JMFT Journal of Marital and Family Therapy
Journal of Marital and Family Therapy
doi: 10.1111/jmft.12296

MINDFULNESS IN THE CONTEXT OF ROMANTIC RELATIONSHIPS: INITIAL DEVELOPMENT AND VALIDATION OF THE RELATIONSHIP MINDFULNESS MEASURE

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Trait mindfulness and mindfulness in the context of romantic relationships may not be completely overlapping constructs. This study adapted an existing measure of trait mindfulness to assess the tendency to be mindful in romantic relationships, the Relationship Mindfulness Measure (RMM). Using data from 185 young adults, the results supported the RMM's internal consistency, test–retest reliability, and concurrent and predictive validity. The RMM accounted for a significant portion of variance in positive relationship quality, negative relationship quality, and anxious and avoidant attachment, even after controlling for trait mindfulness. Based on these findings, assessing relationship mindfulness may improve research exploring the role of mindfulness in romantic relations and therefore facilitate the development and refinement of mindfulness training programs for couples.

Higher levels of trait mindfulness—the tendency to pay nonjudgmental and undistracted attention to the present moment—are associated with key relationship outcomes in couples (Barnes, Brown, Krusemark, Campbell, & Rogge, 2007). As a consequence, mindfulness-based training programs for couples have been developed to enhance trait mindfulness in an attempt to promote healthy and fulfilling romantic relationships. However, outcome research evaluating the effectiveness of these programs has yielded mixed results (e.g., Gambrel & Piercy, 2015). Research informing the development of mindfulness training programs for couples may be inadequate because, to date, no conceptualization or operationalization of mindfulness in the context of romantic relationships has been offered. The present article addresses this lacuna.

In mindfulness research, there is increasing recognition of the importance of context leading to the development of context-specific measures of mindfulness, including a measure of mindfulness in the context of parenting, the Interpersonal Mindfulness in Parenting (IEM-P; Duncan, 2007) scale, and a measure of mindfulness in the context of sexual encounters, the Sexual Five-Facet Mindfulness Questionnaire (FFMQ-S; Adam, Heeren, Day, & de Sutter, 2015). Because romantic relationships are often the source of strong emotions, being mindful when in isolation or in the presence of friends and acquaintances may be substantively different than being mindful in the context of a romantic partner. Enhancing the tendency to be mindful therefore may not always translate into an increase in the tendency to be mindful in the presence of a romantic partner. This suggests the need for a measure of mindfulness that is specific to the context of romantic relationships and the lack of such a measure potentially limits our understanding of the role that mindfulness plays in romantic relationships.

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Mindfulness

Mindfulness, as Kabat-Zinn (1994) elegantly put it, means "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (p. 4). Turning to its origins in Buddhism, mindfulness means "clear awareness" (cf. translation of the Pāli word sati). The practice often referred to as "mindfulness meditation" in Western cultures is based largely on the practices within the Buddhist Mahayana (Zen) and Theravāda spiritual systems (Kabat-Zinn, 2003). Although rooted in Buddhism, Kabat-Zinn (2003) suggested that mindfulness is a universal phenomenon and that everyone is mindful from moment to moment; it is a matter of degree. Thus, even though mindfulness is sometimes considered a fluid state, it is also frequently conceptualized and assessed as a trait.

Karremans, Schellekens, and Kappen (2017) asked, "What does it mean to be mindful, and specifically, what does it mean to be mindful in the context of a romantic relationship?" (p. 31). They speculated that in the context of romantic relationships it means "that one is consciously paying attention to feelings or thoughts that may directly or indirectly affect relationships" (p. 31). Just as the general tendency to empathize with other people may not perfectly align with the tendency to empathize with one's partner (Péloquin & Lafontaine, 2010), being mindful in isolation or in the presence of acquaintances is different from being mindful in the context of romantic relationships. Trait mindfulness may not reflect mindfulness in the context of romantic relationships because interactions with the romantic partner have the potential to activate deep-rooted attachment issues (e.g., fear of abandonment and rejection) that rarely arise in other contexts.

Mindfulness and Attachment

Attachment theorists emphasize the importance of early experiences with primary caregivers in shaping beliefs and attitudes related to the self and to attachment figures in adulthood. Specifically, experiences with primary caregivers are hypothesized to shape one's tendency to be mindful in adulthood. Adults who had a reliable, responsive primary caregiver during childhood are likely to have positive views of the self and of attachment figures as well as a greater propensity to be mindful.

Interestingly, attachment anxiety and attachment avoidance, the two dimensions of insecure attachment, are remarkably similar to two qualities of mind, grasping, and aversion, described in Buddhist literature as key antagonists of mindful awareness that ultimately manufacture and maintain inner disharmony (Anālayo, 2011). Attachment anxiety mirrors the idea of grasping because attachment anxiety involves an imperative to grasp at and cling to attachment figures. Attachment avoidance, on the other hand, mirrors the notion of aversion, as this dimension of attachment is characterized by attempts to avert from the real and potential painful experiences associated with romantic relationships.

