

Mindfulness in Iran and the United States: Cross-Cultural Structural Complexity and Parallel Relationships with Psychological Adjustment

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Abstract In theory, mindfulness has a role to play in resolving intercultural conflicts. This suggestion rests upon the relatively untested presumption that mindfulness operates similarly across cultures. In a test of this presumption, university students from two countries that are often in conflict at the governmental level, Iran ($N=723$) and the United States ($N=900$), responded to the Mindful Attention Awareness Scale (Brown and Ryan *Journal of Personality and Social Psychology* 84(4):822–848, 2003), along with an array of other psychological measures. This Mindfulness Scale displayed structural complexities in both societies, but a measurement invariant subscale was nevertheless identified. Similar cross-cultural evidence of concurrent validity was obtained in relationships with wide-ranging measures of adjustment. Nonsignificant linkages with Public Self-Consciousness and Self-Monitoring demonstrated discriminant validity in both societies. These data identified mindfulness as a cross-culturally similar psychological process that could plausibly have a role in resolving intercultural conflicts.

Keywords Mindfulness · Iran · United States · Measurement invariance · Psychological adjustment

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Peaceful resolution of conflict across cultures undoubtedly requires innumerable factors that defy simple reductive understanding. Logically, however, positive psychology could have at least some contribution to make. With its theoretical and empirical focus on human strengths, positive psychology could identify commonalities of potential and purpose that could be useful in building peace-promoting structures of mutual respect and insight. Such a hope would be wholly naïve if it were assumed that positive psychology always provides a universally valid picture of human flourishing. This is simply not the case. Processes of positive adaptation are calibrated to specific cultural contexts that can be quite different from those associated with the largely Western research tradition of positive psychology (Eisenberg and Ota Wang 2003; Magnusson and Mahoney 2003). Perhaps most problematic is the fact that Western conceptualizations of eudaimonic functioning often emphasize a more individualistic, agentic form of self-regulation in contrast to the more communal psychosocial orientation of other societies (Caprara and Cervone 2003).

Recent research in positive psychology has nevertheless begun to emphasize the adaptive potentials of mindfulness. Mindfulness can be defined as “a receptive attention to and awareness of present events and experience” (Brown et al. 2007a, p. 212). More informally, mindfulness is a process of “waking up to what the present moment offers” (Brown et al. 2007b), and it can be described as a “hypo-egoic” rather than as an agentic form of self-regulation (Leary et al. 2006).

In contrast to the willful executive functioning of the Western agentic self, hypo-egoic regulation occurs when “people relinquish deliberate, conscious control over their own behavior so that they will respond more naturally, spontaneously, or automatically” (Leary et al., p. 1804). Such regulation is obvious in meditative states in which new potentials of well-being are discovered beyond what is available to the willful self. Mindfulness also includes efforts “to focus one’s attention on the concrete aspects of one’s behavior, thereby eliminating the abstract, deliberative, high-level self-thoughts that can interfere with enacting automatic and complex behaviors” (Leary et al., p. 1827). The oft-cited Zen Buddhist expression of this process recommends, “Before enlightenment, chop wood, carry water. After enlightenment, chop wood, carry water.” Overall, mindful suspension of the intentional self may avoid unhealthy rumination and may adaptively ground experience in the realities and unsuspected potentialities of the present.

Evidence that mindfulness may have adaptive implications is apparent in studies using the Mindful Attention Awareness Scale (Brown and Ryan 2003). This instrument operationalizes mindfulness in 15 statements that express its absence. One item says, for instance, “I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.” Another asserts, “I find myself preoccupied with the future or the past.” This scale correlates with greater self-reported mental health and predicts adaptive self-regulation across time. Individuals who practice Zen meditation also score higher on mindfulness, thus documenting its relevance to psychological processes associated with a non-Western cultural context (Brown & Ryan).

