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Unpacking the Role of Mindfulness in Conscientiousness and Spirituality

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This study examined relationships between conscientiousness and intrinsic spirituality, with the proposed trait “mindfulness” as mediator. The results from 161 functioning adults in Australia revealed that mindfulness was significantly predicted by conscientiousness. In this study, we investigated the relationship among conscientiousness, trait mindfulness, and intrinsic spirituality. We hypothesized that trait mindfulness would mediate the relationship between conscientiousness and spirituality. We found that this hypothesis was partially supported. The results suggest that conscientious individuals do significantly connect with mindfulness, and it was only the more mindful of conscientious individuals who also displayed high levels of intrinsic spirituality. Additional analyses suggest that conscientious individuals connect with mindfulness through attending to current actions or regulating impulses and have an accepting attitude toward thoughts and feelings. Possible explanations and implications of these results are discussed in relation to the theory, practice, and delivery mechanisms of mindfulness.

Mindfulness is an important and emerging subject of interdisciplinary research because high levels of mindfulness, a nonjudgmental quality of consciousness, attention, and awareness grounded in each present moment (Kabat-Zinn 1990), have been associated with high levels of subjective well-being (Baer et al. 2004; Brown and Ryan 2003; Brown et al. 2009; Falkenstrom 2010). Although the therapeutic impact of mindfulness has been established, the mechanisms by which it delivers benefits as diverse as improved quality in intimate relationships (Brown, Ryan, and Cresswell 2007) and reduced stress in the workplace (Mackenzie, Poulin and Seidman-Carlson 2006) are not yet well understood; nor is it clear why some individuals are more mindful than others. Researchers such as Giluk (2009) have advocated for more research comparing mindfulness to established personality traits to connect and extend mindfulness research to broader areas of literature. For example, it has been well substantiated that individuals who are high in everyday mindfulness score correspondingly low in neuroticism and high in agreeableness. While these relationships are relatively intuitive, a meta-analysis revealed a less well-understood positive relationship between mindfulness and conscientiousness (Giluk 2009). Although both are associated with greater subjective well-being, why mindful individuals might be more conscientious or why conscientious individuals might be more mindful remains a largely unexplored theoretical and practical question. Giluk suggested examining this relationship at the dimensional levels of these constructs to provide insight.

In undertaking the present study, we set out first to replicate previous findings on the associations between conscientiousness and overall trait mindfulness. We then examined these associations at the dimensional levels of mindfulness (observe, describe, act aware, non-judge, and non-react) to test explanations for the link between mindfulness and conscientiousness, building on a re-perceiving model (Shapiro et al. 2006). This model posits that mindfulness works through a shift in perspective that fosters self-regulation, flexibility, values clarification, and exposure. Conscientiousness and mindfulness have both been linked to self-regulation. Examining relationships between these constructs at the deeper dimensional levels of mindfulness could provide insight into theoretical and practical understandings of the mechanisms of mindfulness and perhaps inform strategies for well-being and interventions for psychological distress.

MINDFULNESS AS A CONCEPT

Clinical psychology has customarily focused on curing and treating mental diseases and has only recently begun research into the promotion of positive mental health. In contrast, 2,500 years of Buddhist experiential and theoretical inquiry has identified and treated the reasons behind mental imbalances and has developed procedures for attaining mental well-being. Mindfulness meditation or

contemplation is one such central Buddhist principle and practice that aims to free individuals from suffering and promote happiness. The word *mindfulness* originated from the ancient Pali concept of “sati,” meaning possessing awareness, attention, and remembering (Bodhi 2000). Kabat-Zinn’s (2000: 233) description of mindfulness incorporates psychology’s understanding but includes Buddhist contextual references:

Mindfulness was taught by the Buddha in the Mahasattipathana Sutta, which speaks of the four foundations of mindfulness; the contemplation of the body, the contemplation of feelings (pleasant, and neutral sensation), the contemplation of mind states (including thoughts and emotions), and the contemplation of mind objects (suffering, impermanence, emptiness).

Thus a rich intersection has ensued between traditional Buddhism and Western psychology with immense potential to enhance scientific explorations of well-being.

As mindfulness has attracted interest from Western scholars, working definitions have varied between descriptions of a psychological trait, the practice of cultivating a meditative state, and a psychological process (Germer, Siegel, and Fulton 2005). Western definitions of mindfulness share some commonalities with Eastern definitions but are more grounded in an information-processing perspective and thus differ conceptually (Weick and Putnam 2006). For example, social psychologist Ellen Langer (2009) characterized mindfulness as the process of noticing new things, thereby staying present-focused. Western definitions have been critiqued as risking oversimplification (Hofmann and Asmundson 2008). Conceptually though, these condensed definitions also seek to capture the same psychological freedom that Eastern mindfulness offers: the flexible viewing of events or life experiences, detached from any particular point of view.