Several studies support the notion that trait mindfulness is inversely related to adult attachment insecurity (e.g., Caldwell & Shaver, 2013; Saavedra, Chapman, & Rogge, 2010). In one study, however, trait mindfulness was negatively linked to anxious but not avoidant attachment (Walsh, Balint, SJ, Fredericksen, & Madsen, 2009). Extant research therefore does not uniformly support the opposing association between mindfulness and insecure attachment. By narrowing the focus from trait mindfulness to mindfulness in the context of romantic relationships, however, this association may be better understood.

Mindfulness and Relationship Quality

Researchers have found a robust association between trait mindfulness and relationship quality (e.g., Carson, Carson, Gil, & Baucom, 2007; Wachs & Cordova, 2007). However, recent evidence suggests that relationship quality is a bidimensional construct comprised of both positive and negative relationship qualities (Rogge, Fincham, Crasta, & Maniaci, 2017). In other words, individuals may, at once, have positive and negative sentiments toward their romantic partner. Measuring positive and negative relationship qualities independently may reveal a clearer and more precise picture of relationship quality overall, and it is likely that mindfulness is associated with both higher levels of positive relationship quality and lower levels of negative relationship quality.

According to a theoretical model of the connection between mindfulness and relationship functioning proposed by Karremans et al. (2017), mindfulness encourages factors that likely promote positive relationship quality, such as closeness and positive partner attitudes. Consistent with this notion, researchers have found that mindfulness is linked with several variables that are likely to conduce a greater degree of positive relationship quality, such as closeness and partner acceptance (Carson et al., 2007). The model proposed by Karremans et al. (2017) also indicates that mindfulness promotes emotional regulation and control over cognitions and behaviors, thereby impacting a number of factors related to negative relationship quality, such as relationship stress, behaviors during conflict, and perceptions of partner transgressions. Extant research provides evidence that mindfulness is associated with less relationship stress (Carson, Carson, Gil, & Baucom, 2004), and more constructive communication in the context of couple conflict (Barnes et al., 2007), and more benign attributions for and forgiveness of partner transgressions (Johns, Allen, & Gordon, 2015; Kimmes, Durtschi, & Fincham, 2017).

Present Study

The purpose of this investigation was to adapt an existing measure of trait mindfulness, the five-item version of the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), to assess relationship mindfulness—the tendency to be mindful in the context of romantic relationships—and evaluate it in terms of its factor structure, internal consistency, test–retest reliability, longitudinal measurement invariance, concurrent validity, predictive validity, and incremental validity. The six hypotheses that reflect these psychometric properties of the relationship-specific version of the MAAS are described in turn: (a) The single-factor structure of the MAAS will be supported in relationship mindfulness, (b) relationship mindfulness will show acceptable test–retest reliability (c) relationship mindfulness will show stability over time in the form of equal factor loading patterns and equal item intercepts across two measurement occasions (i.e., Time 1 and Time 2, 12 weeks apart), (d) in regard to concurrent correlations, relationship mindfulness will have significant positive correlations with positive relationship quality and inverse relations with negative relationship quality, anxious attachment, and avoidant attachment; (e) relationship mindfulness will have significant positive correlations with the relationship outcomes measured 12 weeks later; and (f) relationship mindfulness will account for a significant amount of variance in positive relationship quality, negative relationship quality, anxious attachment, and avoidant attachment beyond that which is accounted for by trait mindfulness. In testing Hypothesis 6, emotional regulation, life satisfaction, and perceived stress will be included as control variables due to research that has linked each of these variables to relationship quality and insecure attachment (e.g., Bloch, Haase, & Levenson, 2014; Dyrdal, Røysamb, Nes, & Vittersø, 2011; Funk & Rogge, 2007).

METHOD

Sample and Procedure

Following institutional review board approval, participants were recruited from a course that satisfied a university-wide liberal studies requirement. Research participation constituted one of multiple means of earning extracourse credit. Students were asked to complete a survey at week three and week fifteen of the semester. Each survey was available online and took approximately 60 min to complete.

Of the 356 students who completed the Time 1 survey, 185 participants reported being in a romantic relationship; that is, they responded "Yes" to the following question on the first survey: "Are you currently in a romantic relationship (e.g., dating, have a boyfriend/girlfriend, engaged, married)?" This constituted our operational sample for the analyses conducted. The average age of these participants was 19.86 years (SD = 1.63). Regarding gender, 89.2% identified as female and 10.8% identified as male. In terms of race, 73.5% identified as White, 12.4% as Latino or Hispanic, 8.6% as African American, 3.2% as Asian, .5% as Middle Eastern, and 1.6% elected to not answer the question. In response to the survey item involving religion, 74.1% of participants identified as Christian, 14.6% reported no religious affiliation, 4.3% identified as Jewish, 3.8% identified as agnostic, 2.7% identified as Atheist, and 0.5% identified as Muslim. About 36.7% of

participants had been in their romantic relationship for 1 or 2 years, 24.3% had been in their romantic relationship for 3 or more years, 21.1% had been in their romantic relationship for 4 months or less, and 17.9% had been in their romantic relationship for 5–12 months. To run the analyses that include variables measured at Time 2, the operational sample was further limited to the 123 partners who completed the survey at Time 2 and reported still being with their romantic partner from Time 1.