Numerous commentators have suggested that mindfulness has a role to play in resolving conflicts across cultures (e.g., Ting-Toomey 1999; LeBaron 2003). The potentials seem fairly obvious. Rumination over past difficulties and an insensitive

impatience to achieve future goals could be minimized. Mindful grounding of experience in the present could also encourage greater perspective taking and thus a greater intercultural fluency of understanding. Such possibilities nevertheless presume that mindfulness works similarly across cultures. The general purpose of the present study was to test that presumption by examining the implications of mindfulness in Iran and the United States, two societies with governments that have been in conflict for decades. The Mindfulness Scale has proven validity in the United States (e.g., Brown and Ryan 2003), and preliminary evidence suggests that it measures adaptive functioning in Iran (Ghorbani and Watson 2009). A direct comparison of the Mindfulness Scale in Iranian and American samples has not been accomplished, however, and the present study sought to accomplish that goal.

One important question was whether the Mindfulness Scale would exhibit measurement invariance across the two societies. When developed, this scale displayed a unidimensional structure (Brown and Ryan 2003), that was replicated in a number of subsequent American samples (Carlson and Brown 2005; Cordon and Finney 2008). In the present project, confirmatory factor analysis (CFA) was used to test the hypothesis that the Mindfulness Scale would be unidimensional in both Iran and the United States. Structural equation modeling (SEM) procedures then assessed whether the instrument was measurement invariant across the two societies. The presumption that mindfulness operates similarly across cultures suggests that the scale should be measurement invariant.

Concurrent validity of the Mindfulness Scale was also evaluated by examining its associations with a broad array of self-report measures. The general hypothesis was that mindfulness would correlate positively with scales that record psychological adjustment and negatively with indices of maladjustment. The notion that mindfulness might function similarly across cultures also suggested that roughly parallel patterns of correlation would appear across Iranian and American samples.

Finally, discriminant validity was assessed with the Self-Consciousness (Fenigstein et al. 1975) and Self-Monitoring (Snyder and Gangestad 1986) Scales. Private Self-Consciousness records a personal attentiveness to the functioning of the self and should thus correlate positively with mindfulness. Public Self-Consciousness and Self-Monitoring instead record self-presentational concerns that could interfere with an open awareness of the present. Indeed, Brown and Ryan (2003) explored the issue of discriminant validity by hypothesizing and then by confirming that Public Self-Consciousness and Self-Monitoring would correlate non-significantly or slightly negatively with mindfulness.

Relative to the problem of intercultural conflict, mindfulness presumably would be ideal if it were wholly unrelated to both Public Self-Consciousness and Self-Monitoring. Strong negative correlations with these two measures might point toward an operationalization that was too agentic in its implications, whereas strong positive correlations might reveal a measure that was too communal. A complete lack of relationships would suggest instead that mindfulness has unbiased implications for both the more agentic Western and the more communal non-Western self. In short, this project examined the discriminant validity of the Mindfulness Scale by looking for correlations that would be positive with Private Self-Consciousness and non-significant (or slightly negative) with Public Self-Consciousness and Self-Monitoring.

In summary, mindfulness may be relevant in efforts to resolve intercultural conflicts. Implied in this suggestion is the idea that mindfulness operates similarly across cultures. The general purpose of the present project was to test this presumption of cross-cultural similarity by examining three specific hypotheses in Iranian and American samples:

First, it was hypothesized that the Mindfulness Scale would be unidimensional and would be measurement invariant across the two cultures.

Second, a further expectation was that mindfulness in both Iran and the United States would exhibit similar patterns of correlations that would be positive with self-reported adjustment and negative with maladjustment. Such outcomes would reveal that the Mindfulness Scale possesses similar concurrent validity as an adaptive psychological process across the two societies.

Third and finally, the Mindfulness Scale was hypothesized to correlate positively with Private Self-Consciousness and non-significantly (or slightly negatively) with Public Self-Consciousness and Self-Monitoring. In other words, the Mindfulness Scale would exhibit discriminant validity cross-culturally.

Method

Participants

Three separate samples of undergraduates from Iranian and American universities served as the research participants. The Iranian groups included 226 men (31.3%) and 497 women (68.7%). American participants included 416 men (46.2%) and 484 women (53.8%), with 64% Caucasian, 30% African-American, and 6% belonging to diverse other ethnic groups. Average ages across samples ranged from 18.7 ($SD=2.9$) to 21.1 ($SD=3.1$). More detailed background information for each specific sample appears below in Table 2.

