives.

However, despite the claims that there are differences between the Western and Eastern concept of spirituality, common ground has been identified within these two streams such as: (a) belief in the existence of a higher power; (b) spirituality growth can be achieved by obeying God’s law and (c) humans can communicate with God through several means such as prayer, worship, and meditation (Naail, Ali, & Mohamed, 2011; Richards & Bergin, 2005).

On reviewing existing measures of spirituality, we concluded that the Expressions of Spirituality Inventory (ESI; MacDonald, 1997, 2000b) based on a meta-study of spirituality studies, was the preferred measure of the

levels of Malaysian young adults' spirituality. The ESI is preferred over several other spirituality measures such as the widely used Spiritual Well-Being Scale (Ellison, 1983) and the STS (Piedmont, 2001) because of several factors. Firstly, the ESI was developed after taking into account controversy surrounding spirituality measurements, such as the content domain that comprehensively make up spirituality (MacDonald, 2000b). Secondly, the ESI was developed through meticulous development practices. The items in the ESI were determined on the basis of factor analytic techniques applied across a representative sample of about 18 pre-existing scales of spirituality reflecting a broad range of conceptual models of spirituality. Finally, in terms of psychometric properties, the ESI has demonstrated sound reliability ($r > .80$) and excellent factorial, convergent, discriminate, and criterion validity (MacDonald, 2000a). In this regard, the dimensions of spirituality captured by the ESI have been replicated in cultures and languages significantly different from the West such as India, Japan, and Korea (MacDonald, 2009), though not in a predominantly Muslim population and culture. The revised ESI measures five components of spirituality labelled as *Cognitive Orientation toward Spirituality* (COS; a measure of spiritual beliefs, attitudes and perceptions pertaining to everyday life experiences), *Experiential/Phenomenological Dimension of Spirituality* (EPD; a measure of spiritual experiences); *Existential Well-Being* (EWB; a measure of Spirituality as reflected in the sense of meaning and purpose in life and the ability to cope with life uncertainties), *Paranormal Beliefs* (PAR; a measure of the expressions of Spirituality related to the possibility of paranormal phenomena) and lastly *Religiousness* (REL; a measure of religious attitudes, beliefs, behaviours, and practices).

Personality

Personality, while having a common popular conceptualisation, is also, more specifically, a recognised domain within psychology concerned with the technicalities of more accurately describing people's typical characteristics, such as outgoing, warm-hearted or imaginative (Matthews, Deary, & Whiteman, 2009b). The veracity of the personality constructs is supported by meeting various validity criteria such as predictive validity. For instance, past research has shown that personality is an important predictor of job performance (Barrick & Mount, 1991); health outcomes such as overweight, obesity and, longevity (Pulkki-Raback, Elovainio, Kivimaki, Raitakari, & Keltikangas-Jarvinen, 2005); psychiatric disorders (Terracciano, Lockenhoff, Zonderman, Ferrucci, & Costa, 2008; Terracciano & McCrae, 2006); and well-being (Hagberg, Hagberg, & Saveman, 2002). Personality has also been linked to spirituality (Simpson, Newman, & Fuqua, 2007).

Personality scholars have a range of perspectives in defining personality, reflecting a range of differing theoretical presuppositions and orientations. However, regardless of their theoretical orientations, all personality psychologists share a core conceptualization of personality as “psychological qualities that contribute to an individual’s enduring and distinctive patterns of feeling, thinking, and behaving” (Pervin & Cervone, 2008, p. 8). In other words, the concept of personality is well accepted as referring to a person’s consistent characteristics that may influence his or her overall functioning.

Although there are many perspectives to personality, McCrae (2010b) recently claimed majority consensus among personality researchers for his model that human personality can adequately be captured with five factors. Data obtained from cross-cultural samples from around the world, and from many disciplines, support the utility of this Five-Factor Model (FFM) of personality. “The widespread acceptance of the FFM in the 1990s led to systematic research on a variety of topics, allowing important advances in our understanding of personality trait psychology” (McCrae & Costa, 2008b, p. 6).

Accepting the FFM and its parallel Big Five as seemingly the most appropriate structure for factorially mapping the domain, has most personality psychologists concurring that human personality is best summarized in terms of the five broad dimensions. These dimensions are *Extraversion* (the tendency to be warm, sociable, assertive), *Agreeableness* (the tendency to have pro-social orientation towards others), *Neuroticism* (the tendency to experience negative emotions such as anxiety and depression), *Conscientiousness* (the tendency to be well organized, persistent, and reliable) and *Openness to Experience* (the tendency to be imaginative, creative) (Matthews, Deary, & Whiteman, 2009a; McCrae & John, 1992).

While the FFM is the preferred and apparently best empirically supported model, contrary arguments such as it lacks a theoretical basis have been put out by Block (1995) and more recently by Boyle (2008). But, McCrae and Costa (1996, 2008b) countered by offering the Five-Factor Theory (FFT) “that put the FFM into the context of a functioning personality system” (McCrae, 2010a, p. 60).