Measures

Trait mindfulness. Although the original Mindful Attention and Awareness Scale (Brown & Ryan, 2003) comprises 15 items, trait mindfulness was assessed in this study using the 5-item version of the MAAS that was derived from an Item Response Theory (IRT) analysis (Van Dam, Earleywine, & Borders, 2010). The items in this measure ask respondents to indicate how frequently they have experiences that reflect the tendency to be or not be mindful (e.g., "I find myself saying or doing things without paying attention" and "I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there"). Responses for the items in this measure ranged from 1 = *Almost always* to 6 = *Almost never*. The items were recoded such that higher scores reflect a greater degree of trait mindfulness. The average score for the items was calculated for each participant. Coefficient alpha for this measure at Time 1 was .85.

Relationship mindfulness measure. The items used to measure trait mindfulness were modified and included in the survey to create the Relationship Mindfulness Measure—a measure of the degree to which one tends to be mindful in the context of his or her romantic relationship. Items in this measure include, "When I'm with my partner, I find myself saying or doing things without paying attention" and "I get so focused on what I want my relationship with my partner to be like that I lose touch with what I'm doing right now to get there". The range of responses for the measure of trait mindfulness remained the same in the measure of relationship mindfulness: 1 = *Almost always* to 6 = *Almost never*. The items were recoded such that higher scores reflect higher levels of mindfulness in the context of one's romantic relationship. The mean score of the items was calculated for the subsequent analyses. Coefficient alpha was .86 at Time 1 and .93 at Time 2.

Positive and negative relationship quality. The Positive–Negative Relationship Quality Scale (PN-RQ; Rogge et al., 2017) is an item response theory-optimized bidimensional scale that allows researchers to assess positive relationship quality and negative relationship quality independently. Evidence for assessing relationship quality as a bidimensional construct, as opposed to a unidimensional construct, has been demonstrated using a confirmatory factor analysis (Rogge et al., 2017) and establishing differential correlates for each dimension. The PN-RQ has shown unique predictive validity when accounting for a popular measure of relationship satisfaction, the Couples Satisfaction Index (CSI-16; Funk & Rogge, 2007; Rogge et al., 2017) and shows greater sensitivity to change than the CSI, which was also derived from an item response theory analysis.

The positive subscale of the PN-RQ assesses the positive qualities of one's relationship. Participants were asked to ignore the negative qualities in evaluating their romantic relationship on four positive qualities, including *enjoyable*, *pleasant*, *strong*, and *alive*, and responses range from 1 = *Not at all* to 7 = *Extremely*. The negative subscale of the PN-RQ was used to measure the degree to which participants perceive their relationship as having various negative qualities: *bad*, *empty*, *miserable*, and *lifeless*. Responses range from 1 = *Not at all* to 7 = *Extremely*, with higher scores indicate higher levels of negative quality. The mean scores for the four items in each subscale were calculated separately for the analyses. Coefficient alpha was .96 for the positive quality subscale at Time 1 and at Time 2. For the negative quality subscale, coefficient alpha was .92 at Time 1 and .94 at Time 2.

Anxious and avoidant attachment. The Experiences in Close Relationships Scale—Short Form (ECR-SF; Wei, Russell, Mallinckrodt, & Vogel, 2007) was used to assess anxious and avoidant attachment. The twelve-item ECR-SF has adequate test–retest reliability, as well as construct validity, that is, equivalent to the original 36-item ECR (Brennan, Clark, & Shaver, 1998). For each item, participants are asked to select the response that best reflects their feelings about their romantic relationship. Example items for the anxious attachment subscale include, "I need a lot of reassurance that I am loved by my partner" and "I find that my partner doesn't want to get as close as I would like". Avoidant attachment subscale items include "I try to avoid getting too close to

my partner" and "I want to get close to my partner, but I keep pulling back." Responses for the items range from 1 = *Definitely like me* to 7 = *Definitely not like me*. Items within each subscale were recoded such that higher scores reflect higher levels of anxious and avoidant attachment, respectively. The mean score of each subscale was calculated for each participant. Coefficient alphas for the anxious subscale at Time 1 and Time 2 were .79 and .78, respectively. For the avoidant subscale, coefficient alpha was .86 at Time 1 and .89 at Time 2.

Covariates. The Emotion Regulation Questionnaire (ERQ) was used to assess and measure emotion regulation (Gross & John, 2003). The ERQ is a reliable and valid 10-item questionnaire that examines individual differences in emotion regulation via cognitive reappraisal and expressive suppression. Responses for the items range from 1 = *strongly disagree* to 7 = *strongly agree*. Items were recoded such that higher scores indicated higher levels of emotion regulation. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a five-item measure of life satisfaction. The SWLS is scored by summing the scores of each item with higher scores indicating higher levels of life satisfaction. The Perceived Stress Scale 4 (PSS-4; Cohen, Kamarck, & Mermelstein, 1983) was used to measure perceived stress. Responses are on a 4-point scale ranging from 0 = *never* to 4 = *very often*, with higher scores indicating higher levels of perceived stress. Coefficient alpha at Time 1 was .71 for the ERQ, 0.91 for the SWLS, and 0.66 for the PSS.