Measures

In each study, participants received a single questionnaire booklet. The 15-item Mindful Attention Awareness Scale (Brown and Ryan 2003) always appeared close to the beginning, immediately after a standard set of items associated with another on-going research program designed to develop cross-cultural measures of self-knowledge (Ghorbani et al. 2003b; Ghorbani et al. 2008). Additional scales that varied from sample to sample then followed the Mindfulness Scale.

Americans responded to booklets written in English, the language in which all of the psychological measures had been developed. Persian versions of all instruments were created in preparation for the present or previous projects. Specifically, scales in English were translated into Persian and then back-translated into English. Discrepancies between original and back-translated items were minor, fully discussed, and successfully resolved through revisions of the Persian translations.

Following the Mindfulness Scale in the booklet of the first study were, in sequence, the following measures (with the number of items associated with each instrument noted in parenthesis): the Rosenberg (1989) Self-Esteem Scale (10), the

Anxiety (9) and Depression (14) Scales of Costello and Comrey (1967), the Cohen et al. (1983) Perceived Stress Scale (14), the Sanavio (1988) Impaired Control over Mental Activity measure of obsession-compulsion (17), and the Subjective Well-Being Scale (5) of Deiner et al. (1985). Persian versions of all but the Subjective Well-Being Scale were used with previous Iranian samples and proved to be clearly valid (e.g., Ghorbani et al. 2002; Ghorbani et al. 2003a; Ghorbani et al. 2004).

Appearing after the Mindfulness Scale in the second study were the Autonomy (7), Competency (6), and Relatedness (8) measures from the Basic Psychological Need Satisfaction Scale (Deci and Ryan 2000); the Subjective Vitality Scale (7) of Ryan and Frederick (1997), the Awareness to Self (5) and Perceived Choice (5) measures from the Self-Determination Scale (Sheldon et al. 1996), and the Global Constructive Thinking Scale (28) of Epstein (1998). Persian versions of the Basic Psychological Need Satisfaction and the Global Constructive Thinking measures were used in previous Iranian studies (Ghorbani et al. 2005; Ghorbani and Watson 2006).

In the booklet for the third study, Mindfulness was followed by the Rumination (12) and Reflection (12) Scales of Trapnell and Campbell (1999); the Reappraisal (6) and Suppression (4) measures from the Emotion Regulation Scale (Gross and John 2003); the Social Anxiety (6), Private Self-Consciousness (10), and Public Self-Consciousness (7) subscales from the Fenigstein et al. (1975) Self-Consciousness Scale; and the Self-Monitoring Scale (18) of Snyder and Gangestad (1986). Validity of the Persian Self-Consciousness Scale was established in previous Iranian samples (Ghorbani et al. 2002; Watson et al. 2002).

The Self-Monitoring Scale was associated with true-false response options. All other measures used a “strongly disagree” to “strongly agree” Likert scale that ranged from 0-to-3 for Impaired Control over Mental Activity and from 0-to-4 for all other instruments. In conformity with previous Iranian and American studies, final scale scores were computed only after internal reliabilities were examined and after items displaying a negative-to-total correlation in either sample were removed. This procedure maximized the linguistic and psychometric coherence of all scales and resulted in the elimination of 1 Perceived Stress and 4 Constructive Thinking items. All scales were scored in terms of the average response per item.

Procedure

In both Iran and the United States, groups of varying size responded to the questionnaire booklets in a classroom environment. All participation was voluntary, completely anonymous, and in conformity with ethical guidelines for conducting research in each university.

Data Analyses

Data analyses began with a CFA that looked at the structure of the Mindfulness Scale within each society. These procedures examined responding to the Mindfulness Scale from all three samples combined together. After addressing unexpected complexities in these CFA results, procedures turned to the use of SEM to test measurement invariance across societies.