DEFINITIONS OF MINDFULNESS

Although Western definitions of mindfulness have focused on its attentional aspects (Brown and Ryan 2003), most research has operationalized mindfulness with two distinct but interconnected components from Bishop and colleagues’ model (2004). The first component involved a self-regulated, present-centered awareness, with increased identification of mental events such as thoughts, feelings, or sensations, while the second involved an orientation of curiosity, openness, acceptance, and lack of judgment toward one’s present experiences. This orientation encompassed a “beginner’s mind” of seeing each moment afresh (Marlatt and Kristeller 1999) that was theorized to minimize purely habitual reactions and preconceived ideas while maximizing reflective, accepting, and non-judgmental immersion in arising life experiences (Keng, Smoski, and Robins

2011). This study aims to consider mindfulness at the deepest dimensional levels in functioning adults and so will focus on mindfulness characterized by Kabat-Zinn (1990) as possessing the quality of consciousness: an orientation of self-regulation and an awareness of the unfolding experience of each moment with a nonjudgmental and accepting focus. This definition has been used frequently in similar studies, allowing comparison, and retains the original depth of the Eastern Buddhist concept.

TRAIT MINDFULNESS

Research into mindfulness has examined both the collection of skills that can be learned and practiced, such as the meditation-based stress reduction (MBSR) program first developed by Kabat-Zinn (1990), and dispositional or trait mindfulness. Mindfulness practice (through mindfulness states) aims to help cultivate trait mindfulness and thereby support well-being (Thompson and Waltz 2007). Some individuals are characteristically in a mindful state more than other individuals (Brown, Ryan, and Creswell 2007), and research increasingly positions mindfulness as an innate quality that supports adaptive human functioning (Hollis-Walker and Colosimo 2011). For example, research has shown that trait mindfulness supports well-being (Broderick 2005), and some evidence suggests that the efficacy of mindfulness training interventions varies because of innate individual differences (Cordon, Brown, and Gibson 2009), as trait mindfulness has been shown to moderate the effects of MBSR (Shapiro et al. 2011). Recent research also indicates that these individual differences in mindfulness exist even more subtly in nonmeditating individuals (Baer et al. 2006). Thompson and Waltz (2007) speculated that nonmeditators, through sitting quietly or reflecting, might achieve beneficial results similar to those experienced by trained, practicing meditators. Given that innate mindfulness affects the delivery of mindfulness interventions and training and is implicated in a range of positive psychological outcomes, including subjective well-being, it is important to understand more about trait mindfulness in functioning adults, controlling for reflective practices.

MINDFULNESS WITHIN THE CONTEXT OF PERSONALITY RESEARCH

Measurement of trait mindfulness has surged as recent interdisciplinary trends have placed individual differences at the cutting edge of research on evolutionary psychological mechanisms and behavioral functioning (Shapiro et al. 2011). The five-factor model has proved to be a useful universal language in organizing personality trait research because it integrates emerging biological underpinnings (DeYoung, Peterson, and Quilty 2007). Trait mindfulness has been compared to the five well-established factors of neuroticism, extraversion, openness, agreeableness, and conscientiousness, which have demonstrated stability over time

(McCrae and Costa 2008), predictive power in forecasting behavior (Fleeson and Gallagher 2009), and moderate heritability in evolutionary genetics (Penke, Denissen, and Miller 2007). These stable differences have established substantial consequences for parenting, work performance, longevity, and well-being and have also demonstrated dynamic growth and continuity. For example, research has demonstrated that individuals become more conscientious over time and across different cultures and cohorts (B. W. Roberts, Wood, and Smith 2005). People may act “out of character” momentarily, but the validity of traits is built on the consistency of states across operationally similar situations over time (T. Roberts 2009). A personality trait is defined in this study as a relatively enduring pattern of thoughts, feelings, and behaviors (Johnson 1997).

WHY COMPARE MINDFULNESS TO CONSCIENTIOUSNESS?