Analytic Plan

In order to test whether relationship mindfulness had a single-factor structure (Hypothesis 1), we used Mplus 8 (Muthén & Muthén, 1998–2017) to perform a Confirmatory Factor Analysis (CFA) in which all items were specified to load on one factor. Good model fit was interpreted based on the following cutoff values: CFI > 0.95, RMSEA < 0.06, and SRMR < 0.08 (Hu & Bentler, 1999). Because RMSEA is less preferable with samples sizes of $N < 250$ (Hu & Bentler, 1999), more emphasis is placed on the other indices of model fit. The test–retest reliability was evaluated by examining the reliability coefficient; a *p*-value less than .05 provides support for acceptable test–retest reliability (Hypothesis 2).

Hypothesis 3 involves establishing longitudinal measurement invariance and was evaluated by testing a series of nested models. That is, each model with added constraints was compared with the model with fewer constraints. We elected to use three tests of measurement invariance: configural invariance, metric invariance, and scalar invariance. Testing configural invariance involves running a model in which the same items are indicators of the same latent factor(s) across administrations. To test metric invariance, the factor loadings for the items were constrained to be equal across Time 1 and 2. The fit of the metric model was then compared with the fit of the configural model. Scalar invariance refers to whether participants' responses on items in the measure have equivalent intercepts across measurement occasions. After adding equality constraints to like items' intercepts across Time 1 and 2, the scalar model was compared with the metric model. For the tests of metric and scalar invariance, a change in CFI ≤ 0.01 was used as the cutoff to determine that fit of the restricted models was not significantly reduced (Cheung & Rensvold, 2002). In addition, an increase in <0.015 for RMSEA and <0.03 for SRMR was used to evaluate whether model fit had significantly deteriorated in the restricted models. It is important to note that evidence for measurement invariance across all tests is rare (Schmitt & Kuljanin, 2008). Therefore, when evidence for complete variance is not found, partial invariance can be tested by relaxing one or more equality constraints.

For Hypotheses 4 and 5 involving concurrent and predictive validity, correlation coefficients were computed for the associations between relationship mindfulness and several variables measured at the beginning of the semester and 12 weeks later, namely, positive relationship quality, negative relationship quality, and anxious and avoidant attachment. Associations in the intended direction with *p*-values <.05 provide support for the hypotheses.

Hypothesis 6 is that relationship mindfulness would account for a significant amount of variance in relationship outcomes, even after controlling for trait mindfulness. Testing this hypothesis involved conducting hierarchical multiple regression analyses for positive relationship quality, negative relationship quality, anxious attachment, and avoidant attachment at Time 1, as well as hierarchical multiple regression analyses for these variables at Time 2. In each hierarchical multiple regression, life satisfaction, emotional regulation, and perceived stress will be entered into the

model (Step 1). In Step 2, trait mindfulness was added to the model. The *F* test for the change in R^2 was used to determine whether trait mindfulness accounted for a significant amount of variance in the relationship variable, over and beyond that which was explained by the variables included in the model at Step 1. Step 3 involved introducing relationship mindfulness into the model. After Step 3, the *F* test for the change in R^2 will again be examined; in this case, a significant value indicates that relationship mindfulness accounts for variance over and beyond that which was accounted for by life satisfaction, emotional regulation, perceived stress, and trait mindfulness.

RESULTS

Confirmatory Factor Analyses (Hypothesis 1)

Results from the CFA were consistent with the hypothesis that the measure of mindfulness in relationships had a unidimensional structure, $\chi^2(5) = 10.26$, $p = .07$; CFI = 0.98; RMSEA = 0.08 (90% CI = 0.04, .12); and SRMR = 0.03. Although RMSEA exceeded the ideal cutoff value, the other fit indices were acceptable. As noted above, less weight was given to RMSEA because it is not preferred with samples sizes of $N < 250$ (Hu & Bentler, 1999). Standardized factor loadings can be viewed in Table 1; they ranged from 0.67 to 0.85.

Test–retest Reliability (Hypothesis 2)

Support was found for acceptable test–retest reliability; the correlation between relationship mindfulness scores at Time 1 and Time 2 was .60, $p < .01$.