The five-factor theory (FFT). The FFT is a recognition and response to FFM being atheoretical. Basically, FFT attempts to explain the function of trait in our life (McCrae & Costa, 2008a). McCrae and Costa (2008b) argue that a fundamental premise of FFT is that personality traits, listed under the basic component category are biologically based and will not be affected with external influences. However, over time, traits interact with the environment to produce characteristic adaptations (all learned skills) and in some cases maladaptation, which in turn interacts with the situation to produce objective biography (outcomes which refers to everything a person does, thinks or feels) (McCrae & Costa, 2008a). As an illustration, in the FFT perspective, one might find that he or she is susceptible to irrational beliefs because he or she has an inborn propensity for being neurotic, and has undergone a number of significantly aversive life events.

While offering us insights into spiritual phenomena, the pattern of relationships between spirituality and personality cannot provide us the point of intervention to change our spiritual thinking and behaviours. This is because personality traits, as postulated by the FFT, are largely biologically based, thus resistant to much change. This offers a significant rationale for why we need to investigate modifiable factors assumed to mediate the relationship between personality and spirituality. An important set of such factors is the self-efficacy (cognitive thought and beliefs) one associates with spirituality.

Irrational Beliefs

In this study, Irrational Beliefs were measured with the Irrational Belief Scale (IBS; Malouff & Schutte, 1986). The twenty items of the IBS were written with the purpose of capturing the ten Irrational Beliefs listed by Ellis and Harper (1975).

Table 1

Components and Items of the IBS

Components of Ellis and Harper's Irrational Beliefs	Items of the IBS
Need for Approval	To be happy, I must maintain the approval of all the persons I consider significant To be happy I must be loved by the persons who are important to me
Need for Achievement	To be a worthwhile person I must be thoroughly competent in everything I do I must keep achieving in order to be satisfied with myself
Demand About Others/Other Rating	Most people who have been unfair to me are generally bad individuals

	Individuals who take unfair advantage of me should be punished
Awfulizing	It is awful when something I want to happen does not occur
	It is terrible when things do not go the way I would like
Emotions Are Externally Caused	My negative emotions are the result of external pressures
	I cannot help how I feel when everything is going wrong
Usefulness of Being Concerned	When it looks as if something might go wrong, it is reasonable to be quite concerned
	If there is a risk that something bad will happen, it makes sense to be upset
Problem Avoidance	It makes more sense to wait than to try to improve a bad life situation
	It is better to ignore personal problems than to try to solve them
Importance of the Past	Some of my ways of acting are so ingrained that I would never change them
	Many events from my past so strongly influence me that it is impossible to change
Demands About Life	Life should be easier than it is
	Things should turn out better than they usually do
Discomfort Anxiety	I hate it when I cannot eliminate an uncertainty
	I dislike having uncertainty about my future

An exhaustive search of the literature did not locate any studies examining the mediating effect of irrational belief between Spirituality and Personality. However, several empirical studies have indicated support for the mediating role of Irrational Beliefs in other contexts. For instance, in investigating belief in good luck and psychological Well-Being, Day and Maltby (2003) found Irrational Beliefs to mediate the influence of belief in good luck and depression and anxiety.

Based on the tenet of FFT that Personality traits will not be affected by external influences (as discussed in section 4.2.1.1), and also by empirical evidence as illustrated above, we expected that Irrational Beliefs would mediate the relationship between all four dimensions of Personality (except Extraversion) and all five dimensions of Spirituality. We attributed this expectation to the established associations between Irrational Beliefs and all dimensions of Personality constructs except Extraversion (section 5.3.3). Therefore, the following hypothesis is posited:

Hypothesis: The influence of Agreeableness, Conscientiousness, Neuroticism and Openness on Spirituality is significantly mediated through Irrational Beliefs.

Method

Procedure

Participants were recruited from one of the public university in Kuala Lumpur, Malaysia. Upon the approval from the university's Ethics Committee, flyers were placed around the university, inviting those who are: (1) 18 to 25 years old; and (2) Malaysian to participate in this study. The participants were given two choices. In the flyers, they were informed that they can choose to complete the questionnaire using a paper and pencil version or an online version. If they prefer a paper and pencil version of the survey, they were requested to contact the principal investigator via the details provided on the flyers. They were provided with an explanatory statement. They read the form and if they were interested to take part in the study, they can start answering the questionnaire. The return of the questionnaire implies their consent to take part in the study. Alternatively, if the participants preferred an online version of the survey, the survey web page link provided in the flyer will take them to a site where they can complete the survey online and at their convenience. Before they start answering the questionnaire, they were asked to read the explanatory statement attached online. It is stated on the explanatory statement that responding to the questionnaire implies consent. After reading the statement, they can start answering the questionnaire and submit it online. Data for the present study was gathered between March 2012 and July 2012. The English questionnaires were adapted using a procedure based on Brislin's translation/back-translation method and committee approach (Brislin, 1970; 1980; please refer to Muhamad, Roodenburg, Moore, 2014 for the application of this procedure)

Participants

The convenience sample included in this research consisted of 437 students (44.2% male and 55.8% female). The participants' ages ranged from 18 to 25 years ($M = 21.15$, $SD = 1.75$). Eighty percent of the participants were Malay and 83.8% of the participants were Muslims. For validation purposes, the sample was divided into calibration and replication samples using Statistical Package for the Social Sciences (SPSS) version 20. The calibration sample consisted of 236 participants ($M = 21.2$, $SD = 1.69$) and the replication sample consisted of 201 ($M = 21.1$, $SD = 1.83$).