A meta-analysis by Giluk (2009) of thirty-two samples in twenty-nine studies comparing mindfulness to Big Five personality traits and affect concluded that the highest positive relationship existed between mindfulness and conscientiousness, though this relationship was the least investigated and least understood. Why mindful individuals might be more conscientious or why conscientious individuals might be more mindful remains a largely unexplored question, presenting a gap in theory and research. Therefore our study directly responded to a need for a research to provide insight into the association between mindfulness and conscientiousness.

THE LINK BETWEEN CONSCIENTIOUSNESS, MINDFULNESS, AND SPIRITUALITY

Conscientiousness has been described as the tendency to be task oriented and goal oriented, to plan and delay gratification, to strive to achieve through self-discipline, and to follow societally approved norms and rules to manage impulses (Srivastava 1999). Conscientiousness may present similar positive life benefits because it has proven associations with parenting, well-being, longevity, work performance, and behavior benefits (Fleeson and Gallagher 2009). For example, conscientiousness is the best predictor of longevity (Martin, Friedman, and Schwartz 2007) and job performance across occupations and training performance (Barrick, Mount, and Judge 2001). Holliday, Musisca, and Fleeson (2004) found that conscientiousness was related to less conflict and was positively related to work and family outcomes such as job satisfaction. A meta-analysis found that conscientiousness-related traits were negatively related to risky health-related behaviors (tobacco use, diet and activity patterns, excessive alcohol use, violence, risky sexual behavior, risky driving, suicide, and drug use) and positively related

to beneficial health-related behaviors (Bogg and Roberts 2004), a finding suggesting that self-regulation may be the driver of positive outcomes. For example, conscientiousness is characterized by deliberation before responding to a situation (Costa and McCrae 1992). Similarly, mindfulness involves awareness rather than impulsivity (Kabat-Zinn 1990). Both traits are also associated with positive self-esteem (Brown and Ryan 2003; Costa and McCrae 1992).

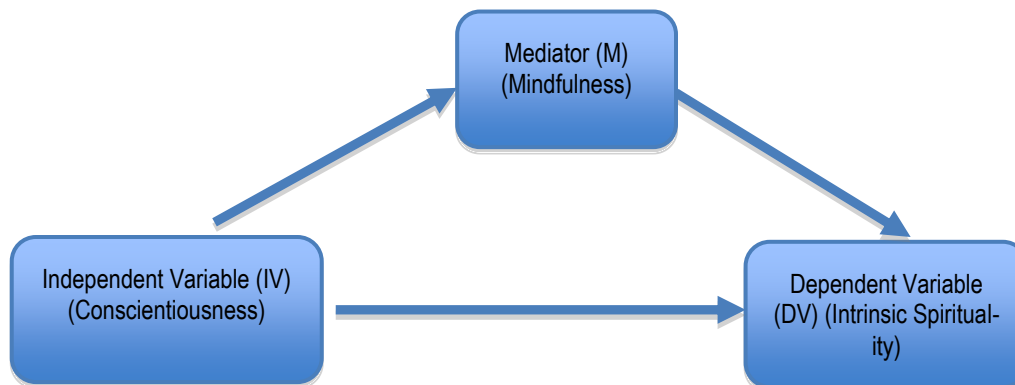
In the last fifteen years, there has been an upsurge not only in interdisciplinary research into mindfulness but also in research examining religion, spirituality, and health outcomes (Mills 2002), demonstrating that spiritual beliefs may also deliver benefits for health, longevity, and recovery from physical illness (Rippentrop et al. 2005). Spirituality is conceptualized as having humanistic values; personal qualities; and a sense of life, meaning, and purpose beyond any material values and goals (Brady et al. 1999). Furthermore, spirituality involves a shared, universal mystery that inclusively extends the self and connects with others where religion might divide (Hall, Meador, and Koenig 2008). Accordingly, spiritual experience is seen as distinctly separate from religious practice for many individuals and may even be considered secular (Thoresen and Harris 2002). In short, an individual may be spiritual but not religious or religious but not spiritual, with spirituality positioned as a universal life experience (Hall, Meador, and Koenig 2008). We therefore focus on spirituality as cosmic meaning, not constructed by an individual but bestowed by life experience that transcends an individual and around which an individual may construct meaning (Frankl 1988).

Mindfulness, centered within Buddhism, might appear related to spirituality because as a life practice, its aim is spiritual development (Wallace and Shapiro 2006). However, Buddhism is considered the most psychologically grounded of all spiritual traditions (Smith 1991) because, unlike many other traditions, it is not founded on faith in a supernatural being but is concerned with investigating the nature of human experience (Wallace 2003) and identifying the inner causes of suffering, with the intention of finding freedom and relief from suffering (Wallace and Shapiro 2006). As Buddhism presents a philosophy that is integrated into the discipline of experiential inquiry into the mind's workings and associated phenomena, it is unique in having empirical and analytical elements that sit alongside religious ones (Segall 2003). Additionally, Western conceptualizations of mindfulness have taken the principle and practice out of their original spiritual context, process, and content.