Tests of Measurement Invariance (Hypothesis 3)

The results from all of the tests of measurement invariance are shown in Table 2. Configural invariance was tested by specifying the same measurement model at the both time points. Adequate model fit was found for the configural model, showing that loading the items on a single factor at Time 1 and 2 fit the data. Next, to establish metric invariance, we tested a model in which factor loadings were constrained to be equal across administrations. Constraining the factor loadings to be equal at Time 1 and 2 resulted in an appreciable deterioration of model fit. However, after releasing the constraint for Item 4, the fit of the partial metric model was not worse than the fit of the configural model, establishing partial metric invariance. To test scalar invariance, like items' intercepts were constrained to be equal across Time 1 and 2. This resulted in a significant deterioration of model fit. Consequently, a partial scalar model was tested in which the equality

Table 1
Means, Standard Deviations, Factor Loadings for Relationship Mindfulness Items

Item		*M*	*SD*	*F*
1	When my partner and I are together, it seems I am "running on automatic," without much awareness of what I'm doing.	4.27	1.33	0.70
2	I have conversations with my partner without being really attentive.	4.14	1.29	0.76
3	I get so focused on what I want my relationship with my partner to be like that I lose touch with what I'm doing right now to get there.	4.30	1.32	0.67
4	When my partner and I discuss an issue or work on a problem together, I behave automatically, without being aware of what I'm saying or doing.	4.36	1.26	0.83
5	When I'm with my partner, I find myself saying or doing things without paying attention.	4.31	1.24	0.85

Table 2
Model Fit Indices for Measurement Invariance Models

	df	χ^2	*p*	CFI	RMSEA	90% CI	SRMR	Δ*df*	$\Delta\chi^2$	*p*[a]
Configural invariance	29	50.11	.009	0.98	0.06	0.03, 0.09	0.03	–	–	–
Metric invariance	33	61.27	.002	0.97	0.07	0.04, 0.09	0.07	4	11.16	.025
Partial metric invariance[b]	32	55.57	.006	0.98	0.06	0.03, 0.09	0.05	3	5.46	.141
Scalar invariance	36	66.72	.001	0.97	0.07	0.04, 0.09	0.07	4	11.15	.025
Partial scalar invariance[c]	35	58.98	.007	0.98	0.06	0.03, 0.09	0.05	3	3.41	.333

Notes. CFI = comparative fit index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual.
[a]*p* values for $\Delta\chi^2(\Delta df)$. [b]Unequal loadings for Item 4. [c]In addition, unequal intercepts for Item 2.

Table 3
Bivariate Correlations among Model Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Rel Mind (T1)	–													
2. Rel Mind (T2)	.60**	–												
3. Pos Rel Qual (T1)	.36**	.24**	–											
4. Pos Rel Qual (T2)	.47**	.48**	.52**	–										
5. Neg Rel Qual (T1)	−.40**	−.26**	−.44**	−.39**	–									
6. Neg Rel Qual (T2)	−.30**	−.33**	−.34**	−.69**	.45**	–								
7. Anx Attach (T1)	−.27**	−.33**	−.19**	−.27**	.30**	.25**	–							
8. Anx Attach (T2)	−.24**	−.27**	−.09	−.26**	.24**	.28**	.57**	–						
9. Avoid Attach (T1)	−.39**	−.35**	−.52**	−.42**	.35**	.25**	.30**	.32**	–					
10. Avoid Attach (T2)	−.31**	−.35**	−.31**	−.49**	.26**	.37**	.26**	.50**	.56**	–				
11. Trait Mind (T1)	.35**	.23**	.13	.10	−.11	−.03	−.26**	.01	−.17*	−.07	–			
12. Emotion Reg (T1)	.13	.05	.12	.21*	−.09	−.19*	−.10	.04	−.24**	−.29**	.12*	–		
13. Stress (T1)	−.22**	−.22**	−.13	−.20*	.15*	.22**	.31**	.18*	.27**	.32**	−.32**	−.22**	–	
14. Life Sat (T1)	.26**	.25**	.37**	.43**	−.24**	−.37**	−.27**	−.11	−.36**	−.36**	.12*	.28**	−.32**	–
M	4.28	4.58	6.08	6.28	1.59	1.67	3.36	3.14	2.34	3.53	2.38	4.62	1.72	5.18
SD	1.04	1.07	1.21	1.04	.93	.98	1.34	1.21	1.27	.84	1.39	.73	.68	1.13

Notes. T1 = Time 1; T2 = Time 2.
*$p < .05$. **$p < .01$. (two-tailed).

constraint for Item 2 was released. The fit of this model was not significantly different than that of the partial metric model. Thus, evidence for partial scalar invariance was found.

Correlations and Hierarchical Multiple Regressions (Hypotheses 4–6)

The correlation coefficients among all of the variables are presented in Table 3. Pearson correlations showed that trait mindfulness and relationship mindfulness were positively correlated ($r = .39$, $p < .001$). Although a significant positive correlation was found between relationship mindfulness and Time 1 positive relationship quality ($r = .36$, $p < .01$), significant negative correlation coefficients were found for the associations between relationship mindfulness and the following variables that were measured at Time 1: negative relationship quality ($r = -.40$, $p < .01$), anxious attachment ($r = -.27$, $p < .01$), and avoidant attachment ($r = -.28$, $p < .01$). These associations remained significant and in the same direction when examining the link between relationship mindfulness and these variables measured 12 weeks later. More specifically, higher levels of relationship mindfulness at Time 1 were significantly associated with higher Time 2 positive relationship quality ($r = .47$, $p < .01$), as well as lower Time 2 negative relationship quality ($r = -.30$, $p < .01$), Time 2 anxious attachment ($r = -.24$, $p < .01$), and Time 2 avoidant attachment ($r = -.31$ $p < .01$). The correlational results provide evidence of concurrent and predictive validity for the RMM.