Following these analyses, Mindfulness was correlated with all other measures. Relationships among all of these additional instruments were computed, were in line with general theoretical expectations, but are not reported here in order to focus only on the findings for Mindfulness. With regard to hypotheses about concurrent validity, the specific expectations were that the Mindfulness Scale would correlate positively with all measures of adjustment, including Self-Esteem, Subjective Well-Being, the three Basic Need Satisfaction measures, Subjective Vitality, the two Self-Determination Scales, Constructive Thinking, and Reappraisal. Negative correlations were also expected with indices of maladjustment, including Anxiety, Depression, Perceived Stress, Impaired Control over Mental Activities, Rumination, Suppression, and Social Anxiety.

Results

With responding from all three samples combined, the Mindfulness Scale proved to be internally reliable in both Iran ($\alpha = .81$; M response/item = 2.56; $SD = 0.86$) and the United States ($\alpha = .82$; $M = 2.13$; $SD = 0.65$). However, a single factor solution failed to fit these data. This was apparent not only in Iran, where the structure had not been examined previously ($\chi^2 [90, N = 93] = 428.422, p < .001$; RMSEA = .06, CFI = .899, NFI = .867, TLI = .866), but also in the United States, where it had ($\chi^2 [90, N = 93] = 325.948, p < .001$; RMSEA = .065, CFI = .87, NFI = .843, TLI = .827).

Failure to confirm the single-factor model served as warrant for using exploratory factor analysis (EFA) to determine if more complex structural commonalities might exist across cultures. In each society, the 15 Mindfulness items were submitted to a principal components analysis with a varimax rotation. Table 1 summarizes these data and makes it clear that straightforward structural parallels did not occur. In Iran, responding was associated with 3 eigenvalues greater 1.0, and in the United States, there were 4. Numerous cross-loadings were obvious in both samples. Examination of these data using other factor analytic procedures yielded similar patterns of outcome.

Inspection of the EFA results revealed that eight items displayed noteworthy loadings ($> .30$) on the first factor in both samples and thus might serve as a subscale that usefully displayed measurement invariance. Additional analyses, therefore, focused on items 6, 7, 8, 9, 10, 12, 14, and 15. Efforts to demonstrate measurement invariance with this 8-item measure were unsuccessful, but a review of paired factor loadings across groups indicated that only item 12 was statistically significant. Accordingly, item 12 was removed. CFA then established that the remaining 7 items defined a single factor in both Iran ($\chi^2 [14, N = 45] = 51.88, p < .001$; RMSEA = .061, CFI = .973, NFI = .964, TLI = .947) and the United States ($\chi^2 [14, N = 45] = 42.77, p < .001$; RMSEA = .048, CFI = .977, NFI = .966, TLI = .953).

Vandenberg and Lance (2000) suggest that the first step in assessing measurement invariance is to conduct an omnibus test of the equality of covariance matrices across groups. If this test proves to be non-significant, then further tests of measurement and structural invariance need not be conducted. Invariance therefore was assessed across the Iranian and American groups utilizing this 7-item subscale. Pattern/structure coefficients were constrained to be equal to each other, and utilizing this 7-

Table 1 Loadings for mindful attention awareness items in exploratory principal components analysis of samples from Iran ($N=728$) and the United States ($N=900$)