It could be argued that mindfulness and spirituality share overlapping life benefits and may also be life orientations, as spirituality has been measured as an orientation since the 1960s and mindfulness is described as an orientation. However, limited and inconsistent data comparing mindfulness and spirituality present a gap in theory and research. Carmody and colleagues (2008) examined mindfulness (trait and state), spirituality, and health in forty-four university students

before and after MBSR training, using measures from the Mindfulness Attention Awareness Scale (trait) and Toronto Mindfulness Scale (state) psychological distress measures, reported medical symptoms, and spirituality measured through the Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being Scale (FACTIT-Sp) (Peterman et al. 2002). Results revealed that significant reductions in medical symptoms were associated with increased trait mindfulness and increases in spiritual well-being, but the reductions were limited to the meaning and peace (not faith) subscales of the FACTIT-Sp. This research suggested that increased mindfulness may predict increased spirituality across nonreligious (secular) contexts (Carmody et al. 2008). Therefore levels of overall mindfulness are associated with levels of intrinsic spirituality among functioning adults.

Romero and colleagues (2009) explored how specific strivings (defined as the practice of what individuals do frequently or typically) might function as personality adaptations in 405 Spanish adults, finding that personality traits influence emotional reactions and behaviors through characteristic adaptations. Results indicated that conscientiousness was most associated with striving through importance and clarity of goals, available support, probability of success, environmental opportunities to progress, and the attribution of goals to be achieved. Moreover, conscientious individuals scored high on a derived factor called intensity (effective goal pursuit). Strivings did slightly mediate personality traits and well-being, with traits and strivings contributing significantly to direct effects. The authors argued that a stronger effect existed when the results were considered with other fragmented but converging evidence. We therefore propose mindfulness as a mediator in a model in which conscientious individuals strive to effectively self-improve through practicing mindfulness, because it also clarifies and presents support for their most important goals, and it increases opportunities to self-improve in spirituality—something in which they feel they ought to improve—and the probability of success (Figure 1). Thus mindfulness is the underlying mechanism of striving that brings about increased intrinsic spirituality.



METHODOLOGY

In this study, we acknowledge the influence of a postpositivist paradigm (Guba and Lincoln 1994) whereby social realities are acknowledged to be real, complex, and understandable but also imperfect with inherent probabilistic limitations. This approach is motivated by the aim to be as objective as possible and acknowledges that findings may only be converging on the “true” state of affairs.

Participants

Table 1 summarizes the demographics of 161 volunteer participants from the general community in this study (age range: 18 to 91 years), who were all free from medication (which could interfere with self-perceptions). An incentive to receive results was offered; this is considered part of an ethical debriefing, and research indicates that high or low scores are not affected if the incentive is presented in an easy-to-understand framework (McCrae and Costa 2008).

Procedure

Nonprobability sampling was employed, in that each participant was selected somewhat on the basis of personal judgment and convenience. This strategy implies that some participants are more likely to be selected than others (Bryman and Bell 2003). The advantages of this sampling strategy, utilizing online technology, were time and cost efficiencies in reaching a target sample as well as minimization of potential bias associated with personal contact between the researcher and participants; therefore we considered the advantages of this strategy to outweigh any potential sampling errors. Recruitment flyers were also placed on several free community notice boards in Brisbane, Australia. Participants were encouraged to extend the invitation to others in their personal networks. Paper surveys (identical to the online one) were made available to participants for whom online access might be difficult.

Before commencing research, we considered a sample size requirement based on the recommended sample size estimates of 79–148 participants for mediation analysis, as calculated by Fritz and MacKinnon (2007), with 0.8 power to detect a medium to large effect ($r = 0.26 - 0.39$). A total of 142 online responses and 19 paper surveys ($N = 161$) were used; therefore the sample size represents an adequate ratio of cases for analysis by mediation.