Measures

Personality

Self-reported personality was assessed with the Malay translation of The Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). The BFI includes forty four items divided into five subscales: *Extraversion* (8 items),

Agreeableness (9 items), *Conscientiousness* (9 items), *Neuroticism* (8 items), and *Openness* (10 items). Reliability and validity of the English version was established in previous studies (John, Naumann, & Soto, 2008). The items are measured on a 5-point Likert scale, ranging from *strongly disagree* to *strongly agree*. Some of the items are reversed scored to control response biases. Scale scores are computed as the participant's mean item response. Examples of items are: "e.g., is talkative (Extraversion)", "e.g., is helpful and unselfish with others" (*Agreeableness*), "e.g., is depressed, blue" (*Neuroticism*), "e.g., does things efficiently" (*Conscientiousness*), and "e.g., Is sophisticated in art, music, or literature" (*Openness*). A higher mean score represents more characteristic of that particular dimension.

Irrational Beliefs

The 20 items in Section B were designed to measure the respondents' irrational thinking. The items were adopted from the Belief Scale (IBS; Malouff & Schutte, 1986). A psychometric review of measures of Irrational Beliefs has reported that this scale demonstrates good split-half and test-retest reliability (Terjesen, Salhany, & Sciutto, 2009). Additionally, the Belief Scale has established content and concurrent validity evidence such as correlations with self-report measures of depression and hostility (Malouff, 2009).

Spirituality

Participants completed the Malay translated version of the ESI (MacDonald, 2000a). This is a self-report instrument which includes 32 items each rated on a five-point Likert scale from 0 (strongly disagree) to 4 (strongly agree) assessing COS (e.g., spirituality is an important part of who I am as a person), EPD (e.g., I have had an experience in which I seemed to be deeply connected to everything), EWB (e.g., it always seems that I am doing things wrong), PAR (e.g., it is possible to communicate with the dead), and REL (e.g., I believe that going to religious services is important). To get the dimensional score, the score for the six items in each dimension is summed yielding a possible maximum score of 24 and minimum of 0, with higher scores representing a more favourable attitude toward Spirituality. The ESI had been developed and validated principally with university student populations. In terms of the ESI's psychometric properties, MacDonald (2000a) reports high inter-item reliability, Cronbach's alpha ranging from .80 to .89. MacDonald also reports several types of validity such as discriminant, convergent and factorial validity.

Statistical Analysis

Data analysis in this research is conducted in two stages. A two-step model building approach as recommended by Anderson and Gerbing (1988) and Jöreskog (1993; 2000) was adopted. Principally, the two-steps involve (a) estimate the measurement parts of the model first and note the parameter estimates and (b) run the full model but use the parameter estimates established in step a to fix the measurement part of the full model (Holmes-Smith, 2011, p. 12-2).

Step 1: Estimation of one-factor congeneric measurement models and two multi-factor confirmatory factor analyses (CFA).

The first step involves estimating a series of one factor congeneric measurement models. According to Holmes-Smith (2011), a one-factor congeneric model represents the “regression of the set of observed indicator variables on the single latent variable” (p. 9-2), or the relationships between a single latent variable and the indicator variables. In the second step of the measurement model evaluation, two multi-factor CFA analyses are conducted, with the purpose of identifying any cross-loadings between the constructs. Cross-loading items will be deleted from the scale, to ensure that each construct is reflected with only unique items (Holmes-Smith, 2011). The removal of cross-loading items will optimize the scale’s discriminant validity. Next, we selected the model that was most consistent with our data based on the Goodness-of-Fit (GOF) indices. Based on Kline’s (2005) recommendation, six fit indices were used to evaluate the model fit: CMIN/df (below 5), Bollen-Stine p-value ($> .05$), CFI (≥ 0.90), TLI (≥ 0.90), SRMR (≤ 0.08), and RMSEA (≤ 0.08).

Step 2: Establishing mediation model: Baron and Kenny’s causal four step approach

In line with current practices in estimating and testing for mediation, the first step was to evaluate intercorrelations among all study variables in order to gain an overview on the pattern of the relationship between these variables (Idris & Dollard, 2011). Following recommendations by Baron and Kenny (1986) and Kenny (2008), we started the analysis with the estimation of a partial mediational model (i.e. model that allows direct effect between the personality and spirituality). This was followed with the testing of the full mediation model (i.e. model in which the direct effect is fixed to zero) and direct effect model (i.e. model with the mediation effect fixed to zero). The χ^2 difference test was used to determine which type of the model best fit the current data. Further, in order to ascertain that the mediational relationships between the study variables are not due to chance, the models were cross-validated using the data from the replication sample. We conclude that the models are equivalent, and the causal relationships

demonstrated in the models have not capitalized on chance factor when the χ^2 difference value is statistically non-significant. Next, we tested the mediating effect of the selected model using Baron and Kenny's (1986) causal four step-approach. Finally, we tested the significance of the mediation effect with bootstrapping technique (Bollen & Stine, 1992).