Table 4 presents results of the hierarchical multiple regression analyses involving the prediction of positive and negative relationship qualities at Time 1 and at Time 2. Emotion regulation, perceived stress, and life satisfaction were entered into the model at Step 1 for Time 1 positive relationship quality, $F(3, 181) = 9.66$, $p < .01$. Next, trait mindfulness was added into the second step of the analysis, but it did not account for a significant proportion of variance in Time 1 positive relationship quality, $\Delta F(4, 180) = 0.98$, $p = .32$. At Step 3, relationship mindfulness was entered into the model, accounting for an additional 8% of variance in Time 1 positive relationship quality, $\Delta F(5, 179) = 16.47$, $p < .01$.

The results for Time 2 positive relationship quality were similar to those for Time 1 positive relationship quality, the initial model (Step 1) accounted for a significant proportion of variance, $F(3, 119) = 9.81$, $p < .01$, introducing trait mindfulness into the model (Step 2) failed to account for a significant amount of variance, $\Delta F(4, 118) = 0.09$, $p = .76$, and introducing relationship mindfulness into the model (Step 3) accounted for an additional 12% of the variance, a significant proportion, $\Delta F(5, 117) = 21.73$, $p < .01$.

The initial model for Time 1 negative relationship quality was significant, $F(3, 181) = 3.94$, $p < .05$. Trait mindfulness was subsequently added into the model (Step 2) but did not account for additional variance in Time 1 negative relationship quality, $\Delta F(4, 180) = 0.48$, $p = .49$. Next, relationship mindfulness was entered into the model (Step 3), explaining 12% of the variance in Time 1 negative relationship that was not explained by emotion regulation, perceived stress, life satisfaction, or trait mindfulness, $\Delta F(5, 179) = 26.25$, $p < .01$.

The findings involving Time 2 negative relationship quality were similar to those presented for Time 1 negative relationship quality. Emotion regulation, perceived stress, and life satisfaction were entered at Step 1 and accounted for a significant proportion of variance in Time 2 negative relationship quality $F(3, 119) = 7.43$, $p < .01$. Although introducing trait mindfulness to the model (Step 2) did not explain a significant proportion of variance in Time 2 negative relationship quality, $\Delta F(4, 118) = 0.50$, $p = .48$, relationship mindfulness (Step 3) explained 4% of the variance in Time 2 negative relationship quality, $\Delta F(5, 117) = 6.33$, $p < .05$.

As seen in Table 5, Step 1 of the model for anxious attachment at Time 1 accounted for a significant proportion of variance $F(3, 181) = 8.63$, $p < .01$. Introducing trait mindfulness (Step 2) into the model explained a significant proportion of variance in Time 1 anxious attachment $\Delta F(4, 180) = 5.17$, $p < .01$. Likewise, adding relationship mindfulness into the model (Step 3) accounted for 2% of the variance, a small but statistically significant amount $\Delta F(5, 179) = 4.04$, $p < .05$. This was the only model in which both trait mindfulness and relationship mindfulness made significant unique contributions to the proportion of variance accounted for in the model.

Regarding the model for anxious attachment at Time 2, Step 1 did not account for a significant amount of variance, $F(3, 119) = 1.89$, $p = .14$. Including trait mindfulness (Step 2) in the model also failed to account for a significant amount of variance in Time 2 anxious attachment,

Table 4
Summary of Hierarchical Regression Analyses for Variables Predicting Positive Relationship Qualities

	PRQ Time 1			PRQ Time 2			NRQ Time 1			NRQ Time 2		
Variable	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Step 1												
Emotional regulation	0.02	0.12	.01	0.13	0.13	.09	−0.02	0.10	−.01	−0.10	0.13	−.07
Life satisfaction	0.39	0.08	.37**	0.35	0.08	.38**	−0.17	0.07	−.21**	−0.28	0.08	−.32**
Perceived stress	−0.01	0.13	−.01	−0.11	0.13	−.07	0.08	0.11	.07	0.0	0.13	.12
R^2	0.14			0.20			0.06			0.16		
F for change in R^2	9.66**			9.81**			3.94*			7.43**		
Step 2												
Trait mindfulness	0.11	0.11	.07	0.03	0.11	.03	−0.06	0.09	−.05	0.08	0.11	.06
ΔR^2	0.00			0.00			0.00			0.00		
F for change in R^2	0.98			0.09			0.48			0.50		
Step 3												
Relationship mindfulness	0.34	0.08	.29**	0.40	0.09	.41**	−0.34	0.07	−.38**	−0.22	0.09	−.26**
ΔR^2	0.08			0.12			0.12			0.04		
F for change in R^2	16.47**			21.63**			26.25**			6.33*		

Notes. *$p < .05$. **$p < .01$.