**Table 1: Summary of Demographic Information for Study Participants
(N = 161)**

Variable	Number, Categories (Percentage)	Number, Categories (Percentage)
Gender	109 females (67.70%)	52 males (32.30%)
Marital status	64 married with children (39.75%) 13 married without children (8.07%)	52 single without children (32.30%) 28 single/divorced/widowed + children (17.39%)
Education	100 university degree (62.11%) 15 high school (9.32%)	43 technical/apprenticeship (26.71%) 2 less high school (1.24%) 1 missing (0.62%)
Job status	67 full-time work (41.62%) 13 casual work (8.07%) 24 students (14.90%)	25 part-time work (15.53%) 25 semiretired or retired (15.53%) 7 unemployed (4.35%)
Culture	119 Australian/Anglo-Celtic (73.91%) 4 indigenous Australian/Torres Straits (2.48%) 3 North African and Middle Eastern (1.86%)	23 North American/European (14.30%) 7 Asian (4.35%) 4 Oceania (2.48%) 1 missing (0.62%)
Religion	106 no religion (65.83%) 18 Catholic/Anglican (11.18%) 2 Jewish (1.24%)	27 Christian/born-again Christian (16.77%) 6 Buddhist-based traditions (3.74%) 2 Islam or Mormon (1.24%)

MEASURES

Mindfulness

The thirty-nine-item Five Facet Mindfulness Questionnaire (Baer et al. 2006) measures overall mindfulness and five mindfulness dimensions, in which higher scores reflect higher mindfulness. Participants rate the degree to which the statement holds true for them, scored on a five-point Likert-type scale ranging from 1 (never or very rarely true) to 5 (very often or always true). For the dimension of *observe* (eight items, e.g., “I notice the smells and aromas of things”), *describe*

(eight items, e.g., “I’m good at finding the words to describe my feelings”), *act aware* (eight items, e.g., “I am easily distracted”), *non-judge* (eight items, e.g., “I criticize myself for having irrational or inappropriate emotions”) and *non-react* (seven items, e.g., “I watch my feelings without getting lost in them”). Nineteen items are reverse-coded. Cronbach’s alpha was high, the values being as follows: overall mindfulness ($\alpha = 0.76$), *observe* ($\alpha = 0.83$), *describe* ($\alpha = 0.88$), *non-judge* ($\alpha = 0.91$), *act aware* ($\alpha = 0.85$), and *non-react* ($\alpha = 0.82$).

Spirituality

The six-item intrinsic spirituality scale (Hodge 2005) measures the importance of spirituality in an individual’s life through its impact on life decisions; high scores indicate that spirituality plays a greater role. Respondents read an incomplete statement (e.g., “Growing spiritually is ...”) with two opposite possible endings (“more important than anything else in my life” or “of no importance to me”) represented by 0 and 10, respectively, on a sliding numerical scale. Respondents choose a number between 0 and 10 that reflects where they stand between the two possible responses (5 denoting somewhere in the middle). Three questions are reverse-coded. Cronbach’s alpha was high ($\alpha = 0.77$).

Conscientiousness

Conscientiousness was measured by using conscientiousness subscale questions from the adult short form of the NEO Five-Factor Inventory-3 (McCrae and Costa 2010). Participants rate the degree to which they agree with twelve statements, rated on a five-point Likert-type scale from 0 (strongly disagree) to 4 (strongly agree). Four items are reversed-coded. Higher scores indicate higher levels of conscientiousness. Cronbach’s alpha was high ($\alpha = 0.76$).

RESULTS

Table 2 shows the means or modes, standard deviations and correlations for all measures and sociodemographics, using nonparametric Spearman’s correlations because of the nonnormal distributions of conscientiousness, intrinsic spirituality, and *non-react*. As we expected, all five dimensions of mindfulness within the sample correlated significantly and positively with the variable of overall mindfulness.

Table 2: Means, Standard Deviations, and Correlations for All Measures and Sociodemographics (N = 161)

Variable	Mean (S.D.)	1	2	3	4	5	6	7	8
1. Conscientiousness	2.77 (0.56)	($\alpha = 0.76$)							
2. Observe	3.53 (0.65)	0.19*	($\alpha = 0.83$)						
3. Describe	3.57 (0.65)	0.09	0.25**	($\alpha = 0.88$)					
4. Non-judge	3.35 (0.77)	0.18*	-0.01	0.14	($\alpha = 0.91$)				
5. Act aware	3.30 (0.62)	0.39**	0.26**	0.24**		($\alpha = 0.85$)			
6. Non-react	3.14 (0.58)	0.17*	0.26**	0.24**	0.20*	0.25**	($\alpha = 0.82$)		
7. Intrinsic spirituality	5.24 (2.57)	0.14	0.21**	0.06	0.05	0.05	0.22**	($\alpha = 0.77$)	
8. Overall mindfulness	3.38 (0.39)	0.32**	0.50**	0.65**	0.53**	0.57**	0.59**	0.16*	($\alpha = 0.76$)

Note: * $p < 0.01$; ** $p < 0.001$. Cronbach's alphas are reported on the diagonal.