In this study, the effect of personality traits and self-efficacy beliefs on spirituality was analysed separately for each of the five dimensions of spirituality. This is because they are treated as five distinct scales on which spirituality can be expressed (Bliss, 2011).

Results

Validation Results

The results from one factor congeneric model analyses are detailed in Table 1.

Table 2

Fit Indices for the Congeneric Models in the Calibration Sample before the Validation Process (n = 236)

Model	χ^2	df	Bollen – Stine p- value	CMIN/df	CFI	TLI	SRMR	RMSEA
PERSONALITY								
Extraversion	112.027	20	.002	5.601	.65	.51	.09	.140
Agreeableness	229.203	27	.002	8.489	.57	.43	.15	.179
Conscientiousness	145.160	27	.002	5.376	.73	.64	.11	.136
Neuroticism	96.544	20	.002	4.827	.66	.53	.10	.128
Openness	78.145	35	.018	2.233	.90	.87	.06	.072
IRRATIONAL BELIEFS								
Irrational Beliefs	529.784	27	.002	6.477	.68	.64	.098	.153
SPIRITUALITY								
COS	13.80	9	.281	1.533	.99	.99	.028	.048
EPD	23.00	9	.020	2.555	.96	.93	.040	.080
EWB	16.374	9	.184	1.819	.98	.97	.030	.060
REL	50.57	9	.002	5.619	.93	.88	.050	.140
PAR	35.123	9	.004	3.903	.78	.63	.080	.111

Note. χ^2 = chi-square, df = degrees of freedom; CMIN/df = Normed chi-square; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; SRMR = Standardized Root Mean-Square Residual; RMSEA = Root Mean-Square Error of Approximation; COS = Cognitive Orientation Towards Spirituality; EPD = Experiential/Phenomenological Dimension of Spirituality; EWB = Existential Well-Being; REL = Religiousness; PAR = Paranormal Beliefs; PAE =

Perceived Academic Self-Efficacy; SRE = Perceived Self-Regulatory Self-Efficacy; PSSE = Perceived Social Self-Efficacy.

Personality

Fit statistics for all five congeneric models of Malay translated version of the BFI suggested that the hypothesized models did not fit the data well (Table 1), indicating that one or more items were poor indicators of the respective personality dimensions in the Malaysian context. Since most fit indices for all five models did not show an acceptable fit; some problematic items from the Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience models were removed to enhance their validity and reliability. From this modelling, eighteen indicator variables were removed from five latent constructs measuring personality. After re-specifications, the fit statistics from all five congeneric measurement models of personality were within the acceptable range of fit as established in earlier section.

In the second step, items where the standardised residual values exceeded ± 1.96 and with large modification indexes (Byrne, 2010) were identified for removal. In total, 8 multi-factorial items were discovered and thus eliminated for subsequent analyses. Although the results indicated no more cross-loading items, the five-factor model for personality still did not attain satisfactory fit indices ($\chi^2 = 249.911$; $df = 125$; $CMIN/df = 1.999$; Bollen – Stine p -value = .002; SRMR = .06; RMSEA = .07; CFI = .89, TLI = .86). Some researchers such as and Hair, Black, Babin and Anderson (2010) assert that low factor loading of the indicators (less than 0.50) signify potential measurement problems, thus should be removed from the scale. Hence, we removed five items with factor loading less than the recommended level of 0.50. The removal of these items resulted in a model with acceptable fit to the data ($\chi^2 = 90.947$; $df = 55$; $CMIN/df = 1.654$; Bollen-Stine p -value = .06; SRMR = .05; RMSEA = .05; CFI = .96, TLI = .94). The original version of the BFI operationalised 44 items: after the two-step process, only 13 items were found to be satisfactory indicators of personality traits in the Malaysian context (see Appendix A).

Irrational Beliefs

As can be seen in Table 5.3, the original model with twenty items measuring Irrational Beliefs did not fit the Malaysian data well, indicated by the large chi-square fit, $\chi^2 (170) = 529.784$; Bollen-Stine p -value = .002, thus indicating the need for re-specification. As a result, only ten items were found to be valid indicators measuring

Irrational Beliefs in Malaysian young adults. This was somewhat consistent with Al-Heeti et al.'s (2012) research where they also had to remove some items from their Arabic-translated version of the IBI in order to gain an acceptable measure of Irrational Beliefs.