Item	Iranian factors			American factors			
	1	2	3	1	2	3	4
1. I could be experiencing some emotions and not be consciousness of it until some time later	.11	<u>.62</u>	-.19	.06	.23	-.04	<u>.70</u>
2. I break or spill things because of carelessness, not paying attention, or thinking of something else	<u>.59</u>	.17	.01	.17	<u>.67</u>	-.05	.23
3. I find it difficult to stay focused on what's happening in the present	<u>.34</u>	<u>.41</u>	.11	.27	<u>.69</u>	.13	.16
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way	.11	<u>.58</u>	<u>.37</u>	.11	.13	<u>.50</u>	.29
5. I tend not to notice feelings of physical tension or discomfort until the really grab my attention	.16	<u>.66</u>	-.04	.09	-.02	.15	<u>.78</u>
6. I forget a person's name almost as soon as I've been told it for the first time	<u>.51^a</u>	.09	-.14	<u>.47^a</u>	.08	.16	.07
7. It seems I am "running on automatic" without much awareness of what I am doing	<u>.67^a</u>	.29	.18	<u>.60^a</u>	.11	<u>.34</u>	.26
8. I rush through activities without being really attentive to them	<u>.69^a</u>	<u>.30</u>	.17	<u>.60^a</u>	.20	.27	.21
9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there	<u>.37^a</u>	<u>.41</u>	<u>.34</u>	<u>.37^a</u>	.14	<u>.38</u>	<u>.33</u>
10. I do jobs or tasks automatically, without being aware of what I'm doing	<u>.66^a</u>	.28	.12	<u>.55^a</u>	-.07	<u>.48</u>	.14
11. I find myself listening to someone with one ear, doing something else at the same time	.04	-.24	<u>.69</u>	.08	.14	<u>.70</u>	-.04
12. I drive places on "automatic pilot" and then wonder why I went there	<u>.64</u>	.08	.05	<u>.71</u>	.14	-.02	.04
13. I find myself preoccupied with the future or the past	.02	.15	<u>.69</u>	.03	<u>.67</u>	<u>.38</u>	-.10
14. I find myself doing things without paying attention	<u>.56^a</u>	<u>.30</u>	<u>.41</u>	<u>.46^a</u>	<u>.47</u>	<u>.37</u>	.02
15. I snack without being aware that I am eating	<u>.67^a</u>	-.05	.02	<u>.61^a</u>	<u>.31</u>	-.23	.12
Eigenvalue	4.58	1.28	1.07	4.43	1.15	1.08	1.04
% Variance explained	30.50	8.53	7.15	29.51	7.69	7.22	6.91

Loadings greater than .30 are underlined. Superscript (^a) designates those items included in the final measurement invariant instrument.

item measure, results of the model comparison proved to non-significant ($\Delta\chi^2 [4]=5.359$, NS), indicating that the null hypothesis could not be rejected and that additional analyses were unnecessary.

This 7-item structurally invariant subscale was internally reliable in both Iranian ($\alpha=.80$; $M=2.56$; $SD=0.86$) and American ($\alpha=.75$; $M=2.13$; $SD=0.64$) samples. Correlation of this subscale with the full 15-item scale was .92 ($p<.001$) in Iran and .91 ($p<.001$) in the United States. Taken together, these data served as a justification for comparing data for the 7-item measurement invariant subscale with the 15-item non-invariant full scale in subsequent correlational analyses.

As Table 2 demonstrates, correlations for the full scale and the 7-item subscale were similar, and both linked Mindfulness with relative mental health. In the first samples of both societies, Mindfulness predicted greater Self-Esteem and Subjective Well-Being and lower levels of Anxiety, Depression, Perceived Stress, and Impaired Control over Mental Activities. Only the correlation between Subjective Well-Being and the 7-item Mindfulness subscale in America failed to reach conventional levels of statistical significance.

Table 2 Correlations of full mindfulness scale and 7-item measurement invariant subscale with psychological measures in Iran and the United States