To assess our proposed relationships, the mediation regression (Baron and Kenny 1986) and bootstrapping method (Preacher and Hayes 2004) tested whether trait mindfulness would mediate the relationship between conscientiousness and intrinsic spirituality (Table 3). The indirect effect was found to be non-significant by using the bias-corrected bootstrapped confidence interval (95 percent bias-corrected confidence interval: [-0.00, 0.54]) with 5,000 resamples because the 95 percent bias-corrected confidence interval included zero, did not differ significantly from zero, and thus did not mediate. The same analyses controlling for sociodemographics were run as correlations, revealing significant positive associations between marital status and age ($r_s = 0.52, p < 0.001$) and between marital status and conscientiousness ($r_s = 0.27, p < 0.01$) and significant negative associations between education and age ($r_s = -0.24, p < 0.001$) and between marital status and education ($r_s = -0.29, p < 0.001$). Because the results did not differ significantly, reports of these were limited accordingly.

Next, we test the proposed mediated models. The first model (model A) will test overall mindfulness as a mediator between the independent variable (IV: conscientiousness) and the dependent variable (DV: intrinsic spirituality). Another mediation model (model B) will test the dimensions of mindfulness (*observe, describe, non-judge, act aware, and non-react*) as mediator variables between the independent variable (IV: conscientiousness) and the dependent variable (DV:

intrinsic spirituality). Examination of path coefficients (see Table 3) between conscientiousness and mindfulness (path *a*) reveal that the higher the conscientiousness levels, the higher were overall mindfulness levels ($p = 0.001$). Inspection of path *b* between mindfulness and intrinsic spirituality indicated that the higher the mindfulness levels, the higher were intrinsic spirituality levels, although these results fell just short of statistical significance ($p = 0.067$). The reduction of the direct effect (path *c*) coefficient from the total effect (path *c'*) shows that overall mindfulness does not significantly influence the effect of conscientiousness on intrinsic spirituality ($t = 0.75, p = 0.457$). The explained variance in the dependent variable (DV) intrinsic spirituality in model A was $R^2 = 0.03$, and adjusted $R^2 = 0.02$ indicates that 2–3 percent of variance in intrinsic spirituality (DV) was accounted for by the model; this was not significant ($p = 0.07$).

Table 3: The Bootstrapping Results Between Conscientiousness (IV), Mindfulness (M), and Intrinsic Spirituality (DV)

Pathway Effect	β Coefficient	Bootstrap (S.E.)	<i>t</i>	Significance	95% Bias-Corrected Confidence Interval
<i>a</i>	0.23	0.05	4.45	0.000	
<i>b</i>	1.01	0.55	1.85	0.067	
<i>c</i>	0.51	0.36	1.43	0.154	
<i>c'</i>	0.28	0.38	0.75	0.457	
<i>a</i> × <i>b</i>	0.23	0.22			[-0.00, 0.54]

Note: β = unstandardized coefficients for the indirect effect of conscientiousness on intrinsic spirituality through mindfulness; *a* = IV to MV; *b* = direct effect of MV on DV through M; *c* = total effect of IV on DV through M; *c'* = direct effect of IV on DV; *a* × *b* = indirect effect of IV on DV through M.

ADDITIONAL ANALYSES

Although it was not hypothesized, we ran additional regression to examine the subconstruct of mindfulness and its impact on the relationship between conscientiousness and spirituality (model B). Pathway effects for mediation are displayed in Table 4. The indirect effect was found to be nonsignificant by using the bias-corrected bootstrapped confidence interval (95% bias-corrected confidence interval [-0.27, 0.50] with 20,000 resamples (increased with more mediators) because the 95% bias-corrected confidence interval included zero, does not differ significantly from zero, and thus does not mediate. The same analyses were run, controlling for sociodemographics, but as the results did not differ significantly, reports of these were limited accordingly.