Spirituality

On the basis of establishing one-factor congeneric measurement models, five observed variables from four of the latent constructs (excluding COS) measuring spirituality were removed. In stage 2 of the analysis, six multi-factorial items were identified from the modelling of two multi-factor CFA, thus removed from the scale. The final validation results revealed that only 20 items (including the validation items) as valid indicators of spirituality in the Malaysian context (see Appendix A). Hence, we concluded that the five-factor model of spirituality represents an adequate description of the spirituality structure in educated Malaysian young adults ($\chi^2 = 182.239$; $df = 125$; $CMIN/df = 1.458$; Bollen-Stine p -value = .08; SRMR = .050; RMSEA = .04; CFI = .95, TLI = .96)¹. Once we found our measurement models to be satisfactory (see Table 2), we proceeded to test the proposed mediational model.

Table 3

Fit Indices for the Validated Models (n = 236)

Model	Total items	χ^2	df	CMIN/ df	CFI	TLI	SRMR	RMSEA
Personality	13	90.947	55	1.654	.96	.94	.05	.05
Irrational Beliefs	10	141.488	76	1.862	.95	.94	.05	.06
Spirituality	20	182.239	125	1.458	.96	.95	.05	.04

Mediation Results

Means, standard deviations, and bivariate correlations of all study variables are detailed in Table 3. Results of the correlational analyses confirmed that all personality variables were associated with irrational beliefs and spirituality.

¹ Please refer to Muhamad, Roodenburg, and Moore (2014) for the details of the translation and validation process of the ESI in Malaysian context.

Table 4

Descriptive Statistics and Pearson Correlations between Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Extraversion	-											
2. Agreeableness	.52**	-										
3. Conscientiousness	.59**	.63**	-									
4. Neuroticism	-.14**	-.17*	.20**	-								
5. Openness	.21**	.29**	.28**	.15*	-							
6. Irrational Beliefs	.41**	.39**	.55**	-.08	.20**	-						
7. COS	.16*	.24**	.28**	-.08	.05	.35**	.41**	-				
8. EPD	.03	-.01	-.07	.20**	.16*	-.01	-.01	-.09	-			
9. EWB	.05	.14*	.21**	-.43**	-.08	.15*	.17**	.36**	-.46**	-		
10. REL	.11	.12	.20**	-.05	.06	.27**	.33**	.71**	-.12	.33**	-	
11. PAR	.08	-.06	-.08	.26**	.16*	-.07	.03	-.11	.43**	-.38**	-.09	-
Mean	7.49	11.35	11.15	8.55	7.10	30.01	35.11	16.58	10.91	13.61	8.80	8.50
SD	1.23	1.80	1.77	2.13	1.31	5.20	6.29	2.40	3.35	3.15	1.25	2.43

Note. N = 236. COS = Cognitive Orientations Towards Spirituality; EPD = Experiential/Phenomenological

Dimension of Spirituality; EWB = Existential Well-Being; REL = Religiousness; PAR = Paranormal Beliefs.

*p < .05; **p < .01

Next, we assessed the mediation hypotheses using the steps previously described. To support the validity of these models, they were cross-validated with the data from the replication sample. The results showed that there was no significant improvement in the model when the paths were estimated freely, suggesting model invariance across groups. The causal relationships demonstrated in the models have not capitalized on chance factor.

Our hypothesis predicted that personality is related to spirituality through its relationship with irrational beliefs. The results of the bootstrapping analyses are presented in Table 5.

Table 5

Mediation of the Effects of Neuroticism on Existential Well-Being Through Irrational Beliefs

Hypothesis	Direct β without mediator	Direct β with mediator	Indirect Effect			Mediation Type
			β	S.E	95% CI (bootstrap)	
N \rightarrow IB \rightarrow EWB	-.431*	-.319*	-.116*	.031	(-.187, -.063)	Partial

Discussion and implications

In general, our results showed that the personality, irrational beliefs, and spirituality constructs are relevant for the young Malaysian adults; however, the CFA results indicate that the items needed to be modified before it could be used in this context. For instance, the fit indices for all five congeneric models of personality suggested that the hypothesized model did not fit the Malaysian data well, implying the presence of some problematic items in the model that need to be removed. The removals of these items were considered as possibly causing a loss of information on the holistic representation of Malaysian youths' personality, irrational beliefs, and spirituality constructs. In assessing the significance of the loss and the possible need to generate new items, we considered the case made by some researchers who maintain that a shorter and refined instrument is preferable if it can demonstrate acceptable psychometric properties (Rammstedt & John, 2007).

Results based on 5000 bootstrapped samples indicated that the total effect of Neuroticism on existential Well-Being (EWB) was significant ($\beta = -.431$, $p < .05$). Irrational beliefs (indirect effect = $-.116$, lower 95% CI = $-.187$, upper 95% CI = $-.063$) and ChanceHLOC (indirect effect = $-.101$, lower 95% CI = $-.152$, upper 95% CI = $-.057$) partially mediated the relationship between Neuroticism and EWB. Because zero is not in the 95% CI, the indirect effect is significantly different from zero at $p < .05$ (two-tailed). In general, the results provided partial support to our hypothesis. We proposed that the influence of Agreeableness, Conscientiousness, Neuroticism, and Openness on Spirituality is significantly mediated through Irrational Beliefs. Other than the fact of Neuroticism directly influencing EWB, there is also a route via Irrational Beliefs: people high in Neuroticism are not only predisposed to have a low sense of Spirituality as expressed through means of positive existentiality, but are also higher in Irrational Beliefs, which in turn decreases EWB.