Scale	Iran					United States				
	α	<i>M</i>	<i>SD</i>	Scale <i>r</i>	7-item <i>r</i>	α	<i>M</i>	<i>SD</i>	Scale <i>r</i>	7-item <i>r</i>
Sample 1 (Iran, <i>N</i> =73 Men/183 Women; age <i>M</i> =20.3, <i>SD</i> =3.1. United States, <i>N</i> =162 Men/94 Women; age <i>M</i> =20.1, <i>SD</i> =5.1)										
Self-esteem	.81	2.58	0.72	.36***	.34***	.88	2.93	0.81	.25***	.21**
Anxiety	.82	2.00	0.83	-.33***	-.28***	.75	1.81	0.71	-.29***	-.25***
Depression	.93	1.34	0.86	-.36***	-.32***	.92	0.87	0.83	-.21**	-.14*
Perceived stress	.85	1.71	0.66	-.34***	-.29***	.80	1.77	0.54	-.26***	-.16***
Impaired control over mental activities	.90	1.40	0.75	-.48***	-.48***	.89	1.15	0.69	-.38***	-.31***
Subjective well-being	.84	2.26	0.90	.23***	.17**	.85	2.47	0.93	.15*	.10
Sample 2 (Iran, <i>N</i> =64 Men/175 Women; age <i>M</i> =19.9, <i>SD</i> =2.0. United States, <i>N</i> =95 Men/203 Women; age <i>M</i> =18.7, <i>SD</i> =2.9)										
Autonomy	.78	2.52	0.80	.35***	.32***	.54	2.57	0.57	.34***	.30***
Competency	.68	2.42	0.75	.29***	.30***	.63	2.64	0.63	.29***	.27***
Relatedness	.67	2.67	0.67	.26***	.25***	.80	3.00	0.67	.13*	.12*
Subjective vitality	.84	2.43	0.89	.26***	.28***	.80	2.54	0.72	.24***	.20**
Awareness to self	.68	2.50	0.82	.33***	.31***	.77	2.64	0.93	.20**	.16**
Perceived choice	.83	2.60	0.87	.26***	.24***	.70	2.74	0.76	.24***	.23***
Global constructive thinking	.73	2.28	0.50	.31***	.28***	.75	2.30	0.45	.33***	.28***
Sample 3 (Iran, <i>N</i> =89 Men/139 Women; age <i>M</i> =21.1, <i>SD</i> =3.1. United States, <i>N</i> =159 Men/187 Women; age <i>M</i> =19.6, <i>SD</i> =3.0)										
Rumination	.83	2.62	0.65	-.27***	-.26**	.85	2.53	0.76	-.18**	-.17**
Reflection	.81	2.78	0.61	.07	.04	.88	2.14	0.83	.00	.02
Reappraisal	.72	2.50	0.70	.02	.05	.77	0.53	0.76	.13*	.17**
Suppression	.69	2.00	.90	-.17*	-.14*	.65	1.75	0.90	-.07	-.09
Social anxiety	.69	2.07	0.80	-.25***	-.22**	.73	2.03	0.87	-.13*	-.12*
Private self-consciousness	.77	2.83	0.55	.12	.10	.73	2.42	0.62	.08	.10
Public self-consciousness	.72	3.07	0.60	.02	.02	.76	2.59	0.79	-.08	-.08
Self-monitoring	.61	0.54	0.19	.04	.04	.90	0.66	0.37	-.01	-.03

p*<.05, *p*<.01, ****p*<.001

In the second samples as well, Mindfulness was associated with psychological adjustment. Each measure of Mindfulness was associated with greater Basic Need Satisfaction, Self-Determination, Subjective Vitality, and Constructive Thinking.

Discriminant validity was established in the third samples, since as predicted, Mindfulness failed to correlate with either Public Self-Consciousness or Self-Monitoring. Additional evidence of concurrent validity appeared in associations with lower Rumination and Social Anxiety in both societies along with greater Reappraisal in the United States and lower Suppression in Iran. Expected positive correlations with Private Self-Consciousness and Reflection did not appear.

Previous research has established that Private Self-Consciousness includes Internal State Awareness and Self-Reflectiveness factors (Mittal and Balasubramanian 1987) that predict adjustment and maladjustment, respectively, and that can even more obviously display contrasting mental health implications in partial correlations looking at one factor after controlling for the other (e.g., Watson et al. 1996). In Iran, the full (.29, $p < .001$) and 7-item (.26, $p < .001$) Mindfulness instruments correlated positively with Internal State Awareness, but non-significantly with Self-Reflectiveness ($r = -.05$ and $-.06$ respectively). After variance in Internal State Awareness was removed, Self-Reflectiveness correlated negatively with both the full ($-.23$, $p < .001$) and the 7-item ($-.22$, $p < .01$) measures. Similarly, in the United States, the full (.30, $p < .001$) and 7-item (.29, $p < .001$) scales correlated positively with Internal State Awareness, but non-significantly with Self-Reflectiveness ($r = -.04$ and $.00$ respectively). In partial correlations controlling for Internal State Awareness, Self-Reflectiveness once again correlated negatively with the full ($-.21$, $p < .001$) and the 7-item ($-.16$, $p < .01$) Mindfulness measures. Analyses that remained sensitive to structural complexities associated with the Private Self-Consciousness Scale, therefore, supplied additional support for the validity of the two Mindfulness measures cross-culturally.