Table 4: Additional Bootstrapping Results for the Mindfulness Dimensions

Variables	IV to Mediators (Path <i>a</i>)				Direct Effect of M on DV (Path <i>b</i>)				Total Effect of IV on DV (Path <i>c</i>)			
	β	SE	<i>t</i>	<i>p</i>	β	SE	<i>t</i>	<i>p</i>	β	SE	<i>t</i>	<i>p</i>
Model B totals									0.51	0.36	1.43	0.154
Observe	0.14	0.09	1.58	0.116	0.47	0.34	1.39	0.168	0.51	0.36	1.43	0.154
Describe	0.13	0.09	1.37	0.172	-0.17	0.33	0.49	0.622	0.51	0.36	1.43	0.154
Non-judge	0.28	0.11	2.66	0.008*	0.05	0.27	0.20	0.844	0.23	0.05	4.46	0.001**
Act aware	0.45	0.08	5.76	0.001**	-0.23	0.38	-0.60	0.550	0.51	0.36	1.43	0.154
Non-react	0.13	0.08	1.69	0.094	0.94	0.39	2.44	0.016*	0.51	0.36	1.43	0.154
Variables	Direct Effect of IV on DV (Path <i>c'</i>)				Indirect Effects of IV on DV Through Proposed Mediators (Path <i>ab</i>)		95% CI Bias Corrected	Adjusted R ² (df) F <i>p</i>				
	β	SE	<i>t</i>	<i>p</i>	β	SE						
Model B totals	0.43	0.39	1.09	0.279	0.09	0.20	[-0.27, 0.50]	0.04 (6) = 2.24 0.042*				
Observe	0.42	0.36	1.17	0.246	0.07	0.07	0.29]	0.03 (2) = 3.49 0.033*				
Describe	0.50	0.36	1.38	0.170	-0.02	0.06	[-0.25, 0.05]	0.00 (2) = 1.11 0.333				
Non-judge	0.15	0.04	3.49	0.001**	0.01	0.09	0.21]	0.39 (2) = 52.30 0.001**				
Act aware	0.55	0.40	1.37	0.171	-0.10	0.16	0.20]	0.00 (2) = 1.04 0.356				
Non-react	0.38	0.35	1.07	0.288	0.13	0.10	0.41]	0.05 (2) = 5.37 0.005*				

Note: * $p < 0.01$; ** $p < 0.001$. β = unstandardized coefficients for the indirect effect of conscientiousness on intrinsic spirituality through each mindfulness dimension; n.s. = nonsignificant.

Path coefficients (see Table 4) between conscientiousness and mindfulness dimensions (path *a*) indicate the higher the conscientiousness levels, the higher were *act aware* and *non-judge* levels ($p = 0.001$ and $p = 0.01$, respectively). Inspection of path *b* between mindfulness dimensions and intrinsic spirituality indicate that the higher the *non-react* levels, the higher were intrinsic spirituality levels ($p = 0.016$). The indirect pathway *ab* shows only *observe*, *non-judge*, and *non-react* as significant ($p = 0.033$, $p = 0.001$, $p = 0.005$, respectively), though results were only two-tailed with *non-judge*. *Describe* and *act aware* displayed negative unstandardized beta (β) values in pathway *ab*. However, the reduction of the direct effect (path *c*) coefficient from the total effect (path *c'*) shows that the mindful dimension of *non-judge* significantly and minimally influenced the total and direct effects of conscientiousness on intrinsic spirituality ($t = 3.49$, $p = 0.001$). A significant model fit was produced, but it explained only 3–4 percent of variance in intrinsic spirituality (adjusted $R^2 = 0.39$). However, indirect effect confidence intervals included zero; therefore the model was not significant. The ratio of indirect effects to total effects indicates *observe* (13 percent; one-tailed), *non-judge* (4 percent; two-tailed) and *non-react* (13 percent; one-tailed) means that 26 percent of the effect of conscientiousness on intrinsic spirituality goes through these variables and about 67 percent of the effect is direct.

DISCUSSION

In this study, we examined the relationship among conscientiousness, trait mindfulness, and intrinsic spirituality. We hypothesized that trait mindfulness would mediate the relationship between conscientiousness and spirituality. We found that this hypothesis was partially supported.