Some practical implications could be proposed from findings in the present study. For instance, the Neuroticism-Irrational Belief-EWB model can help individuals to gain a better understanding of the underlying personal and psychological influences on their level of positive existentiality, an effect that ultimately has an impact on objective and subjective Well-Being. The integrative model of Neuroticism-Irrational Beliefs-EWB model will also help clinicians and practitioners in health-related industries. In helping clinicians understand that Neuroticism and Irrational Beliefs variables are important determinants of EWB, they may treat their clients who are experiencing a low sense of Well-Being using this knowledge, as well as plan and design programs to reduce its impact on their daily functioning. According to the FFT, the level of Neuroticism is relatively fixed; however, it is

possible to modify their Irrational beliefs using CBT techniques. All in all, the current mediation results provided us with an insight into the different nature of the indirect effects of Personality on Spirituality.

Compliance With Ethical Standards

Funding: This research was funded by Postgraduate Research Fund provided by University of Malaya and Monash University.

Conflict of Interest: The authors declare that they have no conflict of interests.

Ethical Approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

This article does not contain any studies with animals performed by any of the authors.

Informed consent: Informed consent was obtained from all individual participants included in the study.

References

- Amer, M. M., & Hood, R. W. J. (2008). Introduction to the special issue: Part II. Islamic Religiosity: Measures and Mental Health. *Journal of Muslim Mental Health*, 3, 1-5.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach. *Psychological Bulletin*, 103(3), 411-423.
- Bandura, A. (1990). *Multidimensional scales of perceived academic efficacy*. Stanford, CA: Stanford University.
- Bandura, A. (1995). *Self-efficacy in changing societies*. Cambridge, UK: Cambridge University Press.
- Bandura, A. (1997). *Self-Efficacy: The exercise of control*. New York: Freeman.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Multifaceted Impact of Self-Efficacy Beliefs on Academic Functioning. *Child Development*, 67(3), 1206-1222.
- Bandura, A., & Locke, E. A. (2003). Negative Self-Efficacy and Goal Effects Revisited. *Journal of Applied Psychology*, 88(1), 87-99. doi: 10.1037/0021-9010.88.1.87
- Barrick, M. R., & Mount, M. K. (1991). The Big Five Personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1-26.
- Bliss, D. L. (2011). Sexual orientation differences in spirituality in a sample of alcoholics anonymous members: Implications for practitioners. *Journal of Gay & Lesbian Social Services*, 23(3), 335-350.
- Block, J. (1995). A Contrarian View of the Five-Factor Approach to Personality Description. *Psychological Bulletin*, 117(2), 187-215.
- Bollen, K. A., & Stine, R. A. (1992). Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods & Research*, 21(2), 205-229.
- Boyle, G. J. (2008). Critique of the Five-Factor Model of Personality. In G. J. Boyle, G. Matthews & D. H. Saklofske (Eds.), *The SAGE Handbook of Personality Theory and Assessment: Volume 1 — Personality Theories and Models* (Vol. 1, pp. 295-312). London, UK: SAGE Publications Ltd.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(185-216).
- Brislin, R. W. (1980). Translation and content analysis of oral and written materials. In H. C. Triandis & W. J. Berry (Eds.), *Handbook of Cross-Cultural Psychology: Methodology* (Vol. 2, pp. 389-444). Boston: Allyn and Bacon.
- Byrne, B. M. (2010). *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming* (Second ed.). New York, NY: Taylor & Francis Group.
- Büssing, A., Ostermann, T., & Matthiessen, P. (2007). Distinct Expressions of Vital Spirituality. *Journal of religion and health*, 46(2), 267-286.