Discussion

Mindfulness may have a role to play in efforts to resolve intercultural conflicts (e.g., Ting-Toomey 1999; LeBaron 2003). Openness to the present could be useful in seeing beyond troubles of the past and in overcoming a counterproductive impatience for some preconceived future. Underlying the promise of this psychological process is the presumption that mindfulness operates similarly across cultures. Only then could mindfulness serve as a shared resource for building common foundations of better understanding. This presumption was tested in the present project by examining the Mindfulness Attention Awareness Scale (Brown and Ryan 2003) in two societies with governments that are often in conflict, Iran and the United States. Unexpected complexities did appear, but mindfulness nevertheless did have broadly similar psychological implications across these two cultures.

Unexpected were the structural complexities observed within the Mindfulness Scale. Previous American studies have reported a unidimensional structure (Brown and Ryan 2003; Carlson and Brown 2005; Cordon and Finney 2008), but CFA procedures in the present project demonstrated that a single factor did not adequately

describe responding in either Iran or the United States. Data in these analyses were combined from three groups of undergraduates sampled at three different times in each society. Subtle variations in background conditions across these three administrations perhaps contributed to this contrast with the previous literature. In addition, this study used a 5-point Likert scale with the Mindfulness items in order to address certain procedural complexities, whereas previous American studies used 6-point response options. This too could have been an important factor.

The important question, however, was whether structural complexities had any noteworthy empirical consequences. The clear answer was that they did not. EFA indicated that the factor structure of the Mindfulness Scale was not identical in the Iranian and American samples. Seven items loading on a single factor nevertheless could be identified cross-culturally, correlated very strongly with the full scale, and displayed measurement invariance. This 7-item subscale then exhibited relationships with a wide array of other psychological constructs that were virtually identical to those observed with the full instrument. The conclusion, therefore, seemed obvious. Data for the Mindfulness Scale, like that for the measurement invariant subscale, were comparable across the two societies.

Strong support was obtained for the hypothesis that the Mindfulness Scale would display parallel evidence of concurrent validity in the two societies. In both Iran and the United States, almost all predictions were confirmed that mindfulness would correlate positively with adjustment and negatively with maladjustment. Specifically, mindfulness in both societies was associated with higher levels of Self-Esteem, Subjective Well-Being, Autonomy, Competency, Relatedness, Subjective Vitality, Awareness to Self, Perceived Choice, and Constructive Thinking and with lower levels of Anxiety, Depression, Perceived Stress, Impaired Control over Mental Activities, Rumination, and Social Anxiety. In these results, significant relationships appeared for both the full scale and the 7-item measurement invariant subscale with the lone exception being that only the full scale correlated positively with Subjective Well-Being in the United States. Additional evidence of concurrent validity was obtained in negative relationships with Suppression only in Iran and in positive associations with Reappraisal only in the United States. Only data for the Reflection Scale failed to conform to predictions in either society. Overall, these relationships made it clear that the Mindfulness Scale measured broadly adaptive psychological functioning with very similar implications in Iran and the United States.

Mindfulness represents sensitivity to the self in the present; so the expectation was that it would predict greater Private Self-Consciousness. Although such relationships did not appear with the full Private Self-Consciousness Scale, they did become apparent when its more adaptive Internal State Awareness factor was examined. Brown and Ryan (2003) observed a similar pattern of outcomes and also reported that mindfulness displayed usually nonsignificant but sometimes small negative correlations with the more maladaptive Self-Reflectiveness factor. In this project, Self-Reflectiveness did not correlate with mindfulness, but a significant negative association became obvious in both societies after Internal State Awareness was partialled out. Partialling procedures have produced similar effects in previous American studies (e.g., Watson et al. 1996). Most importantly, therefore, mindfulness once again correlated positively with a measure of adjustment (Internal State Awareness), and negatively with maladjustment (Self-Reflectiveness). These

findings also seemed noteworthy because they further documented complexities of the Private Self-Consciousness Scale in Iran that were like those observed in the United States (Ghorbani et al. 2004) and that deserve additional research attention (Ghorbani et al. *in press*).