We hypothesized that conscientious individuals would strive, via being mindful, to affect a self-oriented personal transformation resulting in increased intrinsic spirituality. Conscientiousness was moderately correlated with overall mindfulness but not enough to indicate that they were tapping the into same construct (Tabachnick and Fidell 1996). The results revealed that mindfulness was significantly predicted by conscientiousness. Overall, mindfulness reduced the direct effect by 45 percent, a finding suggesting that mindfulness partially (although not significantly) influenced the effect of conscientiousness on intrinsic spirituality. These results suggest that conscientious individuals do significantly connect with mindfulness, and it was only the more mindful of conscientious individuals who also displayed high levels of intrinsic spirituality. Additional analyses also suggested that conscientious individuals connect with mindfulness through attending to current actions or regulating impulses (*act aware*) and an accepting attitude toward thoughts and feelings (*non-judge*). The biggest connection between being mindful and having high intrinsic spirituality was through *non-react* (through

detachment), possibly representing a shift in reactivity and possibly representing a shift in how one views oneself (identity). However, only those conscientious individuals who develop the processes of attending to experiences (*observe*) and who are able to detach from those (*non-react*) but, most important, accept these thoughts and feelings (*non-judge*) develop higher levels of intrinsic spirituality.

The Buddhist model posits thought modification as central to mindful behavior, so perhaps these pathway results reflect a type of transcendence from the action or behavior bases such as *act aware* to the more internalized thought processes of *observe*, *non-react*, and *non-judge*. Alternatively, these relationships might reflect the reason why conscientiousness has a significant relationship with mindfulness that ends there. Perhaps conscientiousness individuals strive toward self-orientated, adaptive perfectionism but their motivations are more centered in the social world so they do not connect well with internalized, individual-driven values (intrinsic spirituality). Uncorrelated with intrinsic spirituality but associated significantly with conscientiousness, *non-judge* (an accepting attitude toward one's own inner thoughts and feelings) was the only mindful dimension that was significant (two-tailed) in the direct and indirect pathways (as well as path *a* with conscientiousness) of model B, a finding that might indicate that the adaptation of an accepting attitude in conscientious individuals may be the active mechanism of one pathway between being conscientious and developing intrinsic spirituality.

LIMITATIONS, IMPLICATIONS, AND FURTHER RESEARCH

Using mostly online data, we examined a sample of highly educated, nonclinical adults with limited cultural and spiritual diversity. We did not control for other personality attributes, and these may have contributed to effects. Nonetheless, an extensive meta-analysis by Giluk (2009) clearly stated a strong positive correlation of conscientiousness with mindfulness. This result should be of interest to researchers. Yet researchers often ignore conscientiousness in particular. Therefore our study was done in response to the lack of investigation and/or reporting with respect to conscientiousness and mindfulness. Our study thus aimed to unpack a natural theoretical relationship between mindfulness and conscientiousness.

Further, given that Jorm and Christensen (2004) found that the most and least spiritual individuals are more educated, a more conscientious and educated sample could provide deeper insight into the subtlety and complexity of the relationships under investigation. Given that online data produce comparable results generating diverse, representative samples (Gosling et al. 2004) and consensus accepts that convenience sampling can detect replicable relationships among different phenomena (Fowler 1984), our sample may provide replicable insights for different groups, including nonclinical adults. Thus future research could extend

our insight through a more educationally, culturally, and spiritually diverse (Buddhist and secular) representative sample, controlling for other potentially confounding variables.

Further, problematic issues of question context occurred in both mindfulness and conscientiousness measures, highlighting an old debate in personality research: whether thoughts, feelings, and behavior are situation- or context-dependent or due to stable personality traits. To counter this, personality research has tended to emphasize the longitudinal consistency and stability of traits and their causal superiority over situation and context (McCrae and Costa 2010; T. Roberts 2009). Future investigations should utilize comprehensive measures of these constructs, including motivational complexity and dimensions, to reveal more about relationship dynamics.

Statistical limitations of both mediation models must be considered. If the relationship between conscientiousness and intrinsic spirituality had been sizable and significant, mediation models may have provided more insight into the role of mindfulness. Further, sophisticated statistical analysis such as structural equation modeling may be helpful in exploring the dynamics of pathway effects at the dimensional level in future research. Our sample was based on a cross-sectional design; therefore causality cannot be interpreted from the mediation data.

Because such a small body of comparable research is available on interactions between the variables in this study, with similar restrictions, more exploratory research might benefit from a qualitative design, evident from the insights offered by participants' comments. One possible qualitative design could involve participants initially keeping a digital diary of daily thoughts, feelings, and experiences involving conscientiousness, mindfulness, and spirituality across different life contexts. After analysis of this primary material, the researcher could develop semistructured interviews to tease out rich areas for further in-depth investigation to provide practical insight into how the proposed secondary mechanisms of mindfulness exist within people's experiences of these constructs in the social world. Qualitative research could thereby develop tentative hypotheses to help structure future empirical studies to inform understanding, improve practice, and eventually evaluate programs that showcase mindfulness.

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