- Ellison, C. W. (1983). Spiritual well-being: Conceptualization and measurement. *Journal of Psychology and Theology*, 11(4), 330-340.
- George, L., Larson, D., Koenig, H., & McCullough, M. (2000). Spirituality and Health: What We Know, What We Need to Know. *Journal of Social and Clinical Psychology*, 19(1), 102.
- Hagberg, M., Hagberg, B., & Saveman, B. I. (2002). The significance of personality factors for various dimensions of life quality among older people. *Aging & Mental Health*, 6(2), 178-185.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspectives*. Upper Saddle River, NJ: Pearson Education, Inc.
- Hill, P. C., Pargament, K., Hood, R. W., McCullough, M. E., Jr., Swyers, J. P., Larson, D. B., & Zinnbauer, B. J. (2000). Conceptualizing Religion and Spirituality: Points of Commonality, Points of Departure. *Journal for the Theory of Social Behaviour*, 30(1), 51-77.
- Holmes-Smith, P. (2011). *Advanced Structural Equation Modelling using AMOS*. workshop material provided at the ACSPRI 2011 Spring program. School Research Evaluation and Measurement Services. Melbourne.
- John, O. P., Donahue, E. M., & Kentle, R. L. (Eds.). (1991). *The Big Five Inventory-Versions 4a and 54*. Berkeley: University of California at Berkeley, Institute of Personality and Social Research.
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm Shift to the Integrative Big Five Trait Taxonomy: History, Measurement, and Conceptual Issues. In O. P. John, R. W. Robins & L. A. Pervin (Eds.), *Handbook of Personality: Theory and Research* (Third Edition ed., pp. 114-158). New York: The Guilford Press.
- Jöreskog, K. G. (1993). Testing structural equation models. In K. A. Bollen & L. J. S. (Eds.), *Testing structural equation models* (pp. 194-216). Newbury Park, CA: Sage Publications, Inc.
- Kenny, D. A. (2008). Reflections on mediation. *Organizational Research Methods*, 11(2), 353-358.
- Kim, S., & Esquivel, G. B. (2011). Adolescent spirituality and resilience: Theory, research, and educational practices. *Psychology in the Schools*, 48(7), 755-765.
- Koenig, H. G. (2012). Religion, Spirituality, and Health: The Research and Clinical Implications. *ISRN Psychiatry*, 2012, 33.
- Lemola, S., Parkinson-Gloor, N., Brand, S., Dewald-Kaufmann, J., & Grob, A. (2015). Adolescents' Electronic Media Use at Night, Sleep Disturbance, and Depressive Symptoms in the Smartphone Age. *Journal of Youth and Adolescence*, 44(2), 405-418.
- Lodhi, P. (2011). The scientific study of spiritual behavior: Measurement and methodological issues. *Journal of Psychosocial Research*, 6(1), 1-9.
- Luszczynska, A., Gutiérrez-Doña, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *International Journal of Psychology*, 40(2), 80-89.
- MacDonald, D. A. (1997). *The development of a comprehensive factor analytically derived measure of spirituality and its relationship to psychological functioning*. (Doctoral Dissertation), University of Windsor. Retrieved from <http://books.google.com/books?id=QgWvIAAACAAJ>
- MacDonald, D. A. (2000a). *The Expressions of Spirituality Inventory: Test development, validation and scoring information*. Unpublished test manual.
- MacDonald, D. A. (2000b). Spirituality: Description, Measurement, and Relation to the Five Factor Model of Personality. *Journal of Personality*, 68(1), 153-197.
- MacDonald, D. A. (2009). Identity and Spirituality: Conventional and Transpersonal Perspectives. *International Journal of Transpersonal Studies*, 28, 86-106.
- Maddux, J. E., & Gosselin, J. T. (2012). Self-Efficacy. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of Self and Identity* (Second ed., pp. 198-224). New York: The Guilford Press.
- Matthews, G., Deary, I. J., & Whiteman, M. C. (2009a). Genes, environments and personality traits *Personality Traits* (3rd ed., pp. 153-186). Cambridge: Cambridge University Press.
- Matthews, G., Deary, I. J., & Whiteman, M. C. (2009b). *Personality traits* (3rd ed.). Cambridge ; New York: Cambridge University Press.
- McCrae, R. R. (2010a). The Place of the FFM in Personality Psychology. *Psychological Inquiry*, 21, 57-64.
- McCrae, R. R. (2010b). The Place of the FFM in Personality Psychology. *Psychology Inquiry: An International Journal for the Advancement of Psychological Theory*, 21(1), 57-64.
- McCrae, R. R., & Costa, P. T., Jr. (1996). Toward a new generation of personality theories: Theoretical contexts for the Five-Factor Model. In J. S. Wiggins (Ed.), *The Five-Factor Model of personality* (pp. 51-87). New York: Guilford.
- McCrae, R. R., & Costa, P. T., Jr. (2008a). Empirical and Theoretical Status of the Five-Factor Model of Personality Traits. In G. J. Boyle, G. Matthews & D. H. Saklofske (Eds.), *The SAGE Handbook of Personality Theory*