Table 5
Summary of Hierarchical Regression Analyses for Variables Predicting Anxious and Avoidant Attachment

	Anxious Attachment Time 1			Anxious Attachment Time 2			Avoidant Attachment Time 1			Avoidant Attachment Time 2		
Variable	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE(B)*	β
Step 1												
Emotional regulation	0.00	0.13	.00	0.16	0.17	.10	−0.22	0.12	−.13	−0.26	0.17	−.13
Life satisfaction	−0.22	0.09	−.19*	−0.09	0.10	−.08	−0.31	0.08	−.28**	−0.32	0.11	−.26**
Perceived stress	0.48	0.15	.24**	0.32	0.16	.18*	0.28	0.14	.15*	0.41	0.17	.21*
R^2	0.13			0.05			0.17			0.19		
F for change in R^2	8.63**			1.89			12.43**			9.00**		
Step 2												
Trait mindfulness	−0.27	0.12	−.17*	0.06	0.14	.08	−0.09	0.11	−.06	0.06	0.15	.03
ΔR^2	0.02			0.00			0.00			0.00		
F for change in R^2	5.17*			0.18			0.63			0.14		
Step 3												
Relationship mindfulness	−0.19	0.10	−.15*	0.29	0.11	−.26*	−0.37	0.09	−.30**	−0.31	0.12	−.24**
ΔR^2	0.02			0.05			0.08			0.04		
F for change in R^2	4.04*			6.66**			18.05**			6.94**		

Notes. *$p < .05$. **$p < .01$.

$\Delta F(4, 118) = 0.18$, $p = .67$. On the other hand, relationship mindfulness accounted for 5% of the variance in Time 2 anxious attachment, $\Delta F(5, 117) = 6.66$, $p < .01$.

The initial model for Time 1 avoidant attachment explained a significant amount of variance, $F(3, 181) = 9.00$, $p < .01$. The inclusion of trait mindfulness (Step 2) did not explain additional variance in Time 1 avoidant attachment, $\Delta F(4, 180) = 0.63$, $p = .43$. On the other hand, the inclusion of relationship mindfulness in the model (Step 3) successfully accounted for 8% of the variance in Time 1 avoidant attachment that was not accounted for by the other variables in the model, $\Delta F(5, 179) = 18.05$, $p < .01$.

The pattern of significance in the model for Time 1 avoidant attachment was replicated in the model for Time 2 avoidant attachment. That is, the amount of variance accounted for in Time 2 avoidant attachment reached statistical significance at Step 1, $F(3, 119) = 7.43$, $p < .01$, including trait mindfulness at Step 2 did not account for a statistically significant amount of additional variance, $\Delta F(4, 118) = 0.14$, $p = .71$, and introducing relationship mindfulness into the model at Step 3 accounted for an additional 4% of the variance, $\Delta F(5, 117) = 6.94$, $p < .01$. Taken together, the results of the hierarchical multiple regressions provide support for the incremental validity of the RMM.

DISCUSSION

In this study, the factor structure, test–retest reliability, concurrent validity, predictive validity, and incremental validity of the five-item Relationship Mindfulness Measure (RMM) were favorably evaluated. In addition, configural invariance, partial metric invariance, and partial scalar invariance were established, providing some support that the RMM assesses the same underlying construct across time. Overall, the measure was shown to assess a unidimensional construct, that is, related to but distinct from trait mindfulness.

The finding that relationship mindfulness outperformed trait mindfulness in explaining variance in positive and negative relationship quality supports the notion that relationship mindfulness is more useful for exploring the link between mindfulness and romantic relationship outcomes. By being more mindful during partner interactions, individuals may be able to more readily perceive and deeply appreciate the aspects of their partner and partnership that they value and admire, which may improve positive relationship quality. Recalling that relationship mindfulness also accounted for a significant proportion of variance in negative relationship quality, it is conceivable that relationship mindfulness may promote relationship-enhancing responses during more difficult times in the relationship and thus reduce negative relationship quality. This would be consistent with research showing that higher levels of mindfulness are associated with less distress in response to negative partner behaviors (Laurent, Hertz, Nelson, & Laurent, 2016) and fewer hostile conflict behaviors (Saavedra et al., 2010).

Another important finding to emerge in this study is that relationship mindfulness accounted for significant proportions of variance in anxious attachment at each time point. This variance was over and above that which was explained by trait mindfulness, emotion regulation, perceived stress, and life satisfaction. Although being high in trait mindfulness involves not grasping at or clinging to one's pleasures, one's tendency to grasp at and cling to the love and acceptance of attachment figures may be qualitatively different from the tendency to grasp at and cling to other pleasures in life. For example, an individual may have a high level of mindfulness in most contexts, but if that individual has a high level of attachment anxiety, the need for love and acceptance from a romantic partner may be so profound that it reduces that person's tendency to be mindful in the context of the romantic relationship. Relationship mindfulness also explained a unique proportion of the variance in Time 1 and Time 2 avoidant attachment. This finding is consistent with the view that the potential of being rejected or abandoned by one's romantic partner may lead to experiential avoidance in the context of the romantic relationship, and such experiential avoidance may be less likely to occur in other contexts.