Evidence of discriminate validity was obtained in both societies. Mindfulness did not correlate with either Public Self-Consciousness or Self-Monitoring, both of which assess tendencies toward self-presentational concerns based upon social expectancies. Social expectations suggest a possible intrusion of the past that could interfere with mindful clarity in the present. Brown and Ryan (2003), therefore, hypothesized that the Mindfulness Scale would display discriminative validity if it proved to be largely unrelated (or only slightly negatively related) to Public Self-Consciousness and Self-Monitoring. They confirmed their hypothesis, and the present data replicated their findings in the United States and extended them to Iran. The nonsignificant relationship with the Reflection Scale in the present project may also have something to say about discriminate validity. This is so because Brown and Ryan emphasized that mindfulness is a pre-reflective process, and they found that their Mindfulness Scale was associated with nonsignificant or only slightly positive linkages with this Trapnell and Campbell (1999) measure.

Nonsignificant linkages with Public Self-Consciousness and Self-Monitoring perhaps had more substantive cross-cultural implications as well. Conceptualizations of positive psychology often emphasize an agentic form of self-regulation that is typical in the West and that may not always generalize to other cultures (e.g., Caprara and Cervone 2003; Eisenberg and Ota Wang 2003; Magnusson and Mahoney 2003). Mindfulness, in contrast, reflects a hypo-egoic form of self-regulation (Leary et al. 2006) that could supply a more general foundation for building structures of mutual understanding. Public Self-Consciousness and Self-Monitoring Scales record self-presentational concerns that would presumably be particularly relevant in more communal cultural contexts. As noted previously, strong negative correlations of Mindfulness with Public Self-Consciousness and Self-Monitoring could, therefore, have pointed toward a measure that was too agentic in its implications, whereas strong positive correlations might have revealed an operationalization that was too communal. Neither of these outcome occurred. The complete lack of relationships with these two scales in both societies suggested instead that mindfulness may have largely unbiased implications for both the more agentic Western and the more communal non-Western self.

Suggestions have been made that the adaptive potentials of mindfulness are largely attributable to its interference with tendencies toward rumination (Leary et al. 2006). Mindfulness did in fact correlate negatively with the Rumination Scale in both societies. In comparison to many of the other significant correlations, however, the sizes of these relationships were relatively small. The small magnitude of these linkages perhaps indicated that interference with rumination was unlikely to be a full explanation of the psychological consequences of mindfulness. On the other hand, mindfulness displayed robust negative connections with the Sanavio (1988) Impaired Control over Mental Activities Scale. This measure of obsession-compulsion included items that suggest rumination, including self-reports that “unpleasant thoughts come into my mind against my will and I cannot get rid of them,” “I think or worry at length about having hurt someone without knowing it,”

and “when doubts or worries come to my mind, I cannot rest until I have talked them over with a reassuring person.” Data obtained with Impaired Control over Mental Activities, therefore, seemed to support the need for additional research into the possible role of rumination in mediating the effects of mindfulness. They also suggested that the Sanavio scale may be especially useful in further explorations of that possibility.

Numerous limitations of this project suggest that the present data will need to be interpreted cautiously. Most obviously perhaps, university students served as the research participants. This first meant that the sample was younger than the average age in both societies. A generalization of conclusions to other age groups, therefore, may not be appropriate. In addition, university students were better educated than the average citizen of both societies. This too may be an important limitation; although, it may also be worth remembering that formal efforts to resolve intercultural conflicts are more likely to involve individuals with above average levels of education. Also importantly, the demonstration that mindfulness operated similarly in Iran and the United States in no way proved that parallels would be apparent across other societies.

Finally, efforts to resolve intercultural conflicts will be defined by considerations related to both process and content. Identifying promising processes of conflict resolution will be a necessary condition for making progress, and the present data do seem to confirm the potential of mindfulness. On the other hand, the identification of promising processes cannot be a sufficient condition. The major challenge of conflicts will likely involve their content, and any presumption that conflicts can be easily resolved through processes alone would be naïve. The content of conflicts will invariably leave traces of their existence in the present, and it will obviously be important to always remain mindful of such complexities.

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