- and Assessment: Volume 1 — Personality Theories and Models (Vol. 1, pp. 273-294). London, UK: SAGE Publications Ltd.
- McCrae, R. R., & Costa, P. T., Jr. (2008b). The Five-Factor Theory of Personality. In O. P. John, R. W. Robins & L. A. Pervin (Eds.), *Handbook of personality: theory and research* (Third Edition ed., pp. 159-181). New York: The Guilford Press.
- McCrae, R. R., & John, O. P. (1992). An Introduction to the Five-Factor Model and Its Applications. *Journal of Personality*, 60(2), 175-215.
- Miller, W. R., & Thoresen, C. E. (2003). Spirituality, Religion, and Health: An Emerging Research Field. *American Psychologist*, 58(1), 24-35.
- Moberg, D. O. (2002). Assessing and Measuring Spirituality: Confronting Dilemmas of Universal and Particular Evaluative Criteria. *Journal of Adult Development*, 9(1), 47-60. doi: 10.1023/a:1013877201375
- Moreira-Almeida, A., Neto, F. L., & Koenig, H. G. (2006). Religiosity and mental health: a review. *Rev Bras Psiquiatr*, 28(3), 242-250.
- Naail, M. K., Ali, H. A., & Mohamed, S. (2011). The components of spirituality in the business organizational context: The case of Malaysia. *Asian Journal of Business and Management Sciences*, 1(2), 166-180.
- Pastorelli, C., Caprara, G. V., Barbaranelli, C., Rola, J., Rozsa, S., & Bandura, A. (2001). The structure of children's perceived self-efficacy: A cross-national study. *European Journal of Psychological Assessment*, 17(2), 87.
- Pervin, L. A., & Cervone, D. (2008). *Personality : theory and research* (10th ed.). Hoboken, NJ: Wiley.
- Piedmont, R. L. (2001). Spiritual Transcendence and the Scientific Study of Spirituality. *Journal of Rehabilitation*, 67(1), 4.
- Piedmont, R. L. (2005). The Role of Personality in Understanding Religious and Spiritual Constructs. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the Psychology of Religion and Spirituality* (pp. 253-273). New York: The Guilford Press.
- Piedmont, R. L., Ciarrochi, J. W., Dy-Liacco, G. S., & Williams, J. E. G. (2009). The Empirical and Conceptual Value of the Spiritual Transcendence and Religious Involvement Scales for Personality Research. *Psychology of Religion & Spirituality*, 1(3), 162-179.
- Pulkki-Raback, L., Elovainio, M., Kivimäki, M., Raitakari, O. T., & Keltikangas-Järvinen, L. (2005). Temperament in Childhood Predicts Body Mass in Adulthood: The Cardiovascular Risk in Young Finns Study. *Health Psychology*, 24(3), 307-315.
- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.
- Richards, P. S., & Bergin, A. E. (2005). Theological and philosophical assumptions of theistic psychotherapy. In P. S. Richards & A. E. Bergin (Eds.), *A spiritual strategy for counseling and psychotherapy* (2nd ed., pp. 73-109). Washington, DC: American Psychological Association.
- Shamsuddin, Q. M. I. (1992). Dimensions of Muslim Religiosity: Measurement Considerations. In Z. A. Ansari (Ed.), *Qur'anic Concepts of Human Psyche* (pp. 99-114). Islamabad: Institute of Islamic Culture.
- Simpson, D. B., Newman, J. L., & Fuqua, D. R. (2007). Spirituality and Personality: Accumulating Evidence. *Journal of Psychology and Christianity*, 26(1), 33-44.
- Spilka, B., Hood, R. W., Jr., Hunsberger, B., & Gorsuch, R. (Eds.). (2003). *The Psychology of Religion: An Empirical Approach* (3rd ed.). London: The Guilford Press.
- Takahashi, M., & Ide, S. (2003). Implicit Theories of Spirituality Across Three Generations: A Cross-Cultural Comparison in the U.S. and Japan. *Journal of Religious Gerontology*, 15(4), 15-38.
- Terracciano, A., Lockenhoff, C. E., Zonderman, A. B., Ferrucci, L., & Costa, P. T., Jr. (2008). Personality predictors of longevity: Activity, Emotional Stability, and Conscientiousness. *Psychosomatic Medicine*.
- Terracciano, A., & McCrae, R. R. (2006). Cross-cultural studies of personality traits and their relevance to psychiatry. *Epidemiologia e Psichiatria Sociale*, 15(3), 176-184.
- Valentine, J. C., DuBois, D. L., & Cooper, H. (2004). The Relation Between Self-Beliefs and Academic Achievement: A Meta-Analytic Review. *Educational Psychologist*, 39(2), 111-133.
- Van Cappellen, P., Toth-Gauthier, M., Saroglou, V., & Fredrickson, B. (2014). Religion and Well-Being: The Mediating Role of Positive Emotions. *Journal of Happiness Studies*, 1-21.
- Yahaya, N., Momtaz, Y. A., Othman, M., Sulaiman, N., & Mat Arisah, F. (2012). Spiritual well-being and mental health among Malaysian adolescents. *Life Science Journal*, 440-448.
- Yonker, J. E., Schnabelrauch, C. A., & DeHaan, L. G. (2012). The relationship between spirituality and religiosity on psychological outcomes in adolescents and emerging adults: A meta-analytic review. *Journal of Adolescence*, 35(2), 299-314.

- Zaleski, E. H., & Schiaffino, K. M. (2000). Religiosity and sexual risk-taking behavior during the transition to college. *Journal of Adolescence*, 23(2), 223-227.
- Zinnbauer, B. J., Pargament, K. I., & Scott, A. B. (1999). The Emerging Meanings of Religiousness and Spirituality: Problems and Prospects. *Journal of Personality*, 67(6), 889-919.