Limitations

Several limitations must be considered in interpreting the results of this study. First, several of the sample characteristics restrict the generalizability of the results. The sample was comprised of

college students, most of whom were young adults. Consequently, most of the participants in the sample reported relatively short-relationship durations and were not married to their romantic partner. It is also important to note that the sample included a disproportionate number of women and showed limited racial diversity. A subsequent goal of research assessing the reliability and validity of the relational mindfulness measure (RMM) will be to expand this study to a large, diverse sample of individuals in long-term romantic relationships.

Another limitation is that relationship mindfulness and trait mindfulness were assessed using self-report measures. A number of researchers have questioned the validity of self-report assessments of mindfulness on the grounds that individuals are not aware of how often their mind wanders and are therefore not likely to provide accurate data related to their tendency to be mindful. The need to develop more objective methods to measure mindfulness is widely recognized, and researchers have begun attempting to develop ways of measuring mindfulness that involve the use of neuroimaging technology as well as behavioral and performance-based tasks. To date, self-report instruments remain the most accessible and viable approach for researchers to measure mindfulness. It is important for future research to empirically examine the accuracy of self-report measures of trait mindfulness, as well as measures of mindfulness that are restricted to specific contexts.

These considerations notwithstanding, the proposed investigation contributes to research involving romantic relationships by demonstrating that mindfulness in the context of romantic relationships is a distinct construct and a unique predictor of key relationship outcomes. This is important for enhancing interventions. Specifically, the development and refinement of efficacious mindfulness-based interventions for couples and families require greater understanding of the role of relationship mindfulness, not just trait mindfulness, in the link between mindfulness and romantic relationship processes and outcomes, including conflict management behaviors, partner attributions, forgiveness, and relationship satisfaction.

Clinical Implications and Future Directions

Various mindfulness-based interventions bring about different outcomes (Sauer-Zavala, Walsh, Eisenlohr-Moul, & Lykins, 2013), but little research exists that helps therapists decide which mindfulness-based interventions to use with couples or individuals who struggle with establishing healthy, satisfying romantic relationships. The results of this study indicate a stronger link between relational mindfulness and relationship quality and attachment style than trait mindfulness. Based on that finding, mindfulness-based interventions that emphasize mindfulness in relational contexts (e.g., mindful attention during communication exercises, partner-focused loving-kindness meditation, eye-gazing exercises) may be particularly useful in promoting the development of high-quality romantic relationships, as opposed to individual-focused mindfulness-based interventions, which fail to directly address mindfulness in the context of romantic relationships (e.g., mindful breathing, body scan).

Relatedly, it may be possible to use relationship-focused mindfulness-based interventions more strategically and tailor them to the specific needs of clients to encourage mindfulness in the context of romantic relationships. When negative relationship quality is more problematic than positive relationship quality, for example, mindfulness-exercises that focus on mindful attention during communication may be optimal. On the other hand, it is conceivable that partner-focused loving-kindness meditation would be more useful in increasing positive relationship quality compared to reducing negative relationship quality.

If relationship-focused mindfulness-based interventions are more effective than other mindfulness-based interventions in improving relationship mindfulness and its attendant relationship outcomes, therapists may benefit from selecting more relationship-focused mindfulness-based interventions to address certain attachment-related issues. Eye-gazing exercises, for example, may encourage those who struggle with avoidant attachment to be connected with and vulnerable with their romantic partner. Utilizing mindfulness during communication exercises may contribute to better emotion regulation, potentially encouraging more benign partner attributions during couple conflict, thereby addressing attachment anxiety and promoting behaviors connected with successful conflict resolution. Even though general mindfulness-based interventions may not have an identical impact to that of relationship mindfulness, it should be highlighted that subsequent

research is necessary to test the effect of various interventions on relationship mindfulness and clinically relevant relationship outcomes before more concrete recommendations can be made. It is also important to note that the clinical use of mindfulness-based exercises requires caution on the part of the therapist; individuals who report struggling with traumatic memories or who have experienced panic attacks may experience acute psychological discomfort and even temporary dissociative states while engaging in mindfulness-based exercises (Germer, Siegel, & Fulton, 2005).

CONCLUSION

In this study, we adapted a measure of trait mindfulness to measure relationship mindfulness, and the results of the study provided evidence consistent with the view that relationship mindfulness is a distinct construct that may be more strongly linked to the dimensions of insecure attachment and positive and negative relationship qualities than trait mindfulness. This study therefore suggests that assessing mindfulness in the context of romantic relationships advances understanding of the interplay between mindfulness and romantic relationship outcomes. In doing so, the study also provides researchers with a tool, the Relationship Mindfulness Measure, to facilitate the evaluation of mindfulness-based interventions and training programs for couples.

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